A CONFERENCE ON
THE ECONOMICS OF DRIP PRICING

UNITED STATES FEDERAL TRADE COMMISSION
601 NEW JERSEY AVENUE, N.W.
WASHINGTON, D.C. 20001

MONDAY, MAY 21, 2012
9:00 a.m. to 4:00 p.m.

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WELCOME AND OPENING REMARKS

MS. SULLIVAN: Welcome to our conference on the economics of drip pricing. In just a few moments, I'm going to introduce the Chairman of the Federal Trade Commission, who's going to make our opening remarks, but before I do that, I have to make some announcements.

I know that we had a coffee emergency this morning, but I understand that we now do have some coffee next door for those who desperately need caffeine.

Okay, so here are the announcements: The conference is being recorded by a stenographer, so if you have questions, we're going to have people walking around with microphones, and please use a microphone when you ask your question.

If you need to go to the restroom, you have to go back out to the lobby, and the restrooms are -- you go down a hallway to the left of the security desk.

We have Internet accessibility in the conference room. If you need password and instructions, you can get them from the registration desk out here.

And we do have a little security briefing. If you leave the building, you're going to have to come back through the x-ray machine if you're not an FTC employee. In the unlikely event of a fire or evacuation of the building, you, again, have to go back out to the lobby in front of the security desk, leave through the entrance that you came in, and go across to the Georgetown Law School -- Law Center. In the event that it is safer to remain inside the building, you will be told where to go. And if you spot suspicious activity, please alert security.

Okay, so these are the announcements, and now, it is my great pleasure to introduce Jon Leibowitz. He is the Chairman of the Federal Trade Commission. He's been a Commissioner since September 2004, was appointed by -- Chairman by President Obama in March 2009, and was recently confirmed for a second term by the U.S. Senate.

Before coming to the FTC, Chairman Leibowitz worked for the Motion Picture Association of America and on the Hill, including as counsel for the Senate Antitrust Subcommittee.

In addition to his deep interest in pursuing drip pricing cases, Chairman Leibowitz has focused on stopping last-dollar scams that prey upon consumers suffering from the economic downturn; preserving

competition in healthcare and blocking anticompetitive pay-for-delay patent settlements in the pharmaceutical industry; promoting competition and innovation in the technology sector, through law enforcement and policy initiatives; and protecting consumers' privacy, especially when they are using the Internet.

And I also know that the Chairman has been dripping with anticipation for this conference.

Chairman Leibowitz.

(Applause.)

CHAIRMAN LEIBOWITZ: Thank you, Mary, for that kind introduction.

Good morning and welcome to the Economics of Drip Pricing, a workshop organized by the FTC's Bureau of Economics. Let me just note the presence of two of our esteemed former BE directors, Michael Baye and Michael Salinger. I have actually never seen the two of you together before. That did not mean I thought you were the same person, but it is great to have you both back.

Let me begin, also, by extending my thanks to our distinguished speakers and also by welcoming the Chief Economist of the Office of Fair Trading, Amelia Fletcher, as our keynote speaker. As some of you know, OFT has just done terrific work in this area and in some ways was an inspiration for what we're beginning to do.

Let me also welcome all of you who are attending the conference, and in particular, our counterparts from the Canadian Competition Bureau. The Canadians have recently brought some important enforcement actions against drip pricing, which is sometimes, by the way, known as "shrouded attributes." I think that's a little too religious a phrase for us to use here, what with separation of church and state. But one of the cases they brought was against a telephone company for all sorts of hidden charges. We are glad they could join us.

You may have seen, on the FTC Website that the conference is free, but the coffee served during the break is $2, and those of you who are sitting down will need to pay a $5 chair fee. If you did not pay the chair fee in advance -- and I notice some of you did not -- the fee is $15 -- Michael Baye. You know, we are going through sequestration next year. We are going to need some additional subsidies.

Everyone here is undoubtedly familiar with drip pricing. A company advertises a low price for its product, and consumers learn that there are additional surcharges or add-on fees only later in the purchase process. We're going to illustrate drip pricing with

some quotes from a leading, insightful observer of this business practice and other business practices, Dilbert, so let's take a look at the screens, if we can.

I am not going to read this to you, but we will give you about 30 seconds for the first cartoon, and I think it makes our point pretty well.

When you guys are finished, just nod your heads, and we will go on to the next Dilbert. So, apparently, this is a leitmotif in Dilbert. Anyway, I like the notion of "confusopoly." It sounds like an unfair or deceptive practice or, at the very least, an unfair method of competition.

And now we have the second Dilbert strip.

I see some giggling. All right.

So, these cartoons are funny, of course, because they ring so true. As noted by Dilbert, confusing and deceptive pricing harms consumers and reduces competition, but as Dogbert notes, it also may increase profits for a company.

At the FTC, we recognize the importance of truthful, nondeceptive price advertising. It promotes price competition. It allows consumers to purchase the products and services they want. On the other hand, drip pricing, by advertising only part of a price, has the potential to mislead and harm consumers, causing them to pay too much and to waste time searching for cell phone plans, airline or concert tickets, hotel rooms, or rental cars with deceptively low prices.

Now, while these problems might not be as horrific as some of the other frauds that we tackle, as Mary mentioned, scammers ripping off thousands of dollars from homeowners facing foreclosure by making false promises to save their homes -- "Give us $5,000 and we'll take care of your mortgage in arrears" -- and then they take the money and they do nothing, drip pricing is a problem of such wide scope that almost all of us have faced it.

And the issue is not entirely new to the FTC. We entered into consent decrees with several rental car companies for failing to disclose mandatory surcharges for fuel, airport shuttle fees, fees for drivers under 25 in their advertising, and in a case five years ago -- which, by the way, arose, in part, after a certain Commissioner had extra charges added to his rental car bill at LAX -- and oh, by the way, that Commissioner was me -- Budget settled charges that it failed to disclose what we call a "you don't drive enough" fuel surcharge for consumers who drove fewer than 75 miles. Now, of course, if consumers had known about these fees in

advance, they could have chosen -- and they might have chosen -- a different rental car company and paid less.

Sadly, in recent years, drip pricing has become almost ubiquitous. It is used by Internet vendors, airlines, telecom firms, banks, and other types of companies. The ironic term "convenience fee" has become widespread -- and by the way, if you would raise your hand if you actually ever paid a convenience fee that you found to be convenient in any way, shape, or form?

All right. How many people have paid convenience fees that they thought were entirely inconvenient? Okay. That is not just a majority; that is almost unanimity.

Also, has anyone ever paid the $2 printing fee from Ticketmaster when you print off a ticket on your home computer ? Has anybody done that? Just Christine and me? Oh, I see some people in the back, also. That is just outrageous. I don't want to merge into Andy Rooney territory here, but it is just extraordinary that you are charged for that. And by the way, of course, you're charged for that, as you are finishing your ticketing transaction, right? So, you pay a certain amount for a ticket, and then you have to pay this after, as if to humiliate you and show they can do it, it is called the "printing fee" on your own printer.

We asked FTC employees to share their personal experiences with drip pricing and I'll just share a few of them with you. So, example one, one of my favorites, one staffer was in Egypt visiting the Pyramids and negotiated a price of $20 for someone to take him on a camel ride into the desert. Once they were out in the desert and they got to their destination, the guide asked the staffer if he wanted to go back. That would cost another $20. And as the staffer put it, "Camels are very tall, and I had no idea how to get down and walk back, so I agreed." Now, sadly, the FTC has no jurisdiction over this.

Let me give you example two. One staffer recalled that when her son started college, she attended orientation and was given information about tuition and housing costs, but when the tuition bill arrived, there were additional mandatory, undisclosed fees that totaled about $2,000. Of course, we have no jurisdiction over nonprofit colleges.

And another staffer recently went to a concert at a D.C. club and wanted to drive and park her car. The club's Web site said -- and I quote -- "Parking is $12 in advance, $15 the night of the show. On busy nights, the lot fills up quickly, so we recommend purchasing advanced

parking tix" -- T-I-X, because they talk that lingo of concert venues -- "along with your concert tix." So, when she bought the parking in advance, online, the cost was actually $20.75, not $12. They added a $4.75 service fee per ticket and a $4 order processing fee. Let me mention, we do have jurisdiction over the behavior of this club, and we will be following up with them. I won't tell you which club it is, but -- well, I just won't. The Bureau of Economics, as seekers of truth, pointed out that we need to investigate this a little before we shame this company. So, thank you, Mary. You see, I didn't mention the club.

We are hoping that other Americans will also chime in with more experience about drip pricing. So, we are going to post on our Website and ask consumers to call 1-877-FTC-HELP to share their drip pricing stories, and the call is free, but it costs $2 to hang up. Okay, it's really free.

To be sure, we need to distinguish cases in which drip pricing is truly harmful from those in which it is somewhat more benign. For example, drip pricing is likely to be much more problematic when a consumer cannot get out of a transaction; for instance, where the consumer has already purchased an airline ticket and arrives at the airport on the day of the flight, only to learn about additional fees for baggage, better seats, perhaps even use of the bathroom. And, by the way, Ryanair has started to charge or is about to start charging -- is that correct?

UNIDENTIFIED SPEAKER: (Off mic.) They were going to, and then I think they realized -- they didn't, but I think their reason was probably not (inaudible).

CHAIRMAN LEIBOWITZ: So, that is a two-sided market, right? You pay to drink and then you pay to -- well, anyway. And if anybody does not think that American companies are going there, just take a look at this piece in the *Wall Street Journal* last week on Spirit Airlines. Our panelists can look at it.

Spirit Airlines is a discounter, so you probably get a lot of value when you go on Spirit Airlines, but sometimes they do not tell you about some of the prices.

Anyway, today, the Bureau of Economics has brought together leading economists and marketing experts to advance our understanding of drip pricing or shrouded attributes. We are going to address fundamental questions about why firms engage in drip pricing, how it affects consumers' decision-making, where it occurs, when it is most harmful, and what sort of enforcement or

perhaps regulatory intervention -- not by us, because we do not do regulations -- would best protect consumers.

So, going forward, we are going to be looking for drip pricing problems. Where we find the biggest ones, we are going to use the tools in our arsenal, and we have many tools. We have the enforcement action; we have the 6(b) subpoena, which is a way in which we can conduct an industry study; and we have public shaming, which should not be underestimated as a tool of this agency, to try to turn off the faucet of drips that has resulted in deceptively priced products.

And can we go back to the drip pricing poster? Is that all right, Mary, if we do that? I just love that. I don't think I realized it when I saw it in the lobby over in our 600 Pennsylvania Avenue building. It's like it is dripping a dollar sign out of the faucet. That's very -- did you do that?

MS. SULLIVAN: No, I did not, but I like it, too.

CHAIRMAN LEIBOWITZ: You like it, too? Okay.

Anyway, with that, I will quit bloviating. I am going to be here to listen and learn. And thank you so much for coming. This is going to be great.

(Applause.)

MS. SULLIVAN: Thank you, Chairman Leibowitz.

OVERVIEW OF DRIP PRICING

MS. SULLIVAN: I am just going to find my presentation up here. Here we go.

I am going to give a brief overview of drip pricing, and before I start, I need to read my disclaimer. The views I express in this presentation are mine and are not necessarily those of the Federal Trade Commission or of any individual Commissioner.

Okay, so you know what the purpose of the conference is. The Chairman stated that very well. Now, what I'm going to do is I'm going to talk a little bit about why drip pricing is a complicated problem, and I started thinking about drip pricing a few months ago, and I realized it's just -- there are a lot of reasons it's complex. I think companies use it for different reasons. There are a variety of factors that affect how it affects customers, whether it's harmful, and so on, and that's

really our motivation for having the conference, is to really sort through some of these issues about why it's a complex practice.

Another thing I'd like to point out is that sort of drip pricing as an area in the economics literature does not really exist, and a lot of -- most of our speakers have -- some of our speakers have written specifically on topics that are essentially drip pricing, and others are just -- have written on areas that are important to and closely related to drip pricing but not exactly that -- not drip pricing exactly. And I think that's one of the reasons that this conference is going to be really fun and exciting, because, you know, we don't really know now what we're going to learn, and we are going to learn a lot.

So, one of my points is that -- I'll start with a definition of drip pricing. It's a pricing practice in which firms advertise only part of a product's price and reveal other charges later as consumers go through the buying process. Now, the Chairman had some great examples of these, and we know what this is. We have all been "dripped" before, and it's not fun. But there are a lot of things out there that look like drip pricing, and they're not all the same thing, and they're not all equally harmful, and some of them might actually be beneficial, and I think we really need to think hard about what -- why companies are using this practice and understand it.

So, why do firms use drip pricing? Now, the one we're familiar with is to hide part of the price from consumers. It's intentionally deceptive, and, you know, that's -- that's what we're concerned about. But there's this other thing called a la carte pricing, and with a la carte pricing, sometimes -- sometimes customers -- consumers differ in their demand for certain attributes that can be offered with a product, and so sometimes companies will charge add-on fees to consumers who are willing to pay more for these features.

Now, maybe you don't want a snack when you fly on an airline, and maybe somebody else does, and so they pay extra for that snack, but, you know, you get a cheaper flight because you don't have to pay for that snack. So, that's sort of a good thing. But this meets the definition of drip pricing.

Now, the Department of Transportation, when it was going through its rulemaking, it was basically on drip pricing, although it was actually called "Enhancing Airline Passenger Protections," found that it's very hard to figure out how to advertise the prices of these add-

ons with the base price of the fare without confusing customers, and it's partly because they have so many add-ons, and you don't really know what you're looking at when you see 23 different add-on prices listed there. So, it's a hard problem to solve.

I think a la carte pricing is a lot more difficult than just purely deceptive drip pricing, because although it can be harmful, it can be deceptive, it can be efficient, and so we sort of have to think about what we're doing when we're going after situations where there might be an efficiency reason for drip pricing, especially one where, at this point, a lot of people will know that the airlines do charge these extra fees, although the airlines seem to keep surprising us with more and more -- you know, ramping up the fees to keep fooling us.

Okay. Now, another reason companies use drip pricing -- and this is -- was something I learned in the past few months -- it affects the way consumers perceive the price. Now, the marketing people -- and the two marketing academics we have here today, Rebecca Hamilton and Vicki Morwitz, are just way-out-in-front-of-us economists on this issue. They have been doing research on what's called partitioned pricing for years. And one really interesting result that they've found, like a lot of people have found this, is when you divide a price up into two or more partitions, consumers tend to systematically underestimate the total price.

Now, as I understand it, they underestimate the total price even when you have all the components of the price, like, right out in front of people. Now, this is sort of interesting, and it's puzzling, and just think about this. If you're trying to design an optimal disclosure that's really transparent and lays out all the components of the price and doesn't hide them, it seems like one possibility is consumers who are looking at this might still think the price is lower than it is, okay? So, that's hard. That's a hard problem to think about.

So, one thing we want to do is think -- and this is not a complete list, but an incomplete list of all the different reasons why companies use drip pricing, and one of the things we want to think about are, are all of these harmful and are they all equally harmful and what are the ones that are, you know, most harmful?

Now, there are a number of other factors we need to think about. The role of consumer learning is a big one, and I think everyone who is thinking about drip pricing has to worry about this. If you were a firm and you were going to try to make money drip pricing, you

would have to worry about this, because you would have to ask the question, can I fool a consumer more than once through drip pricing? And the answer might be no, especially if it's a product that's repeated -- frequently purchased. There might be changes in behavior because consumers learn to expect these drip pricing tactics.

One is they might not buy from you anymore. Two, they might just affect how they buy. They might quit checking a bag or quit buying a meal or quit doing things, and that prevents the firm from earning revenues from their add-ons. They might buy lightweight suitcases so they don't get hit with that special $100 overweight charge, which strikes me as kind of high. So, anyway, the -- this is a really important thing that the economic models need to consider.

Another is the role of reputation. Let me go down. I think the role of reputation and the role of competition are very similar. With competition, if these firms are competing to try to make consumers think that the price is lower than it is, they're going to be lowering that advertised price. So, one question is, in discounting this advertised price, are they going to give away the profits from their high add-on fees? And if so, is there any harm? So, we need to think about that.

We also need to think about -- and this is a point that's really related to competition and reputation -- if people hate drip pricing so much, why can't another company, a competitor, come out and offer some kind of fare pricing that's transparent? And maybe they can develop a reputation and, you know, be profitable that way. So, anyway, those are just a few factors we need to think about, how they affect the outcome.

Now, the last session of the day, we are going to have a roundtable, and we are going to consider some policy questions. How can we tell when drip pricing is harmful? And really, sort of as an empirical question, how can we figure out where it's happening? And then, what types of policies could lead to improved customer decision-making?

Okay. So, that is what I have to say to introduce the conference.

CONSUMER AND COMPETITIVE EFFECTS OF OBSCURE PRICING

MS. SULLIVAN: And now, I'd like to introduce our first speaker, Joe Farrell, and let me get my notes for that.

Okay. So, I'm very happy to introduce Joe Farrell. He's the Director of the Bureau of Economics at the Federal Trade Commission. He has been here since 2009. He is also Professor of Economics at the University of California at Berkeley, and he's going to be returning there soon, which is very sad to me and I'm sure to the rest of my colleagues at the Bureau of Economics.

Professor Farrell is not a newcomer to Washington. He previously was Deputy Assistant Attorney General for Economics with the U.S. Department of Justice, which is where I met him; and he was the Chief Economist at the Federal Communications Commission.

Professor Farrell's research is centered on competition policy, compatibility standards, and innovation. He has published extensively in these and other areas in the fields of industrial organization, patents, and telecommunication, and his research in these areas has given him a unique perspective on drip pricing.

So, Joe, now let me let you step up here. Here you go.

MR. FARRELL: Thank you, Mary. A pleasure to be here. Thank you all for coming, some of you from a long distance.

So, before I start, let me remember to say what I'll be talking about is my own views and does not purport to represent the Commission, Chairman Leibowitz, or any other Commissioner.

CHAIRMAN LEIBOWITZ: Please feel free to represent me.

MR. FARRELL: Okay. All right, modify the disclaimer.

So, the Federal Trade Commission has both competition and consumer protection mandates, and it's

unlike pure consumer protection agencies and pure competition agencies in that respect. And one of the questions that I've thought about a lot over the three years that I've been here is, how do these things relate to one another? Why are they in the same agency?

And I think part of the reason they're in the same agency -- or part of a good reason why they might be in the same agency -- is that both contribute to a very well-functioning competitive process in which customers make the best choice among the offers that firms provide, and firms, therefore, have an incentive and there's an evolution towards firms making better offers. And if there's a lack of competition, that process doesn't work very well, but it also doesn't work very well if consumers don't make the best choices from the offers that are available. And so I think of the drip pricing questions as exemplifying this interaction or synergy between the consumer protection and the competition missions at this agency.

So, part of the answer to why would we worry about drip pricing, then, is that it threatens to interfere in that generally salubrious process. It threatens to undermine the extent to which consumers make the best choice, and that's bad both for itself and because it weakens competitive pressures. And what I'm going to do is I'm going to explore a little bit, in a relatively technical way -- but don't be too worried -- one aspect of each of those two questions. So, I'm going to offer two simple little models to help explore the economic effects of nontransparent pricing.

The first one is kind of about rip-offs. It's about situations where a consumer might end up feeling that they've been ripped off because there's some degree of misperception. Consumers may not understand the drip pricing as they get into the purchase. I'm going to assume that they can't costlessly get out of it after they see the final charges. So, this is the "you're at the airport before you discover the extra charges." And the questions I'm going to address is one that's been not very much talked about, I think -- although somewhat -- in drip pricing, but it's opinion talked about a lot in an analogous area of competition policy; namely, aftermarkets.

So, aftermarkets are the antitrust word for drip pricing. Aftermarkets are when, after you buy, for example, a durable product, you discover that there's not a lot of competition in providing a complement to the curable product; for example, new cartridges for your printer. And if there's not a lot of competition,

chances are -- although it doesn't necessarily follow -- that you're going to end up paying a somewhat high price. Perhaps that price is surprisingly high. How should we think about that? So, in the antitrust world, people have focused a lot on the extent to which this is a surprise and on the extent to which excess profits in the aftermarket might get passed through into a lower foremarket price.

And I am going to offer some simple -- but I like to think relatively robust -- observations about that that are going to illuminate the extent to which ordinary pass-through, in the common sense that firms pass through changes in their costs, and transparency -- that is, the ability to see what's coming -- interact, but in a slightly complex way.

The second thing I'm going to do, then, is to depart from the rip-offs model and say, what happens if consumers are not naive, if they don't see exactly what's coming down the road at them by way of drip pricing, but they're generally aware that drip pricing happens, okay? And so these consumers in this second model are going to be not fully informed, but they're going to be rationally wary, not naive. They are going to know that there's likely to be something coming down, okay?

So, not to give away too much of my punchline, but whereas the first model is about rip-offs about situations where a consumer might pay too much from the point of view of his interaction with a single firm, the wariness may guard against that. You're less likely to get ripped off if you're wary, but if consumers are wary, then it may turn out -- but it's subtle -- it may turn out that firms have less incentive to offer a better deal, because wary consumers will be skeptical of it, and, therefore, the demand elasticity that gives firms incentives to offer better deals is going to be weak. So, I'm going to do a little bit by way of exploring that, I think, surprisingly complicated question.

All right. So, the framework that I'm going to talk about is, just to fix our ideas a little bit, we have got a firm. In the first instance, this is just going to be one firm. So, I'm talking about the rip-offs model, where there's one firm and one consumer or a bunch of consumers -- that doesn't really matter -- and a given demand curve, and how does the net price change with drip pricing? So, the firm sets an up-front price, p, and it might add poorly disclosed aftermarket or follow-on policies.

And I'm going to give those two letters, because it's interesting, especially as you think about

inefficient drip pricing or aftermarket policies, to have separate concepts for the revenue effect for the firm -- that's r -- and the direct harm to the consumer -- that's h. If it's just an extra charge and nobody's going to balk at it once they get to the airport, then r and h are going to be the same; they are going to be the extra charge.

But if some consumers leave the airport and go home and don't make the trip, then r is going to be less than h. If we're dealing with a standard aftermarket where there's some demand elasticity, r may be less than h. If you're dealing with inefficiently denying the possibility of independent repair organizations that might have better service than your repair organization, r will be less than h, okay?

The consumer sees p just fine, but h, which is the other component of the full cost to the consumer, the consumer sees only partially. And in the modeling, I'm going to assume that the consumer acts as if h is only t times h, where t is a transparency parameter somewhere between zero and one. It could be zero if you don't see it coming at all; it could be one if you had full transparency; it could be somewhere in between, okay? So, t measures the transparency, the responsiveness of what the consumer thinks up front, to the true value of h that the firm is going to impose, okay?

So, now, a little mathematics --

MR. ZINMAN: Question.

MR. FARRELL: Yes?

MR. ZINMAN: Why can't t be greater than one?

MR. FARRELL: t --

MR. ZINMAN: Why couldn't some people overestimate the --

MR. FARRELL: Well, it's conceivable, I suppose, yeah. I hadn't thought about that case, but as far as I know, what I'm going to say could be extended to that case, but I don't know how it would work.

Okay. So, let's think about the pass-through argument, to what extent does the consumer benefit from a lower value of p if there's going to be this r and this h? And just to give you a road map for where we're going, there are two mechanisms by which the price might be lower. One is the firm is expecting this extra r for each sale that it makes, and so other things being equal, that r makes it more inclined to sell more and less inclined to take a high value of p than it would if it weren't for the r. It turns out that that effect treats r just like a reduction in the firm's cost, and so we get

ordinary pass-through of -- as with costs, ordinary pass-through says the value of p will be lower.

The second mechanism is a little less widely discussed, and that is as a result of imposing h, the demand curve facing the firm up front falls by an amount t times h. That's how much less each consumer is willing to pay up front, because they see t times h coming. So, the demand curve shifts down by t times h, and it turns out when the demand curve shifts down, that also, in general, gives you an incentive to charge a lower price. So, we have two mechanisms, one due to the r and the other one due to the h, both of which will tend, in general, to cause a lower value of p, and the question I'm going to address is, okay, how much lower and what does that depend on, okay?

So, given the time, I'm not going to go through the technical details, which is not that hard. The cute thing about this is if you do a simple change of variables calculation, you can do this calculation without making any assumptions about the shape of the cost curve, about the shape of the demand curve, anything like that, okay?

And it turns out that the most useful formula, I think, to look at is the one down at the bottom here. The net harm to the consumer is h, which is the harm that is done to him in the -- in the airport, as it were, minus the effect on p, and as I said, there were two effects on p. One is the firm passes through some fraction of the extra revenue boost that it's going to get, r, and that fraction is just the regular pass-through parameter for cost changes for this firm, which I'm calling -- going to call k, okay? The other thing is that the demand curve is shifted downwards by th, and it's not obvious, but it is true, that rather generally, when the demand curve shifts vertically downwards by an amount, let's say th, the optimal price goes down by 1 minus k times th, where k is the cost pass-through rate.

So to see that, for those of you who are interested, think about the public finance theorem that it doesn't matter whether you charge a per-unit tax on the supply side or the demand side. What that tells you is that if you have a decrease in costs and a downward shift in demand by the same amount, then the equilibrium price falls by that same amount. And that tells you that the cost pass-through rate plus the demand pass-through rate have to add up to 100 percent, okay? So, what this is telling us is there are two forces decreasing the up-front price when both r and h are positive, okay?

So, how bad is this? The net consumer harm varies with transparency, t, and with pass-through, k, according to the formula that's here, okay? The impact on the firm's profits is -- per sale it gets the r, and it loses the t times h that corresponds to the downward shift in the demand curve. The other effects going on here, although they change behavior and they change the consumer impact, by the envelope theorem, they don't change the impact on the firm. So, as far as the firm is concerned, the net profitability per sale of doing this r and h maneuver is just r minus t times h. And what that tells you is that firms will do this -- they'll impose these additional charges -- when r is bigger than t times h and not otherwise.

Notice that if t is near one, that says that they won't do it unless r is about as big as h, in which case, if t is near one, if you look at this -- at the top formula, you'll also see that the consumer harm is very limited, okay? So, if t is near one, you have full transparency, not surprising, the drip pricing problem kind of goes away. That's almost a tautology, okay? A little less obviously, what if t is not near one, so there is not very good transparency, suppose t is small, but k may be significant. So, we have the pass-through argument, but not the transparency. So, then the net harm is near -- to the consumer is near k times quantity h minus r, and that, in turn, will be small if r and h is profitable with t near one, but in general, it won't be, okay?

So, in short, higher transparency reduces consumer harm for a given value of r and h, and it makes the most inefficient drip pricing unprofitable and, therefore, unlikely to be observed, okay? Higher t and higher k both reduce consumer harm, but to some extent, they're substitutes in doing that; that is to say, the additional protection from k, from cost pass-through, is less if you have more transparency, and the additional transparency is less if you have more cost pass-through. Okay.

So, to summarize this, the vertical analysis -- and I call it vertical because of the analogy with aftermarkets -- with full or nearly full transparency, only efficient policies are profitable, and a consumer actually benefits from efficient policies, loses only slightly from the slightly inefficient policies that -- that might be profitable if t is not quite one, and so you don't have much of a problem. That's not really surprising, because there's really not much drippiness to the pricing if t is near one, okay? t near one says it's

pretty transparent. So, that's an unsurprising result. It makes economists feel good when their models confirm something they thought they knew anyway. For one thing, it means that the probability of an algebra error is lower, and it also means that the world is not wacko, okay?

If t is small, that is, you're really in a drip world, or if t is medium-sized, some inefficient policies become profitable, some in positions with extra charges of h bigger than r, and net consumer harm starts out with h and then it is modified to reflect pass-through in these two ways. There's a quasi-reduction in cost corresponding to the extra revenues, r, okay, and that's analyzed according to the usual pass-through for this firm, and there's a downward shift in the up-front demand curve by t times h, and one minus k calibrates the price effect of that kind of shift, okay?

All right. So, that's the -- what I call the vertical analysis. That's the extent to which you might get a rip-off and the extent to which that's mediated or modulated by pass-through of the benefits and by the other kind of pass-through.

More interesting, I think, is what I'm going to call the horizontal analysis, which addresses the following question, which I mentioned at the beginning, okay: Even aside from or in addition to the interaction of these incentives for this one firm facing consumer demand, if consumers get wary about this, or any way, does the fact that pricing is not transparent mean that firms can't attract as many more consumers by lowering their price as would be the price if pricing were transparent.

If that's true, then the rewards to cutting your price, the rewards to offering a better deal to consumers, are weaker, and the punishment for offering a worse deal to consumers are also weaker, and so you are going to get worse market performance marketwide, and it's not that one particular offer is going to be worse than the others; it's that they are all going to be worse, okay?

And notice that if that goes along with consumer learning or consumer wariness, it may be that nobody is getting ripped off, nobody is getting surprised, but everybody is getting a bad deal, okay? And we see this, I think, in the real world. It's a matter of what does a consumer think, what do consumers, in general, think, if they see what looks like being a better deal? If consumers are wary in a way that says, "Well, don't trust that, because there may be a rip-off

down the road," then that means that that way of offering a better deal doesn't get rewarded with more business, and so you have lower elasticity of demand for the firm and incentives for less good deals.

So, what I want to do is to explore that seemingly obvious and I think very important idea. It turns out to be somewhat less obvious than you might think, and I think this might be an interesting agenda for research in the area. Okay.

So, I am going to assume that the cross-elasticity is up front. What I mean by that is if you are going to attract more buyers or if you are going to lose buyers, it happens primarily at the up-front stage. It doesn't happen later when the drip pricing is revealed, okay?

And the question then is, how do consumer expectations of the full cost, p plus h, vary when the true value of p plus h does, in fact, vary across firms? That could be an out-of-equilibrium calculation. So, I suspect many answers are possible. Let's take a look.

I started out this having worked in the economics of switching costs, and in the switching cost literature, as some of you know, you have a set-up where everyone knows that once you've bought from one seller, you get somewhat locked in, you face a switching cost to switch to other sellers, and you can expect to be gouged by that full amount of that switching cost, okay?

What that means is there's kind of an h, although it's fully foreseen, that is equal to your switching cost. Notice that that's the same whatever seller you buy from. And if people understand that model, then it turns out that everything can work very competitively, because if the gouging later is the same whoever you buy from, then you can shop on the up-front price, and the best deal is really the best deal.

And what that means in these models is that you get fully competitive behavior to attract and then trap customers, and as long as there's no efficiency loss from sticking with the same seller over time, you get fully efficient and fully competitive outcomes, okay? And that's, I think, not necessarily a very realistic story, but it's instructive for a modeling enterprise, because it tells us that there has to be some source of variation in the ex post rip-off before you can get any effects of drip pricing on cross-elasticity. Okay.

So, let me go to the opposite extreme and say, suppose for some reason that instead of h being the same across firms and all of the efforts to offer better or less good deals being in the up-front price, p, what

happens if you just have variation in h? Now, if you are really going to have variation and if you are going to have variation of the kind that might create wariness, you are probably going to have variation in both p and h, okay? So, this is just a building block. This is not a realistic answer, but let's explore this building block.

So, suppose that all price variations across firms actually are in h. This addresses, by the way, the question -- the important question that Mary mentioned earlier, if people don't like drip pricing, why doesn't somebody eschew it and try to make a business plan out of that? So, if my p is the same as my rivals but h is lower, I assume that customers can see this not perfectly, but dimly, with a discounting parameter, t, okay? So, they see, perceive, estimate t times the difference.

So, if there's a 1 percent cut in the total price that is all done in h, then what consumers are going to see is a t -- remember, t is a number less than one -- percent cut in the expected price, okay? So, if the residual demand elasticity for a particular firm would be e, given product differentiation and transportation costs and shopping costs and goodness knows what, and it's done through variation h, then you get, instead, an elasticity of t times e.

Now, you might think that the difference between e and t times e, where t is a number less than one, is biggest when e is biggest. That's true as a matter of arithmetic, but as a matter of competition economics, it's the opposite of the case. The impact of losing some of the demand elasticity is biggest when the demand elasticity is already not that big. This is very familiar to many of you from unilateral effect merger calculations, the kind of illustrative price-rise calculation that we do, that particularly the UK competition authorities do officially that many of us do unofficially.

If you just look at simple pricing formulary, the Learner Equation and its kin, if you lose some of the demand elasticity, a given fraction of it, that has a big effect if the demand elasticity is already kind of low and a smaller effect if it's already high. So, the gross mark-up rises by a factor of e minus one over te minus one, that's more harmful if t is small, okay? So, the gross markup rises by a factor of e minus one over te minus one. That's more harmful if t is small, okay?

Now, when might we expect to get this kind of discounting of actual variation in h? When might we expect to get discounting of actual variation in total

price? So, I don't have a micro foundation model for this, but I think it's pretty plausible, based on the following idea: In general, when we have some random variable that's not perfectly observable and you see an imperfect signal of it, okay, your best estimate of the variable that you can't fully observe will move, but not one for one with the signal. You discount it. You combine the signal with the prior mean. You recognize the existence of regression towards the mean in a lot of natural phenomena, okay?

And what this says -- and I don't think this is a universal truth, but I think it is quite common -- is if you see some indication that a firm is offering a better deal, what do you think? Well, there are various possibilities, right? You could say, as in the switching cost models, probably h will be the same as usual, right? So, I might as well take the low p. In that case, you get p as a sufficient statistic for total deal. If you get into the switching cost models, you replicate full competition despite the obscurity of out-of-equilibrium variation in h, because there is no in-equilibrium variation in h.

Another possibility is you might extrapolate -- and maybe this relates to the question about might t be bigger than one -- if you see a low price, maybe you expect that the prices you don't see will also be low. This is a low-price firm, okay? In that case, I think it's possible that you could get stronger cross-elasticity than you would in a standard model. This relates, for those of you who are conscious of the switching cost literature, to a very early article by Christian von Weizsäcker, where he basically assumed that price is more durable than preferences, and if that's true, then it turns out that the presence of switching costs actually reduces equilibrium prices, because it means that you extrapolate variation in price more than you extrapolate product differentiation.

Or a third way of thinking is just to be wary, to regress towards the mean, or to have a little mental model of economics which relates to the -- I think the way a lot of people think about firm behavior. If the firm is not making money on the up-front price, probably it will gouge me more later, okay? So, I think all of these inferences are at least reasonably plausible as behavioral responses. Some of them may be consistent even with fully rational expectations models.

Which of these patterns or other patterns allow a genuine price-cutter to attract as much extra demand as it should, that is, as it would if all these offers were

fully observable? And a different question, what patterns allow a rip-off to hide, okay? So, the first question is about, can you make your better offer more transparent? The second question is, can you make your worse offer less transparent, and how does that relate -- how do both of those questions relate to the way in which consumers form their beliefs? Okay.

So, in conclusion, this was my attempt in 25 minutes or so to dig one level deeper in the economic analysis than a generic concern -- which I share -- about the role of nontransparency in hurting the salubrious comparative market process, okay? The first set of issues, which I called vertical and analogized to aftermarkets, was, does pass-through substantially undo harm, okay? And I showed how it depends on transparency and on cost pass-through; also depends on the efficiency or share -- pure rip-offness -- of what's dripped. And it depends in two ways. One is, give in the r and h, and it also affects which values of r and h will be profitable for the firm to implement.

And secondly, I talked about how nontransparency of offers can make it less profitable for firms to cut price and offer a better deal and/or more profitable for them to hide the fact that they're offering a worse deal.

Thank you.

(Applause.)

MS. SULLIVAN: We are now going to have the theory session for our drip pricing conference, and...

David, you might want to sit down there to watch other people's slides. I actually think you're first.

I'm going to introduce Doug Smith, who's the chair of this session. He is a Bureau of Economics economist.

MR. SMITH: So, good morning. This is the panel on the theory of drip pricing, and so my role is just to introduce our speakers.

Our first speaker is David Laibson. David Laibson is a Harvard College Professor and the Robert I. Goldman Professor of Economics at Harvard University. His research focuses on the topic of psychology in economics.

In addition to his work on shadowed attributes, he has contributed research on consumer financial products, health and aging, so a lot of topics very -- of a lot of interest to us. So, Professor Laibson, welcome.

(Applause.)

MR. LAIBSON: Okay. So, I'm going to show you a model that's very close to the framework that Joe showed you, at least the first framework. I'm going to show it to you graphically, so, in fact, I think these may be complementary presentations.

So, here's our classical model, supply curve/demand curve, just to get us off and rolling. Here is the equilibrium. We have consumer surplus. We have producer surplus. I want to think about a world where firms have the ability to shroud some portion of their price -- I'm actually going to put it in absolute terms -- so let's think about a world where a firm can shroud s dollars of the price of the good that they're selling. So, the equilibrium, kind of trivially, is going to shift away from the original efficient point up here to this point, going to end up at that point on the supply curve.

The agents that are buying the good here are effectively valuing the arrangement as if that s price were missing from the transaction. They are surprised to see it after the fact. So, the kind of up-front price is going to shift down, but the net price, once we include the shrouding, will shift up. And so this is just playing out the effects that we saw in Joe's model. And so we end up losing the surplus or, in fact, rearranging a lot of the surplus and losing surplus as well. Let's take a look at what happens.

So, here's the new consumer surplus. Let me show you, old consumer surplus in blue, new consumer surplus. And as I think everyone here knows, the

positive triangle is still surplus, and the negative triangle is destruction. So, in fact, the net consumer surplus in the new equilibrium is negative in this example. So, we've moved far enough away from the original allocation that the consumers here are actually, once we add the positive and negative regions together, emerging from this relationship with worse welfare than they would have had had they simply been barred from this market in the first place. Now, I'm not advocating barring people from markets, but I'm just acknowledging that the logic immediately takes us, if the shrouding is not super-large, but a little bit large, to equilibria, where welfare is, in fact, negative.

What about con -- what about producer surplus? Well, here it is. It's enormous. Again, let's go back. There was the original producer surplus. Here's the new producer surplus. So, as you might imagine, a lot of things are happening here. We're not just shrinking the consumer surplus; we're enlarging the producer surplus. So, here's the total social surplus. The old region was the region that now has the plus sign in it, and we're augmenting that or at least -- not augmenting, but reducing that by adding a negative surplus region, a dead weight loss region, which is the negative triangle.

So, let's kind of draw all these together. Social surplus falls in the new equilibrium. Consumer surplus falls by much more than social surplus. So, the burden here is borne disproportionately by consumers. And, of course, producer surplus rises.

So, there is even worse news in this equilibrium, and I want to kind of begin to talk about heterogeneity, a point that I'm going to draw out more as we keep kind of going through the discussion.

The consumer welfare losses here are going to be concentrated among the unsophisticated consumers. So, in particular, let's imagine a world where consumers have heterogenous levels of literacy, sophistication, ability to optimize. So, we're going to end up with a regressive welfare consequence here, because the consumers who are most likely to kind of fall for this probably are the consumers who already have financial distress, low levels of literacy, et cetera.

So, let's take a look at how that would break down, and here, I'm kind of a little bit stepping outside the model just to think about a world where, let's say, everyone were sophisticated, we'd end up with something like this, where that negative region that I showed you a couple slides ago has now vanished. The sophisticates see the follow-on market, they see the obligatory price

they are going to have to pay later, they adjust for it, they recognize the price is now high, and so they end up with a shrunken consumer surplus, but in this example, certainly not a negative consumer surplus. All of those kind of dead weight loss triangles for them no longer appear.

It's the naive consumers, the myopes, who basically bear the brunt of this -- of this shrouding. They're the ones who get, as we saw three minutes ago, the positive triangle and, of course, all of these negative triangles. So, from a kind of equity perspective, we should be particularly worried about shrouding, because I believe that it falls disproportionately on the population that perhaps is the least well suited to absorb these dead weight losses.

Now, there's a classical rebuttal -- now, I should emphasize that the equilibrium I just showed you, which is a kind of trivial case where you pay the extra cost, the shrouded cost, no matter what. Maybe you could escape it if you did some heroic act, like battling the check-out person, but, in essence, you're going to pay it in the model that I just described. So, in that setting, there's actually no way for the market to kind of heal itself. There is no competitive pressure that's going to make this go away. The producers have every incentive to shroud in this way. There's no mechanism, competitive, that would drive this away.

But the dead weight losses that I've shown you might go away. So, they would go away in a particular setting. If I had a horizontal supply curve and a vertical demand curve -- another kind of case that's implicit in Joe's analysis -- with a horizontal supply curve and a vertical demand curve, all these dead weight losses vanish, and we just end up with a kind of natural equilibrium where we lower our base price, we raise our add-on price, and the net effect to the consumer is nil. The equilibrium hasn't changed a bit.

So, what I want to do now is begin to talk about these kind of classical rebuttals and go to a case where we build in every possible classical argument that says that these distortions don't matter. So, I'm going to kind of show you a classical case with all of the following ingredients:

I'm going to show you a case with a vertical demand curve and a horizontal supply curve, so there's no dead weight loss of the sort that I've already showed you. We're going to have an add-on that's avoidable, so that agents can escape the add-on if they exert some cost. We're going to have some sophisticates in the

model, so we have a heterogenous pool of agents and firms that might want to reach out to those sophisticates and market to them. We are going to have education and unshrouding that's perfectly free, so that agents can costlessly not only unshroud their own shrouded prices, but costlessly unshroud their competitive shrouded prices, and I'm going to put all that into a model and see whether we still have problems -- shrouding, debt weight loss, et cetera.

So, I want to tell you about work that Xavier Gabaix and I did, and I'm going to give you a kind of stripped-down version of this model. It's actually based on Ellison and Ellison, so we're closely related to that body of work. Here's the story.

So -- and, again, this is going to be a case where we create an environment that's kind of maximally tuned to have competitive pressure that beats shrouding out of the market and beats dead weight loss out of the market, and you'll see that the dead weight loss and the shrouding don't go away. And I'll explain why.

So, we're going to have a fraction alpha of consumers that are myopes; they do not foresee the add-on. We are going to have a fraction one minus alpha that are sophisticates, so they get it; they understand that this add-on is coming, that there's going to be a cost that they'll have to pay later in life. We are going to have a basic bank account that costs c for banks to provide. So, that's an actual variable cost that banks have to bear.

We're going to have firms that have absolutely no market power, and, again, this is a horizontal supply curve. Firms can offer bank accounts at cost c, you know, until the cows come home; no upward-sloping supply curve. We are going to have add-on services that cost zero for the firm to provide. So, I can provide these add-ons absolutely freely; no cost to me as a firm.

But the firms could price these add-on services at a price pA to myopes. Let's say the myopes don't foresee that this charge is coming, they are not preparing for it, they're not kind of monitoring their minimum balance actively, and when they cross the minimum balance barrier, boom, they're going to pay a pA. pA is set so that it's just high enough so that firms -- so that the workers -- not workers, so that the consumers are willing to pay it, but not so high that they're willing to quit the bank or report this to the New York Times or call the FTC hotline.

So, the sophisticates are going to anticipate these add-on costs, and they are going to opt out by

paying some planning cost, e. So, they are going to exert effort and kind of leave the or avoid paying the add-on costs by exerting some inefficient effort, e, to get out of paying the add-on -- these shrouded add-on costs. So, that's the dead weight loss, because the add-on could have been provided for free, but the firms are going to have to pay a cost to avoid it.

So, here's the equilibrium. The price for opening an account will be p; that's just notation. As we already said, the add-on service will be priced pA, A for add-on. The myopes will pay p plus pA. They're going to get hit by the add-on. They are not going to anticipate it. They won't see it coming. The sophisticates will pay only p. They are going to avoid the add-on, but they are going to have to exert an inefficient dead weight loss effort, e, to avoid the add-on.

The firms are going to have a break-even condition where their income, p plus alpha times pA is equal to their cost per account. Now, alpha's there because only the myopes are paying the add-on fees. So, the firms recognize that some fraction of their customers are sophisticated. They'll only be getting the add-on revenue from the myopes, so the firm's total revenue per customer is p plus alpha pA, and at equilibrium, that will equal c.

And here's the kind of pass-through issues that Joe was telling you about earlier. Competition is going to drive down p, because firms know they're getting this additional revenue, alpha pA, from the add-on market. Sophisticates in this economy are going to get a cross-subsidy. Now, that's all of us, I think, in the banking sector. So, we go to banks, we open up accounts, I get free usage of the ATMs, I get free usage of tellers, I get all of these terrific banking services, and in this particular market, I don't pay any add-on fees. I don't bounce checks, I don't violate minimum balances. I manage my life so the banking sector basically offers me an enormous subsidy.

And I'm guessing that everyone in this room -- almost, probably, if you've known a bank for at least a year or two -- you know, you've figured this out. You have the liquidity and you have the sophistication to actually exploit the banking sector and get transfers from this. Now, you're getting transfers because other people, of course, are making the contributions to the banking sector by paying all those add-on fees that make it possible for banks to basically give us subsidized

accounts because they're giving other people accounts on which they're making excess profits.

So, the sophisticates pay these little effort costs, avoid the add-on fees, and end up getting a cross-subsidy from the myopes. In this model, the cross-subsidy is the amount that the base price is reduced because of the presence of the myopes, and at equilibrium, the base price is reduced by an amount alpha times pA. That's the cross-subsidy that I get because I pay less for a bank account. In fact, banks pay me to have a bank account. They'll offer me a hundred dollar gift certificate to come and be their customer, and I'm getting that because they don't know that I'm a sophisticate. Someone else is basically providing the subsidy that makes that possible.

So, if alpha times pA is greater than the effort cost of avoiding the add-on fees, then sophisticates would rather stick with a firm that is catering to myopes than switch to a firm that caters to sophisticates. So, in this market, there is no opportunity for entry. No firm to come in and ask, say, "I'm going to market to sophisticates and offer them low add-on costs, zero add-on costs, and pull them away from this arrangement," because the sophisticates love the cross-subsidy. They love the fact that they get all of these subsidized banking services paid for by the myopes who are paying all these add-on fees.

So, in this environment, educating consumers, providing efficient pricing is just not going to be profitable. No one can enter and pull these sophisticates away from the standard banks.

So, suppose a competitor offered no mark-ups. They priced p equals c. The cost at the traditional bank for a sophisticate are p, the up-front base price they're paying, plus e, the effort cost they're paying to avoid the add-on, and as we saw in equilibrium, p will be equal to c minus alpha pA. They'll also pay the effort cost, e, and that's going to be less than c, the cost they would have to pay at the bank that has zero mark-ups. So, sophisticates won't leave their regular, standard bank. They like the subsidy so much -- they like the cross-subsidy so much that they're going to stick. So, they prefer to pool with myopic consumers at high mark-up firms rather than defecting to zero mark-up firms. They like the free gifts, and they avoid the high fees. So, this equilibrium is very robust. It's not going to go away. Education, even though it's possible to generate it for free, won't be provided, and the equilibrium with shrouded add-on fees won't disappear.

So, let me conclude and then I'll offer some suggestions for where the FTC might go. Shrouding can destroy consumer surplus, lower social surplus, and enrich firms, and there are lots of reasons to think that shrouding will not unravel in equilibrium, even if firms can offer education for free. I've offered one example of this in my own work. There's a recent paper by Heidhues, Koszegi, and Murooka that offers another analysis along these lines.

So, I want to offer some suggestions empirically at first for us to kind of begin to make progress from a regulatory perspective. I want to define three notions of shrouding.

Yes?

UNIDENTIFIED SPEAKER: (Off mic.) I do have a question from the (inaudible) serving the real world. Why is it that the banks don't get rid of sophisticated customers? You could start charging them once I've revealed that I never use your -- I never bounce a check, I never do any of those things.

MR. LAIBSON: Yes. So, they would like to get rid of them if they could, legally. It's going to be awfully hard to find ways of pulling them apart, but I agree with you, over time, they are going to try to push them into different categories.

UNIDENTIFIED SPEAKER: (Off mic.) (Inaudible) inactivity on your account, not enough variation, you never go certain amounts, things like that.

MR. LAIBSON: So, I agree that it is in the interests of the banks to try to separate these two groups of consumers, because they're making their profits on the myopes and they're losing money on the sophisticates. I mean, that's actually not -- it's true in this particular equilibrium; it may not be true once we add market power, but -- but I very much take your point.

So, there are three definitions of shrouding that I want to kind of think us -- have us think about and maybe think about practically measuring. I want to call the first one weak implicit shrouding, which is the idea that, in practice, consumers do not directly observe the prices of add-ons before purchase of the base good. So, in this case, I'm imagining a consumer, they have just left a Staples, they have just bought a deskjet printer, and I ask them, as they leave the Staples -- this is a real consumer, let's imagine, we're surveying a hundred of them -- did you, in the course of this transaction, observe the cost of the ink? Are you aware of it? Was it -- you know, was it actually observed in

the transaction? So, if people say no, they didn't, but I would say that is weak implicit shrouding.

Let's up the ante, strong implicit shrouding. In practice, do consumers underestimate add-on prices at the time of purchase? So, now I take the same population of consumers, leaving Staples, having just bought a deskjet printer, and I ask them, "Well, I know you didn't or you just told me you didn't observe the cost of ink, but perhaps what you did do is anticipate that ink would be costly, and perhaps you have a correct expectation about the cost of printing during the next few years." So, I could ask them, "What is your expectation?"

Now, even if they don't observe the cost of ink directly, they may have a correct expectation. So, we would want to measure that. Are their expectations correct relative to what we know to be true? If the answer is "No, my expectations are wrong," or as I imagine they're underestimating the cost of ink, I would call that strong implicit shrouding.

Now, the next standard I would call explicit shrouding, and this is a kind of more radical test that really, if it -- if firms fail this test, I think we can really argue that they're going out of their way, as I think they are, to make these prices effectively invisible. So, I'm imagining the following empirical exercise:

Let's take a hundred subjects, and let's tell them, "I'm going to pay you $50 if you can walk into the Staples, and in the half an hour emerge with the answer to the following question: How much would it cost to print 30 pages a month on a particular printer that we know is available in the store?" So, I'm going to not tell them to buy the printer. I'm just telling them to go into the store, talk to the salespeople, use whatever resources are in the Staples, read the box. They can do whatever they want during that half an hour. Are they able, in a half an hour, in that store, to determine the actual cost of the ink, printing 30 pages a month, for the next 12 months?

Well, I could do that in the store, I could do that on the Web, I could do that on the phone, and I imagine populations of subjects, financially literate, who are given the task of sussing out this information in a finite amount of time, with very high incentives for getting the information right. My guess would be -- in my own personal experience, it's true -- that you would not be able to find out the cost of printing on an inkjet printer, in a typical Best Buy, with a half an hour of time.

In fact, for me, it took an hour, and I still could not get the answer with the -- well, I guess I'm allowed to out companies, right? That's not inappropriate. You know, Kodak was advertising that their new printer line was low cost in terms of the printing costs, their new line of printers, and I thought, "That's traffic. That's exactly what I want." I went into Best Buy, and I spent an hour -- drove my family absolutely crazy -- trying to get to the bottom of what it would cost to print with one of their printers. And after an hour, neither the people in the store, nor I, could figure it out, with all the resources available in an enormous -- in an enormous store.

So, I would urge us to do that in all these different channels, brick and mortar stores, on the phone, or on the Web.

And finally, I imagine a pilot intervention to understand how unshrouding might work. And, again, I don't know. I think this is a totally open question. Here's the intervention that I would propose. Let's find a Staples store, or any store that's selling this stuff, that is willing to put a large information sheet on the front of every printer box they sell, describing the actual cost of printing from that deskjet printer -- or whatever printer it is, inkjet printer -- over the next four years. So, let's make it perfectly explicit, and this is the kind of form of imagine, in enormous sheet, on a big pink sheet, on the front of every printer they're selling. If you print 30 pages a month with this printer, the ink cost will be blank dollars over the next four years.

Now, believe it or not, for a typical inkjet printer, that number is $2,000, a printer that costs $25. Now, no one pays that, of course, because people end up stopping printing with these printers. They learn it along the way, but they've spent quite a bit to learn that.

UNIDENTIFIED SPEAKER: (Off mic.) (Inaudible), right, under (inaudible)?

MR. LAIBSON: Well, yeah, I want it to be enormous and I want it to contain the key information, and I want to figure out whether it changes behavior at all. So, frankly, I don't know. I'm not suggesting that this is the solution. I'm suggesting that this is the pilot experiment that we should begin with. It would be incredibly easy to run this if we could find a store that would be willing to play ball with us, and if there isn't a store that's willing to play ball, I'm happy to open that store myself.

Thank you.

(Applause.)

MR. SMITH: Thank you, David.

So, our next speaker is Michael Baye. Michael Baye is the Bert Elwert Professor of business at Indiana University's Kelley School of Business. He's a former -- he's also a former director of the Bureau of Economics here at the FTC. So, Professor Baye's research focuses on pricing strategies and the impacts on consumer welfare and firm profits, both online and in traditional markets.

So, Professor Baye.

MR. BAYE: Thanks a lot, and I really appreciate the opportunity to be here with you. Where am I looking here -- there we go. Excellent. I work in a business school, you'd think I'd know how to operate PowerPoint. I mean, that's the biggest crutch that we have.

What I'd like to chat with you today about is some ongoing work that I'm doing with Rick Harbaugh, one of my colleagues at Indiana University, and my goal here is not to build a new model of drip pricing but to take existing theories of information acquisition by consumers and the competitive interaction among firms and just see what they have to say about drip pricing. And, in particular, what I want to do is adapt three different classes of models that I think have helpful things to say about drip pricing.

One of the things that I think is really important to keep in mind as we're analyzing drip pricing or any other policy is we want to make sure we fully account for the interaction between the incentives of consumers, their incentives to gather information; the incentives of firms to disclose information; and in the case of platforms like Expedia or Shopper.com or Google Products, the incentives of platforms to kind of police the level of information that's being provided. I think these three classes of models provide a rich way of beginning to think about these issues, which, frankly, I have only been thinking about a couple of months.

So, the search models that I'll talk briefly about today include four or five papers published in the American Economic Review, along with the classic paper by Diamond, the Diamond Paradox paper, which I think is quite helpful in thinking about the impacts of drip pricing.

I'm also going to talk about clearinghouse models. For those of you that aren't familiar with clearinghouse models, think Expedia or think Shopper.com or Google Products. It's an environment where a consumer

can go and with one click of a mouse online get a complete list of all the firms that are selling the exact same product, exactly the same part number. And the issue there with respect to drip pricing, of course, is what's being revealed on that platform? Is it just the initial price, where the shipping cost may be shrouded or the baggage fees may be shrouded, and so forth? So, we'll look at some models like that.

And then, lastly, I want to look at the implications of cheap talk or models of persuasion on the potential ramifications of drip pricing, and I'll do this in the context of a couple of papers that recently appeared or are forthcoming in the American Economic Review, including one by my coauthor.

So, let me just tell you, when Mary gave me a call and asked me to talk about drip pricing, I told her I knew nothing about drip pricing, and she convinced me that maybe I do know a little bit about drip pricing and I just don't know it. So, maybe that was shrouded, my information was shrouded from me.

But as you first start thinking about drip pricing, kind of the knee-jerk reaction that I had initially is, gee, you know, drip pricing presumably hides information, raises search costs for consumers, and that can never be a good thing, right? I think we see that in, for example, the model that David presented, where the benchmark price with which we're comparing efficiency gains is the competitive price, right? And it's just kind of natural that if you start with a situation of perfect competition, where all firms are pricing at marginal cost, and ask the question, what happens if we introduce a friction, then obviously that friction is not going to be a good thing.

But what I want to do is look at the classic models that I described, which has the vice or virtue, depending upon how you look at it, at starting from a situation where not all firms are necessarily charging the same price. So, we're kind of in a second-best world. You know, there are frictions out there. You look at prices on the Internet, and not all firms are charging the same price. Consumers have to engage in costly information acquisition to figure out which firms are offering the best deals. Take that environment and then ask what happens when we add this layer of drip pricing on it.

So, I think it's important to keep in mind that any time you change search costs, you are going to change the incentives of consumers, you are going to change their incentives to gather information. Are they going

to free-ride off of the search efforts of other people or are they going to invest in their own cost of seeking out the best deals? Obviously, impacts in the online environment, the incentives of individual firms to price their products, and in the case of platforms, it impacts their incentives. Obviously, platforms are in the business of making money for themselves and have to take their -- their incentives into account.

So, one of the things that you -- if you're familiar with the search literature, this comes as no surprise to you, but these are very complex models, because you're looking at the equilibrium interaction of all participants on all sides of the market, okay? And it turns out that if you look at classic search models, when you take into account the equilibrium interaction of all these market participants, the predictions of the models actually differ from what you might conjecture based on partial-partial equilibrium models.

So, for example, in Jennifer Reinganum's paper -- classic paper in the Journal of Political Economy, it turns out that the equilibrium effect of higher search costs in that model is to lead to more price dispersion. If you look at the MacMinn model, which was published a year later, higher search costs actually reduce price dispersion. And if you look at Dale Stahl's model in the AER, higher search costs have an ambiguous effect.

So, the point is, is that any predictions that you can ever hope to get as an agency about what are the impacts of shrouding, shrouded attributes or drip pricing, they are going to be model-specific, and you want to make sure that the models that you're applying to analyze the potential harm to consumers are consistent with the particular environment that you're modeling, okay? So, that's just the caveat.

So, let's begin with search models, and I'll try to go through these fairly quickly without going through the math. At the present point, the paper, in the interest of disclosure, is vaporware, but we will actually have some theorems and proofs to back up the assertions here.

So, what I want you to think about first is sequential search models in the context of Reinganum, and so in a sequential search environment, if you're thinking about an online environment, you've got a consumer that goes to a Web site, like Wal-Mart.com, searches for a price, and if that price is acceptable to the consumer, the consumer stops searching; if not, the consumer moves on to another site and continues to search across these Web sites, and the cost of visiting different Web sites

and navigating to different Web sites is obviously the search cost in that environment.

So, if you think about drip pricing in a sequential search context, you might expect the Diamond Paradox to materialize. The Diamond Paradox basically says in an environment -- under certain conditions that I'll talk about in a moment -- in an environment where there's even a trivial cost to consumers of learning information about a particular price, if there's a common monopoly price that all firms would charge, a symmetric model, then the only equilibrium in that environment is all firms charging a monopoly price.

Now, the intuition is actually very clear. It's because if one firm were charging a price below the monopoly price, if that firm were visited, that firm would know that a consumer would have to pay Epsilon some search cost of visiting another firm, and that would allow that lowest price that you would observe in the market to increase from some p lower bar to p lower bar plus Epsilon. And you repeat that logic, and you end up with all firms charging a monopoly price, right?

And that's kind of, I think, what we think about, is -- when we think about drip pricing, we're thinking about, you know, you're lured into the Web site because it offers a low up-front price. We get into that Web site, and they stick us with that high shipping charge, and we're kind of held up at that point. And so the Diamond Paradox is a manifestation of that hold-up problem that I think is very natural to associate with drip pricing.

In the Reinganum model, it turns out that that doesn't happen, and the reason is, in the Reinganum model, there is not a unique monopoly price. Each firm has its own optimal price, because firms have heterogenous marginal costs, okay? So, what firms want to do in the classic Econ 101 framework is equate their marginal revenues with marginal costs. Since different firms have different marginal costs, they all have different optimal prices. Firms that -- and consumers are optimally searching across these firms with differentiated prices, and hence, that stem from the differentiated costs, until they find an acceptable price. So, it turns out consumers, in an optimal sequential search environment, will determine a reservation price.

Those firms that would like to charge a price above the consumer's reservation price, they can't do so, because if they did so, they would sell nothing. So, all those firms lower their prices down to the reservation

price. They're the firms -- there's a mass of firms, if you will, that are ripping off consumers by charging high prices, but there's a bunch of firms that are charging prices less than that price because they have lower marginal costs and it's, therefore, optimal for them to do so.

So, if you take a Reinganum sequential search model and ask the question, what impact does shrouding have on that environment, the answer is absolutely nothing, because consumers are going to walk into a store, in her model, not knowing what the price is until you get to the store, right? So, you get to the store and you go through the checkout and you realize these jerks are trying to stick you with a bunch of extra shipping charges, right, that raises the total price.

But the check on firms in this environment is if they end up charging a greater full price, you end up buying fewer units at that higher price, and as a consequence, they don't have that incentive to hold you up, right? So, in the context of David's example with toner cartridges or inkjet -- I have a color laser now -- toner cartridges, you don't do that, because instead of Mike printing out 30 pages a day, he's going to print out five. There's going to be that effect.

So, the punch line is, in the Reinganum model, you might imagine that you'd get the Diamond Paradox, but, in fact, you don't. You get firms charging marginal -- equating marginal revenue with marginal cost, and drip pricing has actually no effect on the welfare of consumers.

Let's go to a different environment, clearinghouse models, and I think the first clearinghouse model really is due to Varian, Hal Varian. There's another paper by Rosenthal in Econometrica that's in that same spirit, but the clearinghouse framework is an environment, as I indicated before, at a price comparison site, like Expedia, where consumers get a complete list of prices, okay? So, I want you to think about a clearinghouse framework in the context where shipping costs or taxes or perhaps airline baggage fees, in an environment where everyone has at least one bag to check, is relevant.

So, in the context of drip pricing, firms are listing on the price comparison site the base price for the product, and it's only when you click through to check out from the particular merchant that you're actually exposed to additional information about what the shipping charges may be or the baggage fees and so forth, okay?

So, it's clear that in the absence of drip pricing, what happens in this class of models is consumers have the complete list of prices. Each firm is, in fact, selling an identical product. So, any consumer visiting a price comparison site will click on the firm offering the best deal and purchase, right?

With drip pricing, what happens? If a consumer used that same strategy and clicked on the firm charging the lowest price, that consumer would then go to the checkout thing, at some cost -- and if you've ever purchased products online from many Internet retailers, it might take you several minutes to navigate through the checkout site at some cost. Think of that cost at Epsilon. What happens in that environment?

Well, in that environment, you actually would get the Diamond Paradox, because in the -- in this class of models, all firms are symmetric. There is a unique monopoly price, and the presence of these add-on costs, this -- even if the cost of discovering those add-on costs is Epsilon, the equilibrium would entail each firm charging a price that's the monopoly price at the price comparison site, okay? So, that's an example where the Diamond Paradox does arise as a result of drip pricing, and obviously, consumers would be worse off.

But the key thing to keep in mind here is that that's not really the end of the story. So, imagine a price comparison site where every firm is charging a monopoly price. What a great business model that is. Why in the world would consumers want to go to a price comparison site where they get a complete list of firms' prices. The up-front disclosed prices are really irrelevant, because in this consequence consumers would rationally infer that if you're offering a low up-front price, you are really going to stick it to us by a greater margin until you get up to that full price that's the monopoly price.

What happens in that environment when all firms are charging monopoly price? Well, an individual firm would have a unilateral incentive to disclose the shrouded component of its price and indicate that the full price at my firm is not the monopoly price, but the monopoly price minus Epsilon, let's say. That's exactly what Southwest Airlines has done with respect to its baggage fee thing. It's using the fact that these other guys are trying to screw us as a business model to emphasize why consumers might want to use them.

So, if you look at the full equilibrium effects, allowing for disclosure, you don't get the Diamond -- you don't get the Diamond Paradox. So, you

might ask the question, what's the value to the -- what would the platform do? Obviously, the platform, like Shopper.com or Expedia, is in the business to get eyeballs, because if you get eyeballs, you can make money through either click-through fees or, you know, ads that might be displayed to consumers and so forth.

Obviously, the platform in the Baye-Morgan model has an incentive to allow this disclosure, because how many eyeballs is a price comparison site going to get if every firm listing there is charging the monopoly price? Price comparison sites and platforms are in business because they provide valued information to consumers. If all firms are charging the same monopoly price, there's not a lot of value in that.

So, the key here is -- a completely different model -- if you allow for disclosure on firms, the incentives -- the ability of firms to change what they disclose, you get -- you get something that, again, is not at all like the Diamond Paradox.

Now, I'd just like to point out that this is exactly consistent with the evolution of what we've observed at price comparison sites. I know, Glenn and Sara, you guys looked at -- was it DealTime? I for --

UNIDENTIFIED SPEAKER: (Off mic.) No, Pricewatch.

MR. BAYE: Pricewatch, kind of at the same period of time here, 2001. If you look at Shopper.com, which is a price comparison site in 2001 -- I can't see it. So, here are the prices that are being charged. These things are not shrouded, obviously. You can see these prices. No information about what taxes are, although a consumer might infer that if I am buying this product from Indiana and the store is located in California, that I'm not going to be required during this transaction to pay sales tax.

But notice the revelation of shipping charges. Shipping charges here are arguably shrouded. $3.75-plus starts at 9.95, see site, okay? That's 2001. Fast-forward to today, and you'll see that the evolution of the platform, whose business it is to attract eyeballs, has actually standardized the way firms are inputting price information such that if you are willing to give the price comparison site your zip code, it will tell you the full price, the unshrouded price, okay?

So, I would argue that this is part of two incentive effects: It's the incentive of an individual firm to disclose what its shrouded attributes are with respect to these simple things, like shipping fees or taxes, and it's the incentive of the platform to, in

fact, allow that to happen as well because it increases the value of the price comparison site.

So, I don't have much time. I want to real quickly run through cheap talk models, and this is a completely different environment. So, what I have in mind here is an environment where consumers are lured into an e-retailer's Web site because of a low price, okay? Once inside the store, the e-retailer's site or the checkout thing, maybe the e-retailer recommends a higher margin product selling for a higher price, okay? So, you might think of this in the context of Glenn and Sara's paper when you get into the Web site and the Web site owner says, "Gee, do you really want to buy Korean memory or do you want to buy some American memory?" And it starts raising these questions in the consumer's mind about which of these products are really the best product to buy. So, you think of product one as a no-frills version and product two as having add-on features.

And assume the e-retailer has some private information about which product is really better for consumers, and after a recommendation, a consumer could either buy product one, can upgrade to product two, or can just walk out the store totally confused, as I often do. So, the impact on consumers in this environment is really pretty straightforward. Consumers in this model are rational. They recognize that the e-retailer has an incentive to push the higher margin product, because they make more money if they do so, but they also recognize that the e-retailer, the seller has an incentive to engage in pandering. That's when I go in to buy a suit, and no matter what suit I put on, the salesperson says, "Gee, Mike, you look great in that suit." They want to submit the deal instead of getting me -- keeping me from walking out the store.

So, in this environment, in equilibrium, consumers actually discount recommendations, because they're aware of these two perverse incentives that the seller potentially has, and this, in turn, in equilibrium, reduces the seller's incentive to engage in the practice of pushing the wrong product. In fact, what you can show in a model like this is that for given prices, consumers are actually better off compared to a situation where there's no recommendations whatsoever.

I think I'm just about out of time, but let me just point out here that all of the analysis that I've gone through here is based on fully rational consumers and firms, although in the Rosenthal flavor of clearinghouse models, you can interpret Rosenthal's loyal consumers as myopic consumers, if you want. They're just

robots that are going to go out and buy from a given firm.

But I just want to emphasize that kind of the big take-away here is that drip pricing can be benign, it can harm consumers, or it can help consumers, depending on the environment, and it's not just an artifact of the rationality assumptions that I've assumed. David talked about his model in the QJE, which demonstrates that, you know, shrouded attributes in the presence of myopic consumers can harm consumer welfare, but there's a recent paper in Economic Letters that shows that, in fact, with downward sloping demand, shrouding can actually increase consumer welfare.

So, I think, as you look at a matter of economic theory, it's not clear what the welfare effects of drip pricing are, at least in the context of these simple models. To the extent that drip pricing is accompanied with disclosure of nonprice information, it's important to take that into account and then also important to recognize that firms have incentives to respond to the pricing strategies of rivals' platforms, like Shopper.com have incentives to evolve to provide better information and so forth.

And then just the last point I'll make is, you know, when you think about -- you're doing a -- you're figuring out how to solve potential drip pricing across all areas, ranging potentially from restaurants to computer toners to a whole host of things, and think about all the things that might have to be disclosed in particular environments to make sure consumers are getting the full picture of what the cost of all the available attributes are, it can create a very complicated environment for consumers to work in.

And as you saw with the evolution of Shopper.com, Shopper.com, as a platform, is working very hard to try to make the information that consumers have very simple, reducing it down to a single statistic. So, I think this is a fascinating area. I don't think economic theory provides a clear view of whether drip pricing is good, bad, or indifferent for consumers. I think it really depends upon the environment that you're looking at. Thank you.

(Applause.)

MR. SMITH: So, our next speaker is Michael Waldman. Michael Waldman is the Charles H. Dyson Professor of Management and Professor of Economics at the Johnson Graduate School of Management at Cornell University. He has conducted research on various topics in applied microeconomic theory, including the operation

of durable goods markets and strategic use of tying and bundling in product markets.

So, welcome, Professor Waldman.

MR. WALDMAN: Okay. When Mary called me or sent me an email, I had exactly the same reaction that Michael had, which is, what's drip pricing? Why are you calling -- why are you sending me an email? But then I thought about it a little bit and sort of looked at her email and realized kind of the same thing that Joe talked about, which is there's lots of similarities between drip pricing and aftermarket pricing.

So, what I'm going to do is in some sense, I think, do the standard analysis. Everybody's been kind of saying, well, there's sort of a standard analysis, and Joe sort of went through some of that, concerning how drip pricing is related, sort of what comes out of the literature, and that's -- and so I'm going to kind of go through different scenarios, start with aftermarkets pricing, and then think about -- then think about, what does that mean for drip pricing?

So, the basic idea here is that there's not that much really formal theory on drip pricing in terms of this issue on transparency. So, there's lots of discussion of aftermarkets pricing, but as Joe pointed out, there are lots of similarities. So, you can take some of the analyses of aftermarket pricing to get ideas concerning drip pricing.

That doesn't look so good. Oh, well.

So, in what sense are they similar? Well, you know, I am going to repeat some of the things that have already been talked about, which is in drip pricing -- and I'm going to define it slightly different than Joe did -- in drip pricing, there's this issue of transparency. I don't know the price is there, I don't know that necessarily the price is coming. In aftermarkets pricing typically, you know, you know the price is coming. So, you know that there's a maintenance charge; you know that there's a toner cartridge. So, again, maybe I'm defining it slightly differently than others, but still, there's so many different analyses of aftermarkets pricing, some of which allow for surprise. So, you know there's maintenance, but you just didn't think about it. So, that's like not -- that's like not having the good being transparent. So, you can take a -- so, even though transparency is not really an issue in most of the aftermarkets literature, you can basically take the analyses and sort of retranslate them to think about what does it mean for drip pricing.

But, again, the analyses are not exact, because there's kind of a regulatory issue, a regulatory possibility here which doesn't arise in aftermarkets pricing, which is transparency. So, when we're thinking about aftermarkets pricing, we don't usually say, well, you could have kind of told the consumer that there was this maintenance charge coming because, you know, they really sort of knew it at the end of the day, or you couldn't tell the consumer there was an ink cartridge price coming, because they sort of knew it at the end of the day. But in a lot of the drip pricing literature, in a lot of the drip pricing problems, you can -- there really is a possibility, because, you know, I go to -- you know, we're all -- a lot of us are staying at a hotel. We all get the bill at the end of the day. There's the charge that we were told about, and then there's the charge for all the taxes, and, you know, we weren't told all those. So, that's really a transparency issue. They could have put those -- they could have told us that when we called on the phone, and that's really a transparency issue, a little bit different than is talked about in the aftermarkets literature.

So, what do we learn? I'm making kind of a quick kind of conclusion before I'll go into more detail. So, what do we learn? Well, kind of what Michael was saying, is the answer depends a lot on the situation, and it can vary a lot. And how does it vary? Well, it varies a lot in terms of some of the issues that Mary talked about right in the front. Is there competition? You know, to what extent -- and when I say competition, how -- how close is the competition to perfect competition? You know, to what extent is the situation repeated? To what extent are the consumers sophisticated? All those things sort of come into play if I'm starting from the aftermarkets literature in terms of thinking about, you know, what should we do? How -- what are the problems? What are the inefficiencies?

So, you know, what -- so, it seems to me that it doesn't -- it's not kind of one-size-fits-all, that we should say, "Oh, well, here's what we should do about drip pricing, here's kind of the standard thing." But, rather, you need to finetune it, but, of course, finetuning has its own problems, because it's difficult for the regulatory authorities to say, you know, kind of identify this situation, that situation. In this situation, you should do this. In that situation, we should do this other thing. Partly, that's difficult because the situations themselves might change over time,

and then you're kind of stuck with the old policy, and it's hard to -- hard to change.

And, again, I started with, there's this other issue of transparency, which gives you another regulatory tool which you didn't see in the aftermarkets literature. And the nice thing here is I think the transparency issue is a little bit easier than what we talk about in aftermarkets. In aftermarkets, we talk about, well, you know, you have to regulate the price. Well, regulating the price would kind of be -- at least that's one of the things that comes up a lot, and that's not necessarily something you want to do. Regulating transparency seems a little bit easier than regulating a price. Okay.

So, in terms of the rest of the presentation, I'll talk a little bit about the aftermarkets literature. Then I'll talk about various drip pricing scenarios. I'm not trying to be, you know, sort of capture all the different scenarios, but just sort of go through a number of them, thinking about how does this tell -- you know, when we use the aftermarkets literature to think about these different scenarios and showing what different issues arise depending on which scenario you're looking at. Then a couple thoughts on regulation, and then a quick conclusion.

Okay. So, what's the aftermarkets literature? So, the aftermarkets literature, as Joe referred to, there's the first set of papers were all about consumer lock-in, and there were three different theories that were discussed. There's surprise theory, costly information theory, lack of commitment theory. I only listed one paper there, because some of these ideas, the surprise theory and costly information theory, have just kind of bubbled, and then later on, Borenstein, Mackie-Mason and Netz had a couple of papers sort of saying, well, there's another theory of -- kind of related to those two, but the details are a little different, and that's the lack of commitment theory.

And the basic idea here is -- it's everything we've been talking about already, which is, you know, consumers kind of commit to purchasing a product or sort of get close to committing to purchasing a product, and then there's some further market, let's say, maintenance that has to get purchased, and the producer, if the producer's monopolized the maintenance market or the toner cartridges, can raise the price, and that creates inefficiency.

What inefficiency does it create? Well, it creates a -- potentially creates a shift of rents from the consumers to the firm, and it could also create

possible inefficiencies on consumption either on the front end or the back end. It can create inefficiencies on the front end because consumers thought that the total price was going to be different than it was, so you get the kind of wrong set of consumers purchasing, and you get inefficiencies on the back end because, you know, they start -- the firm starts setting a monopoly price on this aftermarket product, and so too few consumers buy the aftermarket product, and the ones who buy too little of it.

Okay. So, what is the -- what does the literature say? Well, if there's competition -- I'm going to say perfect competition -- for the initial product, then going to Joe's analysis, you get this perfect -- this full pass-through, and the full pass-through eliminates any rent shifting. But if you -- but -- so, again, you can think about kind of intermediate cases, which I think is what Joe was talking about, which is you can get some pass-through, but it doesn't have to be full. So, you have something which is sort of competitive, but it's not perfectly competitive.

And -- but that's -- but even if you have full pass-through, you're still not going to get complete elimination of inefficiencies, because if it's the surprise theory or the costly information theory, the consumers aren't kind of properly thinking about those future prices. They're going to have the wrong view of kind of what the total price of the product is. So, you get the wrong consumers purchasing the product, and you can also get these aftermarket prices being too high, which causes inefficiencies, again, on the back end.

What are the other theories? So, there's monopoly theories, producer market power theories, and I think that -- and so there's kind of a standard metered sales price discrimination argument which appears in papers by Klein and Chen and Ross, and, you know, in terms of standard price discrimination, that's an ambiguous effect on social welfare. Aftermarket monopolization due to quality deterioration kind of comes out of a durable goods-type setting, where the firm wants to control the speed of quality deterioration to better price-discriminate, and Hendel and Lizzeri have talked about how that can lead to aftermarket monopolization in a paper in '99.

In terms of kind of going forward, I think it's really the tying/price discrimination argument which I think is really what a lot of people have in mind in a lot of these drip pricing cases that we've been talking about. There are some efficiency arguments out there.

There's an oligolopy/Ramsey pricing type argument, in Elzinga-Mills in 2001, and Dennis Carlton and I, in a paper in 2010, talk about how you can get efficient aftermarket pricing in a setting where the aftermarket good is kind of a substitute for replacement. And so if the firm has market power in the selling of the replacement units, either because it's a monopolist or because there are switching costs, then you can actually get efficient aftermarket monopolization to get the -- to get efficiency in terms of the replacement decision. Okay.

And the final argument, which I think is very important for thinking about drip pricing, is the repeat -- reputation/repeated interaction argument that first appears in a paper by Carl Shapiro in 1995, which basically says, "Well, look, if I have the consumers and they're buying over and over again, then they're going to see what these prices are, and so my incentive or my ability to set these high aftermarket prices is way reduced, and so any inefficiencies associated with these aftermarket prices is going to be way reduced."

Okay. So, let -- so, I'm going to go through a couple of scenarios here to think about how we can use that -- those theories, the standard theories of aftermarket pricing, to think about drip pricing, okay?

So, one possibility is that drip pricing is a mandatory charge for an additional good or service under the control of the seller, received by the seller, and I'm assuming there's an upper bound on the size of the drip price, and that's actually important, because in some of the discussions -- I think in some of what David was saying, I think some of what Michael was saying -- the firm could kind of set a -- on the after -- on the sort of drip price, could basically set any price they want, and I'm not sure if that's true.

You know, if I sign up for a hotel and the hotel says, "Oh, and there's this mandatory charge for the -- for the Internet service," and it's a thousand dollars, I'm not sure that even if I signed up to -- you know, for this hotel room, that they could actually enforce that. My sense is I could just say, "I'm not paying a thousand dollars, and, you know, sue me." That's not going to work. I'm just going to walk away.

And I think that makes a big difference, because if there's no upper bound, you can always kind of get to that monopoly price, but -- and competition is not going to help you very much. But if there is an upper bound and it's not that high, then the competition can

always drive that initial price down far enough so you get no rent shifting.

Okay. So, what's the -- so, let me just go through -- so, this --

MR. LAIBSON: (Off mic.) Why (inaudible) upper bound two?

MR. WALDMAN: Okay, my mistake. I didn't hear it -- I didn't remember it perfectly, but anyway, my statement still stands, which is the upper bound's important. Whether there's an upper bound is important.

So, what are the arguments here? Well, this is very similar to the lock-in argument. If the initial price is competitive -- if the initial good is competitive, then the initial price will fall, and that's going to reduce -- that's going to reduce this rent shifting or get rid of the rent shifting. If the market's repeated, then, again, if -- and if the consumers learn, then that's going to reduce these inefficiencies. If the consumers are sophisticated and kind of anticipate what the price is going to be, that's going to reduce these inefficiencies. If none of the conditions are satisfied, then you can get rent shifts, you can get inefficiencies.

And just let me sort of point out that competition here or kind of imperfect competition doesn't completely eliminate the inefficiencies, because the full price that the consumers are anticipating is still the wrong price. If all you have is competition, then that first price falls, but the consumers don't anticipate that later price, and so some consumers who kind of were at the margin wind up buying when they shouldn't have. So, competition, all by itself, even if it's perfect competition, doesn't do everything.

Suppose the drip price is mandatory, under the control of the seller, received by the seller, but there is no additional good or service provided. I don't really see that as being very different in terms of what -- than what I just said, partially because in terms of what I just said, there wasn't anything that required that the additional good or service actually had a positive utility. So, I think their argument works pretty much the same way.

A third case you might want to think about is where there's a mandatory charge not under the control of the seller, not received by the seller, a tax. So, again, kind of going back to the hotel case, I pay the hotel bill, and there's this tax, which they didn't -- which they didn't tell me about. The price isn't going to fall. I think I don't have it quite right down on the

slide, so don't look at the slide in this case. The price isn't going to fall, because the consumers aren't getting the tax, but there's still not going to be any rent shifting if the market's perfectly competitive, because it's perfectly competitive. Now -- and you are still going to have these inefficiencies, because -- in terms of consumption, because the consumers are not going to properly think about or understand what the right price is in terms of -- you know, they are going to anticipate a different price -- total price than the one they actually pay. Okay.

Let me just sort of -- I am not going to go through all of these in as much detail, but I also talk about some scenarios or there are some scenarios where there's -- there's -- it's an optional amount, right? So, there's an optional payment. So, what do I mean? Think about the hotel, and I thought when I was going to the hotel, I had these two young kids, they love to go swimming, right? So, I go to the hotel and I'm saying, "Oh, we're going to go and take the -- my wife's going to (inaudible), and I'm going to read the New York Times." So, I love going to hotel swimming pools so I can relax and read the New York Times.

I get there, then there's this -- "Oh, you want to use the swimming pool. Yes, we have a swimming pool. That was on the Web site, but, in fact, if you want to use the swimming pool, that's going to cost you an extra 20 bucks a day, okay?" So, that's an extra -- that's not a mandatory charge, but -- and how does -- but -- it's still the same kind of idea. How does that change the problem? Well, it changes the problem by introducing another possible inefficiency, because now you have this inefficiency on the consumption of the swimming pool.

And so -- so, the logic works very similar, except now competition -- you know, competition will help on the front end in terms of kind of getting no rent shifting, but it's not going to help in terms of kind of getting rid of the inefficiencies in terms of how much the swimming pool is actually used.

So you still have inefficiencies there, while sophistication -- I'm sorry, but in that case, repetition will help, because if you can -- if -- where am I -- yeah, because if you -- if there's repetition, then the firm is not going to want to charge this -- not to charge this too high a price, because they will realize the consumers will know that and won't come to their place. So, repetition will tend to reduce inefficiencies at the back end. Sophistication, that's not going to help. So, kind of as you introduce this third inefficiency, kind of

what helps and what doesn't help on the third inefficiency varies across these three basic ideas of competition, repetition, and sophistication.

Okay. So, what's the summary? The summary is that when I think about the drip pricing literature or when I think about the aftermarkets literature, it seems to me that the lock-in idea, the tying idea, the reputation story all seem like the relevant parts of the aftermarket literature in terms of thinking about drip pricing.

So, at least the efficiency arguments that I know about, for example, the Elzinga and Mills paper concerning Ramsey pricing, my paper with Dennis concerning the substitution across replacement and the drip price -- and the aftermarket price, they don't seem relevant, at least in terms of the examples that I think most of us have in mind when we're thinking about drip pricing.

And the other sort of basic idea is it varies a lot in terms of how these work, but basically mostly competition helps, mostly repetition helps, mostly consumer sophistication helps, and how they help, exactly how they help varies depending on the exact scenario that we're looking at. Okay.

Some thoughts on regulation. Drip pricing can arise because the seller is trying to get these profits, but it could also arise because there's this -- the consumers are just overwhelmed because, really, I don't want to see all these taxes on the sheet. I just want to kind of get the summary, and I figure all the hotels are charging the same taxes.

So, if the regulatory response is let's make things more transparent, then that's going to depend on what's driving the situation in the first place. Is it because the firms are just trying to exploit the consumers or is it because it's being driven by the consumers being overwhelmed? And so that's important.

And also, you know, when should I enforce this transparency? It's when these other possibilities -- you know, it depends on the scenario, but also, it's when these other possibilities of repetition, competition, and consumer sophistication are more lacking. That's when we would think that putting in this transparency should be more important.

So, just to conclude, there's lots of similarities here between drip pricing and aftermarket pricing, and there's lots of literature on aftermarket pricing. So, we can use the insights from the aftermarket pricing literature to think about drip

pricing. And what does that tell us? It's -- well, I think it tells us, at least in the examples we're thinking about, that drip pricing is used to -- is used to exploit lock-in and tying, and competition, repetition, and consumer sophistication all serve to reduce problems, and how much they reduce the problems varies a little bit with the details of the specific scenario. It may -- transparency may be an important response here, and in terms of thinking about transparency, one should think about, well, what's the root cause of the practice? If the root cause is increased price -- you know, just trying to exploit the consumers, imposing transparency seems a more reasonable response. If it's because consumers are overwhelmed by putting too many prices up there, then maybe transparency isn't the best response. And also, transparency makes more sense when competition, sophistication, repetition are all lacking.

Okay, thanks very much.

(Applause.)

MR. SMITH: So, the final parts of this panel will be a discussion led by Michael Salinger. Michael Salinger is the Jacqueline C. and Arthur S. Bahr Professor in Management and Professor of Economics of the Boston University School of Management. He's former director of the Bureau of Economics here at the FTC. He has published articles on such issues as the structured determinants of market power and the competitive effects of tying in vertical mergers.

And, Michael, did you want to start with a short remarks or presentation or anything?

MR. SALINGER: Sure.

So, when Mary invited me to come, I think she knew that I didn't know anything about drip pricing, but she asked me to bring my perspective from my former FTC role, which I'll try to do, but I wanted to just say a word about how it relates to some research I've done, because it -- I think it relates to the policy issues.

One of the areas I've worked on is tying, and it's -- whenever I see a Southwest Airlines commercial these days, I get a chuckle about it, because, of course, it's been a public -- there have been times when companies have been accused of behaving anticompetitively for tying products together, and an example of tying is the airlines would traditionally tie passenger service to the right to carry your bag, and there was a time when the Department of Justice thought it would approximate a clever idea to break up the largest company by market capitalization in the world based on their tying.

But now we get untying, and there are all sorts of interesting issues about it. So, first of all, as a policy matter, people are complaining about the untying, not about the tying. They are complaining about these baggage charges. And the other thing that is interesting about it is, who's doing the advertising? It's Southwest that's out there bragging that it's out there -- that it's tying, and you've got the other airlines not saying anything about it. And so, you know, I had an earlier stint at the FTC in the mid-eighties, and we had a joke back then that if you saw prices going up, it was price-fixing; if you saw pricing being stable -- prices going up was monopolization; if it was prices being stable, it was price-fixing; if it was prices going down, it was predation. So, there wasn't anything you could do without getting in trouble. And so -- and I think that the drip pricing problem has -- there's a similar issue with it.

So, in terms of the perspective I can bring from my former role, the economists are dealing with lawyers a lot, and the lawyers have something that they know is a problem out there that people are complaining about. So, we all have had these irritating episodes where we got hit with charges that we weren't expecting, and it seems unfair in some way. But the problem is that when you think about it, it's a completely common phenomenon.

So, when we go to the -- whenever we go to a restaurant, you see the price of the entree, but you don't see full disclosure as to what they're going to charge you for a bottle of wine and for the sides. You go to the baseball game, you're going to pay a high price for beer and a hotdog. You -- I mean, it just -- even when you go to the grocery store, if they have advertised a low price for turkey before Thanksgiving but haven't advertised the rest of your prices, that looks very much like drip pricing. So, we're seeing it everywhere.

So, the policy problem is -- is you have this thing. You know sometimes it's a problem, but it looks completely pervasive, and the question is, how, as policy-makers, do you decide, you know, where to take action and where not to take action? And the policy-makers are just dying for the economists to say, "Look, economic theory says this is where you intervene and this is where you don't intervene." So, they were looking to this panel today to give absolutely clear guidance as to when it's a problem and when it's not a problem.

Now, I had the advantage over most of you that I saw these slides starting Thursday and Friday, and even

with the benefit of a couple days, I'm not sure that we've given the policy-makers a clear idea of when they should intervene and when they shouldn't. And, indeed, if I take David's presentation, you're saying that it's really quite a pervasive problem, I think, where there should be quite a bit of intervention, and if I take Mike's -- okay.

MR. LAIBSON: No, go ahead, but I don't mean to say that.

MR. SALINGER: Okay.

MR. LAIBSON: I (inaudible).

MR. SALINGER: Okay, good. Thank you.

And I think Mike's presentation, you -- Mike Baye's presentation, when he says it's model-specific, that could mean we don't know anything, or it could mean we know quite -- you know, we know specifically which factors to look to for it to be a problem. And I guess that your presentation is you were giving us some guidance on what factors to look to.

But, you know, I wonder if by the end of the time we have allotted to us we can give the policy -- you know, we can arrive at some consensus among us as to when. So, I mischaracterized what you said, so why don't you start.

MR. LAIBSON: So, I think I agree with the statement that I'm worried about shrouding and drip pricing, but I'm not sure whether there's a regulatory fix or not, and I'm not sure of the -- all of the offsetting channels, like reputation, learning, competitive mechanisms that mitigate the welfare losses.

So, what I'm hoping we'll move towards -- and I think we can move there very quickly -- is more measurement of the problem and measurement of the kinds of interventions that we might employ in the future on a wide-scale basis, but first employ on a pilot basis.

So, for me, I mentioned weak implicit shrouding, strong implicit shrouding, and explicit shrouding. So, weak implicit shrouding is people don't directly get the information in the purchase. I'm not so worried about that. I mean, we have lots of reasons to think people might expect that the price is there, they vaguely know it, even without looking it up, like the restaurant. I'm not worried about people going to a restaurant and mistakenly thinking the wine's going to be cheap. We've all been there 500 times. We know the wine's going to be expensive.

I'm worried more about strong implicit shrouding where I survey people as they leave the store and I ask them, "What are your beliefs about the add-on

costs you're going to pay?" And it turns out their beliefs are an order of magnitude too low, or explicit shrouding, where I literally give people 50 bucks to find the information, and someone with, let's say, an undergraduate BA in the humanities or even in economics, with a half an hour and 50 bucks at stake, can't even find the information.

So, I think these are the places where I would begin, as a regulator, just measuring whether the economic -- I mean, Michael talked about economic theories that have rational expectations. So, we would expect in those theories, if that's the right framework, that expectations should, on average, be unbiased. My guess is they won't be. But we've got to measure that first, more than the kind of anecdotal two or three studies I can point you towards.

And then, if it turns out that the strong implicit shrouding and the explicit shrouding is present -- and we could know that in three months, I mean, those studies are easy to run out -- three months from now, we could have that answer, and then I would go to the pilot studies where I start to intervene in a single store, right, before we do any national policy, and see whether a disclosure, not of the sort that comes in the fine print, which we all know will do nothing, but a disclosure in the form of something much more aggressive, changes behavior in ways that improve welfare or worsen welfare. So, you know, it may be people walk out of that store and say, "I hated those pink forms, they were actually distracting, they blocked the information I wanted to see, bad." Well, let's find out.

But I think all of that could be done -- not that, you know, I'm telling someone to do it, but it could be done in nine months. So, we could know very quickly whether people are fundamentally confused about these add-on prices, whether they can't get the information even when they want to get the information, and whether interventions of the most natural kind will roughly work. And before we do any major regulation, let's pursue those three research projects.

MR. SALINGER: The observation that you could do it in nine months is not right.

MR. LAIBSON: I've done stuff like that. I've -- when the SEC came out with a new disclosure policy, it was a -- it was the prospectus light that they came out with. Do you remember -- I don't know whether you followed that. It was about the -- 18 months ago. We ran a study in three weeks. We just -- we saw the regulation. They were asking for comments. We ran a

study in three weeks. We showed it didn't do any good. And they went ahead with the regulation anyway.

So, you know, I think that research -- I mean, if people have a little budget and a little motivation, you can run -- I mean, this is like a survey out of Staples. In the SEC case, it was an experiment showing that the new disclosure -- the new prospectus and the old prospectus generated the exact same allocations in terms of their investments.

These small-scale research projects are easy. I think getting the ear of the regulator is the hard bit.

MR. SALINGER: Mike, I interrupted when you wanted to --

MR. BAYE: No, no, you didn't interrupt. I mean, I guess, you know, my take -- I mean, I certainly like science and I like, you know, the idea of kind of doing field experiments to see how people would respond to disclosures. I guess when it comes to drip pricing, though, and -- I mean, I agree, we could -- we could maybe get Staples or Office Depot or somebody to do a little thing on toner cartridges. I just wonder if we learn that people systematically understated the full cost of using a toner -- I mean, I'd guess people do that. It would be nice to confirm my belief, but I suspect people systematically understate the cost.

I'm just wondering, so, then, what does that say about -- about what -- about how we should deal with airlines? What does that say about how we should deal with restaurants? I mean, it's not clear how we can extrapolate that. The business environment is very -- is very dynamic.

Just to give you one example of a drip pricing that I faced every week when I was driving back and forth between Indianapolis and Bloomington during the year and a half I had the pleasure of serving at the FTC, one day I show up for my 6:00 flight on Monday morning, and guess what U.S. Airways is starting to do? Charging me a buck for their bad cup of coffee. They unilaterally started charging for the free drinks that we are all accustomed to. It lasted about two months, because I would argue competition matters, you know? I mean, they had a monopoly on the route that I needed, but it's bad business practice.

I guess I just wonder what you can learn from that, and on the disclosure end, I mean, you were around for the FTC mortgage disclosure studies, and so, you know, the Government creates this thick pad of paper that every mortgage buyer has to sign, and it's that thick, disclosing all the terms of the mortgage, created by a

good-intentioned set of civil servants, I'm sure, because disclosure is good. You ask people, take a -- do a scientific study and ask whether people know what's their annual percentage rate. People don't know that. Is there a prepayment penalty? That's like a drip, right? You know you're going to go to pay your loan off two years -- after two years and you get hit with a $50,000 prepayment penalty? That would be an important thing to know. People didn't know that as a result of the government forms. I just think it's extremely complicated. Even if we knew that people were systematically underestimating the cost of buying toner cartridges, I just -- I'm pretty pessimistic about a fix to that problem.

MR. LAIBSON: You're pessimistic about even going out and designing interventions and testing whether they work in small scale? I mean, I thought we would agree on that, that the major regulation, without first testing at small scale, is nonsense. The solution is you go market by market, you begin to build a body of knowledge empirically, with theory, of course, at your side, and you slowly learn what works -- and we know what works, you know, tiny, simple, bold disclosures, not 50-page documents -- but we learn that because I think it was actually right here. I think the FTC ran that study.

So, I think this is exactly the point. We need to measure. We need to intervene on small scale before we roll out national policy.

MR. SALINGER: Yeah, but it's a great example because it raises one of the real complications, which is that there was a lot of industry support for the confusing form, and -- right? And so -- right? So, I saw Jim Lacko coming in, and it was just a -- this fabulous study to the economists who weren't formally trained in designing a study who came up with something that was better than the official form, but when you go through the sausage-making, you have to get the input from the people who really know about it, the people who really know about it are the -- are the people in the industry, and they are going to try to game the process.

So, the question is, do we have a clear picture about of how we can solve drip pricing problems in ways that, when you get into the details of an industry, can't be gamed?

MR. WALDMAN: Well, you know, I think the gaming is always an issue, but I think if you have some simple rules, which I think is what David is suggesting, meaning keep the transparency simple and sort of have that as kind of a hard -- sort of hard and fast rule that

everybody in the agency has agreed with, I think there might be ways to limiting the gaming.

I just want to go back to a question to David. I basically agree with David, although I think he's in some sense maybe being a little naive -- don't take that offensively -- but I think the empirical work is a lot harder than you're suggesting, just because it's so pervasive. I mean, we're not talking one or two markets, and somehow you have to sort of draw a line.

And so I think one of the things that you said, which I think is very important in terms of doing the empirical work, is let theory guide you, because I think that we can all agree on, I think, some of the things I was saying are things we probably all agree on. Those are issues that come into play in terms of when this is really a problem and when it's not, and we can use that to guide the empirical work, which markets we look at, and try to come up with some general rules, because we don't want to have to go to, you know, 10,000 different markets and do the study in 10,000 different markets or use 25 different variables to look at it. So, I think to make the empirical problem something that's more feasible to do, I think we have to bring in some common sense and some sort of basic theory to help guide those situations and come up with some general rules, as opposed to, okay, this -- in this market, we want to do this; in that market, we want to do that; in this market, we want to do this other thing. But, rather, in markets where there's -- let me just go back to what I was saying before. In markets where there's strong competition, close to perfect competition, maybe it's not so -- something we have to worry about, in markets where the consumers are -- where most of the consumers are sophisticated, not something we need to worry about. And I don't think that you disagree with that, but I think that that has to be emphasized a little bit more in terms of kind of your push for -- for pushing for this type of empirical evidence.

MR. LAIBSON: So, I completely endorse everything you just said, including my naivete. So, just to be clear, I don't think we're going to come up with rules, in general, for shrouding and for drip pricing in the next nine years, certainly not the next nine months. What I'm hoping for is a set of studies that begins to provide the empirical ground work for the learning that might produce, in a decade, the kind of general understanding that you're describing.

But, frankly, I do think that in the short run we need a lot of measurement, market by market, and we'll

begin to learn, at a very micro level, what's happening and what kinds of interventions do and don't work. And only after that dynamic learning experience will we emerge with a body of theory and data -- hopefully jointly confirming each other -- that enables us to start talking about economywide regulation.

My personal experience has been very depressing. I've done a lot of work in the 401(k) setting, and there I thought -- you know, that small setting, I kind of knew what was up, and every time I ran another study, I discovered that I was just profoundly wrong about what was happening. And I've come to actually the conclusion that you kind of have to build up empirically your understanding of what's going to work and what's happening in the environment, and even in a single setting, you need multiple -- you know, hundreds, maybe -- of empirical studies to understand the context.

And the notion of generalizing to all markets, I think, is certainly hopeless in the short run, and even in the long run, a kind of bold move.

MR. SALINGER: Let me raise another question about limiting the gaming. When we are looking at very complex products, there's -- where it's hard for consumers to compare, there's a tendency to say, okay, we want to make sure that companies disclose their prices in a way that's easily comparable. And from the consumer protection side of this agency, it makes sense, but as Joe was saying, it's a competition agency as well as a consumer protection agency, and the idea that when companies are offering multidimensional sets of products and services, that we want to make sure that there's a single number -- one single number that they report, I suspect some of the competition people in the agency would say, "Boy, that sure sounds like a way to facilitate collusion."

Is that -- is that a real problem?

MR. LAIBSON: I don't think we're proposing a single number. I'm not. Is anyone here proposing a single number?

MR. SALINGER: No, but the question is what sort of guidance can we give as where to -- where to prioritize?

MR. BAYE: I mean, I hear your concerns about collusion. I guess a bigger concern that I would have, though, is just the -- the -- regulations affect the nimbleness of firms to respond to changes in the business environment, right? And I -- you know, looking at the Internet over the course of the past decade, there have been tremendous business innovations as firms have come

up with better ways of providing information to consumers, platforms have done a better job of providing information to consumers, and so forth.

I guess the concern I would have about a regulation, hypothetically, that said, you know, you must -- you must disclose the full price of the product, there's a lot of heterogeneity out there. You know, for example, when you -- when you buy a product as a government agency, you don't pay -- you know, as a university, you don't pay state taxes on those transactions. There are a lot of different prices out there that different people pay, and as you start trying to pigeonhole what's being disclosed, even abstracting from the fact that, you know, most stores sell tens of thousands of different versions of products and so forth, and to try to disentangle -- unbundle all of those things -- and that's kind of what it strikes me.

I thought your opening remarks were right on, is there's this tension between what I would think of as bundling versus a la carte, and it can create a very -- you know, an environment where people don't want to change prices, they don't want to change things, because if they change things, they have to -- they have to make sure that they're going to be complying to what -- what the law says they have to disclose, and I would be a little bit concerned that it might lead to stickiness. Whether you call that collusion or not I think is a different matter.

MR. WALDMAN: Let me pipe in just a little bit on this, which is I think you can have transparency sometimes without prices, in the sense -- and I think maybe David's example of the toner cartridges is a good example. So, one could come up with, well, here's a number of pages that you produce during the year, and, you know, how much is that -- how much is that going to cost?

You know, there might be a way to kind of set it up -- maybe the toner cartridge is not a good example, but there might be a way to set it up in some examples where you talk about how much usage there is going to be, you know, how many pages they are going to have to -- are you going to produce or something of that sort, where it doesn't necessarily translate directly into a price, and so collusion is not going to come into play. But I would have to think about that a little bit more in terms of which examples might fit that and which not.

MR. SALINGER: Are --

MS. SULLIVAN: Is this mic on?

Okay. Could we leave some time now for questions from the audience?

MR. SALINGER: Absolutely.

MS. SULLIVAN: Okay. We can continue the policy discussion later during our roundtable.

MS. IPPOLITO: Is this on?

Okay, just to follow up on the discussion you have just had, let me give you a concrete example. The energy efficiency of appliances. When you label the energy efficiency of appliances, you're paying a fixed cost today for a device, and then it's going to use energy over whatever length of time you keep that appliance, and that's what's relevant to you.

We have gone back and forth on this with the Department of Energy. They would prefer not to have prices, so that people know this is a five-star product and this is a one-star product. We like prices because you're implicitly doing a trade-off between a lower fixed price today and this flow of prices, but it really gets to the issue of that trade-off depends on who you are and what you are going to do with this appliance.

If you're a student buying a little refrigerator you are going to use for this year, you care a lot less about energy efficiency, especially if it's in the dorm price, than if you're a homeowner buying a big refrigerator. So, it really is a complicated question when you get down to it based on both the consumer heterogeneity and then the choices that they make over time, where getting away from price, we're risking more than going to price.

MR. LAIBSON: That's a great example where theory will probably never help us answer that question. So, we -- I mean, it will help us formulate different possibilities, but we're going to need to run that empirical study to know, how do people respond to information in the price form versus four stars? I have no idea.

MR. WALDMAN: But in that case, the price is not being set by the original manufacturers. It's a little bit -- it's a little bit different than, say, the toner cartridge case, and I think actually in that case it's very easy to say -- as a matter of fact, that's kind of what I had in mind, but thank you for sort of pointing it out. You could just say, "Well, if the average electricity price is X and this is the amount of usage you have, here's how much this thing is going to cost in terms of usage," and you don't wind up with any collusion problems, because the manufacturers are not setting the prices.

MR. BAYE: And just to follow up, I think one thing that gets back to that stickiness issue that I raised before, you go through the cost of determining exactly what label you want to put on your toner cartridge and so forth, and now you want to think about changing the price of toner to respond to competitive pressures. Well, you've got these labels that you've stuck out, and the FTC may come after you for false advertising if you -- so, I mean, it's a little different, I think, in this environment where you want prices to be flexible. Labels tend to be sticky, I would argue, and that could lead to sticky prices.

MR. ZINMAN: John Zinman from Dartmouth. I just want to posit that this program or process of going market by market and building up empirical evidence may not be as daunting as it sounds at first and may even be budget-neutral in the sense that regulators, whether they're enforcers or policers, need to conduct market analyses periodically, and one of the benefits of the type of program that David was putting forth is, you know, good empirical work will produce forensics that regulators can then use as part of their routine operations.

And so these empirical -- these initial pilot studies that David speaks of may eventually become substitutes for some of the analyses that are already under way.

MS. PAPPALARDO: Hi. I'm Jan Pappalardo. A couple of comments on a few of these things. So, on the Energy Star, we did research, and we found that the stars could actually mislead people, because they thought that a star meant more about quality or characteristics other than energy.

The other thing that we found is that people tend to like prices, and what seems to be going on there -- and other researchers had found this in other areas -- is that price allows people to compare against all kinds of goods and services. So, it's a metric beyond looking within the one little small sector of toner cartridges or for energy uses.

The other thing I'd like to mention is on transparency, if you guys have thought about the possibility of setting standards that say that it's not that it has to be transparent, but it has to be comprehensible. People have to understand the information in the way it's intended as a standard, rather than just transparency, where it's on paper. That's a question.

UNIDENTIFIED SPEAKER: (Off mic.)

MR. ZETTELMEYER: Yeah, I have the mic. So, I wanted to follow up a little bit on the question about the Energy Star and whether you put price information on and also David's comment.

You know, we've talked a lot about being guided by theory, but I think what we also need to understand is that theory, and particularly economic theory, is not going to tell everything about consumer behavior in this setting. It may tell us a lot about what happens to firms, but the way the consumers actually behave is a different matter.

I want to give you one little example. So, we recently finished a paper which looked at whether there was evidence of myopia in trade-offs between higher purchase prices and lower fuel costs when purchasing cars -- basically whether consumers' willingness to pay ends up reflecting the expected future savings in fuel costs that arise when gasoline prices rise.

And what's interesting in this area is that as you know from the famous '79 Hausman paper, there's been a lot of evidence that there's a lot of myopia when you make these intertemporal trade-offs, and I think part of that is why you ended up getting energy efficiency disclosures put on these goods.

Well, what we found in the case of vehicles, where prices change all the time, is that peoples' implicit discount rate for these decisions lies between about zero and 10 percent, which is completely in line with normal interest rates, and it's unclear that you would necessarily get this out of a theoretical model. You really need this type of evidence to be able to distinguish between industries, and there are a lot of idiosyncrasies.

In the auto industry, for example, I speculate that part of the reason why there is little myopia is because prices are incredibly salient, because you drive by them many times a day when you're going by gas stations. The important insight is that the consumer behavior piece is subject to experimentation and empirical study.

MS. SULLIVAN: Okay. I think that we are about out of time. I'd like to thank our speakers and discussion leader and everyone who asked questions for an enlightening session.

(Applause.)

MS. SULLIVAN: Now we're going to take a quick 15-minute break, and then I'd like for you to all come back, because what we're going to be able to hear after the break is Amelia Fletcher is going to talk about the

Office of Fair Trading experience with drip pricing and other forms of what I call sneaky pricing. So, come back at about quarter 'til. There will be coffee and cookies and things in the other room, and we'll see you in a few.

(A brief recess was taken.)

KEYNOTE ADDRESS

MR. FARRELL: Welcome back, those of you who are back, and please come back, those of you who are not.

So, it's my privilege to restart us by introducing Amelia Fletcher. Amelia is Chief Economist and Senior Director of Mergers at the UK's Office of Fair Trading. Her primary responsibility is to ensure that the economics within the OFT is of high quality and represents state-of-the-art thinking. So, that sounds good.

Amelia was previously an economic consultant at two firms and has multiple degrees from my own institution, Oxford University. So, thank you very much for coming, and welcome to Amelia Fletcher.

(Applause.)

MS. FLETCHER: Well, thanks, Joe, and thanks to the FTC and Mary, in particular, for inviting me. It's very -- I've already learned a lot, and I've been enjoying the discussion, and it's very nice to be part of this event and particularly alongside all these extremely August academic economists.

I am going to describe the UK experience of drip pricing, and I am going to do a little bit on the economics as well, some of which is a bit repetitive, but I will try and go through that very, very quickly.

I forgot to put a disclaimer on my slide. I have the same disclaimer, except we don't have commissioners, but these are my views, not those of the OFT.

This is what I'm going to be covering, but I'm going to dive straight in, and first of all, just to

highlight that, you know, this really is a hot topic in the UK. I'm sure it's a hot topic. In fact, the first thing I saw when I turned on American TV this morning was an advert for a rail company, which the main gist of which seemed to be you don't get the add-ons if you go with the rail company that you get if you go with the airline company or the add-ons for packages, et cetera. So, it's clearly a hot topic here as well.

But this was, the Saturday before last, the front page of the Money supplement of The Guardian newspaper, just a random example, "The Real Cost of Flying," and it was a lot about the extra baggage fees but also the extra charge for using your credit card to actually buy the ticket.

And the OFT is looking into payment surcharges, in particular, so this charge for actually paying, in particular, in the travel industry. And these are some of the companies that are charging people for paying for their travel, and there's a lot of airlines, but also ferries, also rail, actually, in the UK, and also package holiday companies.

So, why do we actually care about this as an authority? And actually, why do firms engage in this? And I think there hasn't been that much discussion so far of the behavioral side of this. There's been -- it's been a bit implicit. So, I'll talk a little bit more about that.

Essentially, what we believe, anyway, is that value is to some extent an abstract concept. So, people use cues from the world around them to decide if an offer is good or bad value, and the way in which prices are framed, therefore, has the power to influence and mislead consumers and change their preferences. Therefore, misleading price frames can lead to consumers spending more than they need to, buying a product which is not best for them, wasting time, or -- and I think we've already heard some exhibitions of this today -- suffering annoyance, disappointment, or regret.

Misleading pricing is not only necessarily bad for the consumer, it can also be bad for competition -- Joe talked about that -- and can create an uneven playing field between fair-dealing businesses and those that push the boundaries too far, as it were.

What the OFT did is a couple of years ago we published a study. It was -- hasn't got the title in here for some reason, but it's called "The Advertising of Prices Study," and it's called that because it was about the way in which prices are advertised -- so,

effectively, price-framing -- and the impact of that price-framing on consumer decision-making.

The study looked at behavioral psychology literature around price-framing and the impact on behavior, included an economic experiment to measure how search and purchasing decisions were affected by price frames, and also did a survey of 3000 consumers about just their experience and attitudes towards price-framing.

Now, I want to emphasize that this wasn't just about drip pricing. We actually looked at five forms of price-framing in this work. Drip pricing was an important one. We also looked at reference pricing, which is you go into the grocery store and the wine is $6, down from $12, what does that tell you? And time-limited offers, you know, closing-down sales or this sale finishes next week, so hurry up and make your decision; volume discounts, three-for-twos, two-for-ones; complex pricing and tariffs, so that's -- you know, you've got -- your mobile phone offers you one fixed fee for the usage charge and another fixed fee for the usage charge, and how do you -- how do people deal with those rather complex pricing structures and make decisions between them?

And the final was bait pricing, which is essentially where you -- a shop will say, "Come and get an iPhone here, special offer, $100," and you go in and, weirdly, all the $100 iPhones have already disappeared, but once you're inside the shop, you might be invited to -- you might look around and buy some other things, or, in fact, the example earlier given by Michael Baye of even if the product is still available, you are actually then persuaded that maybe that wasn't quite the product you wanted and maybe this product over here is much more to your -- reflects your preferences much more effectively. So, that's bait pricing.

What was interesting in the study -- and there was lots of caveats in the study about comparing these different price frames -- but amongst these different types of pricing -- price-framing, drip pricing was found to have the most egregious effect.

So, how does it work? And these were the behavioral biases that we thought were most appropriate to consider when looking at drip pricing. The first was something called anchoring. Basically, consumers anchor to the piece of information they think is most important, so the headline price. So, that's what they focus on. And then they fail to adjust their perception of the

value of the offer sufficiently as more costs are revealed.

And also, an endowment effect. Consumers make the decision on the basis of the main price, the headline price they see, and they feel they've made that decision to purchase; they've kind of sold themselves; they've got used to the idea of buying this product. That then creates loss aversion. They don't want to change their mind, because they now feel differently about this product and buying it than they did before they started the process. They've committed time and effort to the search before being hit with the extra charges.

And finally, there is just a kind of commitment and consistency aspect. Consumers have a desire to be consistent with their previous actions. So, once they've started a process, they are less likely to walk away.

So, that was the behavioral economics literature that we thought was appropriate, where the psychology literature, which is obviously very linked, identified a number of effects on consumer behavior triggered by drip pricing. It found that drip pricing could lead to higher demand and higher perceived value of the deal. So, it's interesting, actually, from the welfare perspective, if people think that the value of the deal is higher, is it actually higher? Good question. It gets quite complex about what true value really means. But certainly people felt there was a higher perceived value of the deal with drip pricing.

A lower recall of the total price, this goes to this anchoring point, that people remember the headline price but not the total price. A reduction in shopping around and comparing prices, generally; an increased difficulty in comparing total prices; and a strength in belief that as the consumer's choosing a product based on that person's particular need, prices will be about the same everywhere. I'm not sure we've got a rationale for this -- for this element of it at all, but it's an interesting one.

My slides got a bit funny here, but basically all of this has -- means that consumer purchasing decisions are effectively driven by those who have the cheapest headline prices, and that, in turn, disadvantages firms that include all of the compulsory charges in the headline price. So, we have a nice example of that.

A couple of years ago, there was a new law that came into being, which was a specific -- I am going to talk about it a bit more later, but it's a specific law for airlines, and it's a requirement that all -- a

requirement that airlines include all taxes -- compulsory -- mandatory taxes and charges in the headline price.

There wasn't -- so, the law came into effect. The Civil Aviation Authority in the UK said, "Okay, all airlines, you have to abide by this rule." They didn't put an implementation date. The first airline to implement actually said afterwards that it lost 5 percent of consumer traffic to its Web site while it waited for the other companies to comply. So, it's a really nice example of actually how drip pricing can uneven a playing field.

So, very basic economics -- and I really go through this fast, because we have talked about it already -- essentially, the key question that we were wondering about at the OFT is whether it mattered whether all consumers were affected and if -- and whether -- whether all consumers would be affected and whether it mattered and whether there was the potential for sophisticated consumers to protect the less sophisticated.

And drawing on the work by Xavier Gabaix and David Laibson, we thought, too, about these two groups of consumers: The sophisticated who actually do know what's going on here, although they may be made more wary, as Joe talked about, and the naive consumers, who don't. And there's one option which is where neither consumers can avoid the drip if they want the product and the trader can't discriminate. In that case, actually what you end up with is sophisticated basically being affected to some extent because they have to pay the same price.

And as David highlighted, there's an alternative, not always, which is where actually the sophisticated can avoid the add-on price, so only the naive consumers actually fall for the deceptive price frame, but -- and this is very much the same as you've already seen. What it does is the price-framing shifts out the naive demand from the unbiased demand, because consumers feel that the product is cheaper than it really is, and that, in turn, shifts out quantity, shifts up prices, and sophisticated consumers don't fall for the frame, but they don't protect the naive consumers, because actually, they get subsidies as a result of this whole process. So, they stick. They basically like the process as it is, and there is no incentive of any firm to undermine this process.

There may also be the additional indirect effects which Joe was talking about in that this whole process may increase search costs for the wary sophisticates who do understand about the total prices,

but they become more complicated for them to shop around in order to work out what total prices are. And this may make individual trader demand more inelastic, creating additional detriment.

So, overall, what we felt was that the likelihood and extent of harm from drip pricing will depend on how large a proportion we have of naive customers. Are there enough sophisticated customers to protect the naive? And that may be the case in certain circumstances. Actually, how do the firms treat naive and sophisticated? Can they actually separate them? And we talked about that earlier.

How important and transparent is the add-on? And this links, I think, to the t in Joe's talk earlier, but clearly where an add-on is a really large part of your cost, people might be more likely to make the effort to find out about it than if it's actually a smaller part or relatively harder to see. Are third parties operating in the market to inform consumers? So, is there some sort of reputational solution to this problem?

Will consumers learn? So, there's a learning solution. And also this point -- again, this linked to Joe's k, I think it was -- will profits simply be competed away in the primary market?

So, those were -- it's all fairly complex, but what we wanted to do is actually see -- and maybe this is a little bit responsive to David's desire -- we wanted to do some real world work. It's not very real, but it's real in inverted commerce, and it was a lab experiment. What we wanted to see was how confused consumers really were.

So, what we did was we asked Steffen Huck at UCL to design a lab experiment where -- and there were student subjects, as is often the case in these experiments. We exposed them to different price frames. As I think is good practice in these experiments as well, real money was at stake.

In the baseline model, we basically just had two shops, and those shops were not expected to profit-maximize or anything. They just had prices drawn at random from a distribution. So, we were very much looking at the consumer behavior side, not the firm behavior side. Search was costly in this model. There were three levels of search costs, and subjects were endowed with a pay-off function. So, that's effectively a utility function that mapped units of the good purchased into earnings, into real cash earnings.

So, for example, one might be 120 for the first unit, 80 for the second, 20 for the third, 10 for the

fourth. So, what that means is if you end up in a shop and the price of the product for which this is the pay-off function is, say, 60, the right thing to do is to buy two units of the product. And then there were four different ways of scaling pay-offs, depending on the different products that were available.

Now, it's -- it didn't really look like a real shop. This is really what it looked like, but it's an awful lot simpler than a real shop. This is basically your home screen, and you -- it tells you your search costs, and it also tells you the product that is available to buy in the shop. So, that tells you your pay-off function. And you basically get a choice. Do I go to shop one? Do I go to shop two? And there's also an "I'm done" option there.

If you then go into shop one, you get a price. You can choose the units that you want to buy and buy them or you can -- or you can go home. And going home allows you the option of going to the other shop and having another look or just stopping. And so -- but every time you go and look and leave a shop, you invest some search costs.

So, this is the baseline consumer problem. You basically see these two shops, decide which one to enter. Whichever one you go into first, you see the price, you decide whether you're going to buy, you decide the number of units you're going to buy, and then you decide, hmm, am I -- am I going to end there or am I going to continue to shop? If you don't decide to buy, you can go and search in the other shop, go through the same process, decide to buy. So, it's essentially like shopping. It's a pretty -- that was what we were aiming at.

So, it's a little bit complex, but it's no more complex than shopping, and we found that participants could actually do it pretty well. In the first shop, around 80 percent of choices were optimal in that people not only bought the right amount, but did the right amount of searching. In the second shop, around 87 percent of choices were optimal, but what was interesting is 98 percent of all errors which did occur were actually do to oversearching, so people were incurring search costs that actually exceeded the benefits that they actually ended up getting by going into a second shop. So, too much search, which is, you know, not the usual problem that competition authorities certainly worry about. And as search costs increased, the search activity was reduced, and therefore, the outcome became closer to the optimal result.

So, then, the question was, could adding a simple drip really make such a difference? So, what we did is we just added two clicks to get from the headline price to the final price. So, this is what it looks like. It's very -- it's essentially the same at the top, but then as you go down, you go into shop one, you decide the number of units to buy, then you click, and there's a drip, extra postage, and you click again, another drip, extra shipping. In retrospect, I'm not entirely sure that postage and shipping are separable drips, but anyway, we wanted two drips, so that's what we had.

You then decide, do I still buy, do I buy nothing, or do I go and look in the other shop? If you go and look in the other shop, you do exactly the same thing. You get your prices, decide to buy or not, suddenly drip, drip. So, you're not committed to buy until after the drips, but you can then -- you then -- you get these drips and then you decide to carry on searching, and if not, what to do.

UNIDENTIFIED SPEAKER: The information is free?

MS. FLETCHER: The information is free, totally free, other than to go to the other shop costs -- each time is a travel cost.

What we found, just adding in these two clicks, was the oversearch was completely eradicated, and instead, there was undersearch. There was 9 percent more search error with consumers not shopping around enough. There were 14 percent more purchasing errors with consumers actually buying too many units. And in 27 percent of all cases where consumers should not be bought from the first shop, they do when faced with a drip price.

And, indeed -- and I'll jump to the last point -- the first trader visited, whichever one it is that you visit first, they end up receiving 112 percent of their optimal sales. So, they do -- there's a lot of stickiness to the first place you go to. And purchasing errors, actually, at the second store that you go to were also made worse, so you end up buying too much in the second store where there are high search costs and/or high value products. So, they're also -- the products at the second store, once you got there, you stay there and you buy too much.

Now, I should emphasize, we didn't -- this -- I've only shown you a bit of this experiment, because we actually compared five price frames -- I described all the price frames earlier -- and you do have to caveat strongly, because clearly, this is a very esoteric -- not esoteric, but a very one design, and depending on

different pay-off functions and different search costs, all sorts of things can vary; however, in the context of this experiment and these -- the way in which we designed it, drip pricing resulted in the largest welfare loss relative to the baseline of any of the price frames we looked at.

Why was this? Well, we thought that it probably wasn't just a result of sunk costs. So, you know, I've done -- I've invested all this search, I'm not going to do it again, although, of course, that might play a real role in real life. The reason we thought that probably wasn't the issue here is we had oversearch in the baseline. So, actually, our students seemed to rather like searching.

The most likely explanation we thought likely was loss aversion, so the people see the low price, they imagine buying the good at this price, and that increases their willingness to pay. And this is interesting, this is even in a really simple model, where you never even see the good. Think how different it would be with brand loyalty, you know, once you've sold yourself on the idea of getting this particular camera or this particular holiday.

How real world is this? Well, we found that students did improve their performance as the experiment was repeated. So, there was learning, but there was not that much learning. They learned to a limited degree, but not enough to eliminate all the mistakes. We would, I think, expect the effects to be worse in the general population.

So, obviously, we are probably not a very good subset of the general population either, but the general population, as a whole, are not economics students, and you might expect them not to be able to do this sort of exercise as well as economics students. They don't have the time available and the attention available that the economics students had in this particular context of doing this experiment. And often, real world drips are more complex. So, you would think -- you know, but this is as cautious as we could be. This is if they -- if these guys couldn't get it right, then there's not a great deal of hope for the general population.

Another interesting thing is the experiment really shows why firms invest in being the first trader of consumer visits, because there's a lot of stickiness. So, that means everyone's investing to be the first trader. That may, overall, have a downward effect on industry profits, but each -- everybody wants to be first.

Okay, I said we also did a consumer survey. What we did in the consumer survey of 3000 people was we asked them to think of -- think back 12 months and think of a time -- think of all the times that they had fallen foul or whatever, experienced drip pricing, and then we asked them to think of the -- one of those where either they felt it was the worst or they could remember it the best. And then we asked them to talk about that particular experience and their feelings about it. It was their emotional reactions we were trying to gauge, essentially.

Seventy-five percent objected to the use of drip pricing, and this was increased further for products bought infrequently. Seventy percent thought that compulsory charges should be in the headline price. Forty percent or 39 percent felt the cost of extras was much higher than they expected. Forty-four percent would have bought elsewhere if they had known the total price up front. Seventy-four percent thought the headline price was simply unclear on what was included; they were confused. And 51 percent believed that they could have gotten their product cheaper elsewhere.

So, I'm going to talk very briefly -- I can't remember what time we started, about ten to? Okay, so I'll try to finish by 20 past.

I'm going to talk briefly about the UK legal framework, because obviously, you know, the economists at the OFT have to work alongside the lawyers, and if we're going to do anything about this, we have to do it within the legal framework that exists.

I should emphasize that the UK legal framework is essentially the same as the legal framework across all EU member states, but it's all come down to us from Brussels for our EU directive, and the key piece of law here is called the Consumer Protection from Unfair Trading Regulations, which we shortened to the CPRs, and this contains two key provisions.

The first one prohibits giving false information to or deceiving consumers, so that's misleading actions, and in our view -- and this was what we -- we got to this view through the work we did -- through the work we did in the Advertising of Prices approximate study -- in our view, advertising a product using a headline price and then revealing only during the purchasing process, or subsequent to this, other compulsory charges, so this is about compulsory or mandatory charges, such as tax, which will increase the total price paid, we think that that falls foul of that regulation.

And then the second one is Regulation 6, giving insufficient information to consumers, so that's misleading omissions, and that's where we think the nonmandatory aspects could potentially fall. So, failing to disclose the existence of additional charges payable, such as postage and packaging, insurance, et cetera, until the point of sale. So, I said nonmandatory, and that's to some extent mandatory, but then they might be variable, so they're not absolutely, you know, standard for all consumers.

Under these laws, for practices to be unfair, you have to show that they mis -- that they will cause or be likely to cause the average consumer to make a different decision, and this can be anything from choosing -- well, it's a different transactional decision. There's actually a big debate about what a transactional decision is. Our view is it can be anything from choosing to enter a shop to making additional clicks through an online booking process. This is somewhat to be still tested in the courts, and it may be that we actually have to show a different purchasing decision, but nevertheless, we actually think we -- that's not going to be that hard either in some of these cases.

I'm not going to -- because I'm short of time, I won't talk about these, but we've got specific regulations around air services that I also talked about, and the interesting thing there is there's basically -- there's the one I already mentioned, which is compulsory charges have to be in the headline price, but there's also a point about optional charges, which is not only should they be communicated clearly, transparent in an unambiguous way at the start of the booking process, but also, their acceptance by the customer has to be on an opt-in basis. So, when you click -- when you go through the various bits of buying an airline ticket, anything -- any box that is preticked -- so, for example, if travel insurance is preticked -- then that has to be in the headline price. So, you can have it as an option that isn't in the headline price, but then it has to be on an opt-in basis, and this is to deal with default bias, essentially, and the view that opt-in and opt-out is really rather different, and there's quite a lot of evidence around that as well.

And then there's very new legislation, which hasn't yet actually been enacted in the UK but is on its way, deriving from the EU Customer Rights Directive, and this is around payment surcharges, and essentially what this is going to do is prohibit traders from charging

consumers, in respect of just paying for what they're buying, fees that exclude the cost borne by the trader for the use of that payment.

This is -- we're doing a fair amount on payment surcharges at the moment, as I mentioned, and essentially we're looking at it, at the moment, because of the law that's in place under the CPRs. So, we're looking at were the charges, de facto, compulsory, saying that that's a misleading action, and where the charge isn't necessarily compulsory but you don't get the right information, saying it's a misleading omission.

At the end of our Advertising of Prices study, these are the recommendations that we made to traders if they wanted to be sure that they stayed within the law. Now, I think it's interesting, this, because it's clearly generic and across all markets and, therefore, may not fit that well alongside the discussion earlier, so it's probably quite a good motivator for discussion this afternoon. But these were our recommendations.

First of all, that all mandatory charges should be included in the headline price. Secondly, where there is a compulsory element but there are a range of charges, so, for example, with payment charges, you can pay with your debit card or you can pay with your credit card and you get charged less for your debit card, then the lowest meaningful compulsory charge should be included in the headline price. The headline price should include the payment with the debit card in that case, with something that says, "You will pay more if you pay by credit card," but because it's variable, it doesn't mean that you can take payment for both out.

And to clearly display the total price prior to payment being accepted, that's, I think, a no-brainer. Include any additional charge associated with an automatic opt-in into the headline price. That's very much what I was just talking about. If something's an automatic opt-in, that should also be part of the headline price.

Other charges are -- and then, finally, other charges should be accurately described, set out clearly, and easily accessible, so one click away was our recommendation for online pricing. Obviously, it's more complex what that means in the offline world.

I should say that for the most part, the economists and lawyers at the OFT are as one on all this stuff. There are, though, some very difficult questions where we start to diverge, and I think we already touched on these to some extent, and they're about effectively where there might be a trade-off between the efficiency

of pricing and what you described as a la carte -- the benefits of a la carte pricing versus the clarity of pricing.

And, generally, we don't think it's really our starting point to dictate what pricing models businesses should use, and this is a very active issue in the context of the payment surcharges work, because what the parties have told us to some extent is that these payment surcharges, yes, they cover the merchant interchange fees, but they also cover the administration costs associated with making the -- making the payment, which is essentially a per-transaction charge rather than a per-person charge.

And they say, well, therefore, it would be efficient to charge this per transaction rather than per person, and if you, OFT, say we have to put it in the headline price, then you are forcing us to put it in as a per-person charge, and that actually doesn't reflect costs very effectively, and it may not actually be cheaper. So, the question is, should we allow a degree of price complexity, provided it's transparent?

And this is kind of a nice example. So, we have London-Paris, 50 pounds per person, plus 10 pound payment transaction fee, actually pretty easy to understand; or we can have London to Paris, 54 pounds per person, also easy to understand, possibly slightly harder to calculate if you've got four people traveling than the first one, and also more expensive than the first one if you've got four people traveling, but cheaper if you have got one person. So, which -- you know, how -- should we be intervening to say which of these we really think is right? And I think it's quite a complex issue.

And it fits, also, with something -- this is my last slide, but something that we discussed earlier, which is about partitionedpricing, which is actually the layout and the way in which prices are presented can potentially confuse or mislead consumers even if they're not dripped. So, this is a standard kind of Web site -- airline Web site. We've got the outward price, we've got the return price, and then over on this side, we have the admin fee, and then we have the final price -- pretty big -- written, and we actually even have something here that says this is what you've -- we've defaulted you into debit cards. If you paid credit card, this would be the price. So, it's all there. It's actually really nice in terms of all being there.

But there's a question about actually do the anchoring effects still apply? Do consumers still focus an awful lot on these prices on the left-hand side,

rather than the final price on the right-hand side, when they're thinking through is this a good deal? Do consumers -- we've been told that consumers sometimes have a habit of thinking that the prices on the right-hand side are even not in the business' control, so that they think the stuff on the left-hand side is really what they should be focusing on when thinking about whether a company is a good value company, or actually, likely to be the same across all businesses, which has the same effect.

And the final point, which goes, I think, to Michael Baye's point earlier, about price comparison sites, we've got a real issue in the UK, which is that there are a bunch of price comparison sites that are not actively given the pricing data by the airlines, but rather, price scrapes. So, they go onto the Web sites and they scrape the prices and put them on their own Web sites.

They, to date anyway, have only scraped the left-hand side prices and not the right-hand side prices, and so some of the lawyers in the OFT essentially think, well, in that case, given that consumers purchase via these price-scraping Web sites and do price comparison with them, we should ensure that all prices are in that prices on the left. As you might imagine, the companies say, "We can't be held responsible for what price comparison Web sites do. We only can be held responsible for what we do, and we're making it all very clear on our page. So, you know, that's as much as we have to do."

And I think, you know, there's a lot to -- a lot to be said for that argument. Actually, I think there's a lot to be said to Michael's point, but in the end, if the price comparison Web sites want to be taken care, they will find a way of extracting this data and including it, because at the moment, they're not really providing an effective price comparison service.

So, that's all I wanted to say. Thanks.

(Applause.)

MS. SULLIVAN: Okay, thank you. That was so interesting. So, what we're going to do now is we're going to reconvene at 1:00, and we did run a little over, and you might be thinking, how in the world will I get lunch in 35 minutes and be back here for the 1:00 empirical session? Well, we do have -- hopefully by now -- some sandwiches next-door in the break room and beverages. So, I invite you to reconvene there, have some lunch, come back at 1:00.

(Whereupon, at 12:26 p.m., a lunch recess was taken.)

AFTERNOON SESSION

(1:04 p.m.)

EMPIRICAL ANALYSIS OF DRIP PRICING

MS. SULLIVAN: Welcome back. We're about to begin our first afternoon session, which is empirical testing or empirical studies of drip pricing.

I'd first like to introduce our session chair, who is going to introduce everyone else, who is Erez Yoeli, and he is an economist at the Bureau of Economics.

I'd also like to say, if you do ask questions, please try to get a microphone so that the stenographer will be able to hear what you're saying and get it on the record.

MR. YOELI: Hi, everyone. Welcome back. I hope you enjoyed lunch.

It is my pleasure to first introduce Vicki Morwitz. Vicki is the Harvey Golub Professor of Business Leadership and Professor of Marketing at the Stern School of Business at NYU. Her primary research areas include behavioral aspects of pricing, self-prediction, and effectiveness of public health communication. She has conducted several studies on partitioned pricing, which is closely related to drip pricing.

(Applause.)

MS. MORWITZ: Okay, thank you very much.

So, the work that I'm going to present today is some very preliminary lab experiment evidence. So, we talked this morning a bit about collecting some empirical evidence, conducting some studies. These aren't field studies. These are lab studies and, again, quite preliminary, and they're joint with my student, Shelle Santana, who -- Shelle, wave to everybody.

Okay. So, what I'd like to talk about today is a little bit -- as you just heard, I've done some work, and some of us -- several of us in the room have done some research on partitioned pricing. So, I want to talk a little bit about how we think about partitioned versus drip pricing. There's some very clear differences

between the two and some gray areas; actually, there's not a clear line distinguishing the two.

I'll give a very brief summary of behavioral research on partitioned pricing, extremely brief, one slide, and then to share some of these very preliminary results from these two lab studies that look at both partitioned and drip pricing in two different kinds of scenarios.

Now, they are scenario studies, nonincentive-compatible, but I think we can get insights from these kinds of lab studies, from economic theories, psychological theories, and then test things out in the lab, as we talked about this morning.

So, one scenario is an airline scenario, where the surcharges come after the purchase decision, and are kind of large, unexpected, but realistic surcharges. The other is a rental car scenario, where the surcharges are more reasonable, and the decisions about optional add-ons that come with the car are made prior to the purchase decision.

Okay. So, in both partitioned and drip pricing, what they have in common is that there is a base price, what we talked about as the advertised price in the talks this morning, so sort of the large, basic component price, and then there's one or more surcharges. And those surcharges can be for something that's mandatory, that you can't opt out of no matter what, like taxes, or they can be for an option. And they also are sometimes stated up front; sometimes they're revealed only after an initial or a final choice.

Now, the primary focus in the behavioral -- consumer psychology behavioral literature has been on what we've called partitioned pricing, and how that's been defined in the academic literature as mandatory surcharges. So, it's not looking these optional add-ons like we talked about, for example, like the airlines and paying for the cup of coffee, but instead the taxes, the fuel surcharges, the things you just can't escape. And the question has been, how do you present the price? Do you present it as one total price that includes all the mandatory surcharges, or do you present it in a way that it's separated, so like the price-framing we heard about prior to lunch?

And in all the behavioral research that's been done on it, the surcharges have always been revealed up front and fully revealed, fully disclosed, and that's part of the experimental rigor in that domain, is to make sure that everybody's working off the same base of

information and that it's really just a price framing effect.

And in that partitioned pricing literature, we have seen a number of effects. Some of them we heard about in the talk prior to lunch. We've seen that merely separating out the mandatory surcharges -- everything, again, is fully disclosed -- can increase a firm's profits and can decrease consumers' perceptions about what was the total amount of price, the total price that they had to pay for that transaction.

Now, the magnitude of those effects depend on a great variety of things, and, of course, it's not always the case. So, they're moderated by a number of factors, which can neutralize the effect or even flip the effect in some cases. It depends on how the surcharge is presented; for example, is it a flat dollar amount or is it a percent of the base price? When it's a percent of the base price, it's more difficult for the consumer to calculate, even when the figures are all in front of them. It's just a little bit more complex, and so we see larger effects.

It depends on the numerical magnitude of the surcharge as well relative to the base price. So, in general, anything that makes these surcharges more salient is going to draw more attention to them, and that's going to mitigate the impact of the partitioned pricing. So, when the surcharge is larger in magnitude relative to the base price, we see smaller effects of partitioned pricing. What the surcharge is for, there's not clear evidence on that, but there's sort of a little bit of evidence that if it's for something like a tax, that there's less of an impact, versus if it's something that the firm is charging for.

The number of surcharges, similar effects. The more surcharges there are, the more attention that's drawn to them, and that then mitigates the effect of the partitioned pricing. And there's some -- again, not much research that has looked at -- whether the total price is provided when the partitioning is done, so we see the base price and all the mandatory surcharges.

And then, is a total also given? There's not much evidence, but the evidence that's there suggests that the effects are more or less the same. So, it's not the absence of the total that's driving it. And, you know, perhaps it's this anchoring kind of thing that we heard about before, that you just still anchor on that large base price, even when the total is given.

It depends, in part, on the characteristics of the seller, and perhaps, ironically -- maybe not -- the

effects are larger for sellers that have good reputations. So, if a seller has a poor reputation, consumers pay more attention to what they're doing, the more likely to be wary about surcharges and pay full attention to them.

Similarly, it depends on characteristics of the seller. So, if the consumer has a favorable attitude towards the seller, that's when they're most -- more likely to be prone to the partitioned pricing effects and to pay less attention to the surcharges. If they dislike the seller or they're uncertain about whether or not to buy from the seller, they pay more attention to the surcharges.

There have been scales developed on skepticism towards shipping and handling surcharges, in particular, people who are more skeptical pay more attention to them. There are some interesting effects on an individual different scale called need for cognition. So, there are greater partitioned pricing effects for people who are high on need for cognition. I might have expected -- I, in fact, did expect the opposite, but the literature suggests that people who are high on need for cognition then pay more attention to how justifiable the partitioned component is, and they're more prone to being affected by it.

And, again, there's just limited information about experience effects. We talked about learning and experience in the morning, and the evidence that's out there suggests that the effects are not mitigated by experience, at least for partitioned pricing. Okay, I promised, and that was a very quick overview of the partitioned pricing literature. Lots and lots of authors and research went into those findings.

What I want to focus on for most of today are these two preliminary lab studies that look at both drip pricing and partitioned pricing. So, the first one is this airline scenario. The -- our participants are members of a national online panel, MTURK, which some of you might be familiar with, and I'll present the demographics a little bit later. It's not a nationally representative panel. People who participate in MTURK surveys tend to be towards younger, lower income, but I'll share some of that with you later.

So, -- both of the studies are scenario studies. So, participants read about a scenario where they had to decide -- they were going to go on a trip, and I'll show you a little bit about the scenario on the next couple slides. They are going to be taking a trip, and they're deciding between two airlines, Delta or

Spirit, and -- there are so many things that can vary in these situations like we talked about, which makes it hard to know how to regulate. For the experimental purposes, we tried to hold as much constant as we could.

So, we told people it's a short trip, it's just a weekend. They are going to take just a carry-on bag, and we told them they wanted to book a seat in advance. It was a choice between Delta and Spirit. The Delta price included all mandatory taxes and fees and most optional fees. So, there were no additional fees on Delta for booking a seat in advance, carrying on your carry-on. The only additional charge is if you wanted premium seating.

So, the real focus is what Spirit was doing. So, the participants were assigned at random to four different pricing conditions for Spirit, and in those cases -- so, there was something like partitioned/not partitioned, where the base price either excluded or included the mandatory taxes and fees. It's not exactly partitioned pricing, because -- at least the way we've done it in the academic literature, because in the case where they saw the base fare was $182, there was only a disclosure that there's additional taxes and fees. They didn't see the exact amount of those additional taxes and fees. And so they either saw $182 or $241.58, which either included or excluded the mandatory taxes and fees. And as an aside, the new DOT regulations would require that $241.58 be the advertised price, as opposed to the lower one. So, that's the partitioned manipulation.

There was also a drip manipulation, which is how they saw the fees for the additional add-ons for booking a seat, taking a carry-on bag, whether there was any fee for that or not, and either they saw those fees as they made their decisions after choice, so one by one, so the drip condition, or a menu was provided up front of what those fees were before they made each of those decisions. And, again, the new DOT regulations require not that the full menu be provided, but that at least the fee for the baggage be disclosed initially.

The prices and fees are -- we tried our best to make this realistic. Now, these people are living all over the United States, so we didn't -- couldn't actually figure out what their real fees would be, but based them on a trip from New York to Miami over Memorial Day weekend. So, we went online, and most of the fees come from that trip.

So, the scenario looked like this. I'm just going to fly through some of this stuff, but Mary says that our slides will be available online. So, I have

lots of slides, not enough time for all of them, but you can go back and look at them for details later.

So, this was the scenario. You're going on a beach weekend. You're booking your flight. The -- as I mentioned, the Delta fare included -- was advertised, including all the mandatory taxes and fees, as $275.60. There was no fee to carry on a bag. There was no fee to reserve a seat. The only additional fee that you could learn about later is if you wanted a premium seat. So, you can see the price range there.

For Spirit, there were more -- so, some people saw the advertised price as $182, which excluded the mandatory taxes and fees; the others saw it as $241.58. And then there were additional fees for the carry-on bag, for a reserved seat or a premium reserve fee, and so you could see the range of prices they might see.

So, for example, they might see this screen, that they went online, they searched for their flights, and they're choosing between Delta, with the price that includes the base price including the mandatory taxes and fees, or the Spirit price, which is -- this is not including the mandatory prices and fees, or they might see this comparison, where the Spirit price now includes the mandatory prices and fees, or they might see a menu of prices so that they can learn about options -- so, either -- the Spirit price either includes -- in this case excludes -- the mandatory price and fees, but they see a menu of the options. And then there's this one. So, those are the four different conditions they might see.

Once they made their choice, they learned what all the fees were, and, again, these came off of the actual Web sites, so we talked about some of these fees in some of the introduction to the conference today, and we talked about the articles about Spirit and some of the things they've been doing, including their unintended consequences of the DOT regulation fee, which is a real one, so they're now charging us fees because -- they're losing money from the DOT regulations, and so they need to make it back.

So, after they made their choice between Delta or Spirit, they then -- we told them that you're deciding now about your travel options. You want to get it all done now. Remember, we told them up front, you are going to have a carry-on bag, and you would like to reserve your seat ahead.

And so, for example, if they had picked Spirit, they would then go and see that if they wanted a carry-on bag, that there's a fee for that, a $30 fee for each way;

and then they had to go ahead and book their seat, and there were fees associated with booking their seat.

And then once they made those selections, they saw their total final price. In this scenario, they couldn't opt out at that point. They had already made their selection. So, it's as if you've gone to the airport and now you have to pay for your bag and you're there with the bag and you just have to pay.

These are the -- this just describes the demographics of the participants. So, again, they're TURKers from MTURK, which skew young and skew lower income. So, the good news is we've got some diversity there. The bad news is it would have been nice to have looked at seniors; it would have been nice to have looked at different income groups and see whether we got some differences, and we can't necessarily do that with these data.

Overall, we found that -- this is across all four pricing conditions -- about 40 percent of the participants chose Spirit. That's not interesting. What's interesting is how it varies across those four conditions. So, this chart describes how this choice of Spirit, what percent of participants chose Spirit varied across the pricing conditions.

So, on the X axis, we have whether Spirit's price included or excluded the mandatory surcharges, and then the light orange-ish bars are the conditions where they only learned about the optional fees after they made their choice, and the green bars are those where they saw a menu up front.

And basically what you see is there's a hit for partitioning and there's a hit for dripping. So, we see main effects of both. And you see that this choice share ranges quite widely, from 60 percent down to 24 percent, lowest with full disclosure.

While we couldn't really break down the demographics the way we ideally would have liked, we could look at experience. So, we asked people whether they had flown at least one flight in the past 12 months or if they hadn't flown in the past 12 months, and we see quite stark differences between these groups. So, while there's a small marginal effect of partitioning for the people who have flight experience, we see that the largest effects come from those who haven't flown in the past months. So, those are the people who seem to be most susceptible to these kinds of framing effects, at least in this scenario.

We then asked a series of questions, trying to tap into people's perceptions about the price being

deceptive, the price being unfair, et cetera, and now we're dividing people by -- the graph on the left is those who chose Delta, the graph on the right is those who chose Spirit, and the other conditions remain the same.

And I'm going to move pretty quickly. What I want you to focus on is that on the Spirit side, the right-most bar, that's where we're going to see the action in these graphs. So, basically what you are going to see is not much movement for Delta, in the perceptions that the price is deceptive and the other DVs for Delta.

But what we're going to see for Spirit is that in the case of full disclosure, that's when the perception that the price is deceptive comes down. Otherwise, if there's anything that's not revealed, we see that the view that the price -- the perception that the price is deceptive is higher.

You also will notice, if you look at that right-most green bar for Spirit compared to the right-most green bar for Delta, there's also an effect of the airline. So, people don't hold Spirit with as high regard as Delta, so even when Spirit does full disclosure, their prices are viewed to be less fair than Delta's.

So, I'm going to move quickly, so just focus on that right-most bar. So, they felt the price was less fair. They are less likely to regret their choice with full disclosure. They are less likely to wish that they had bought the other ticket, the ticket from the other airline with full disclosure. They are less likely to be upset about the total price with full disclosure. They are more likely to think that the total price is fair.

So, what we find is, again, that the more you disclose, the lower demand seems to be, and -- but you do get these gains in terms of perceptions of the price being more fair. There are some additional gains that also come to the airlines with full disclosure. So, only in the case of full disclosure -- again, if we focus on that right-most bar -- people are more likely to say they would fly with Spirit again.

And in this case, you'll note that there's no difference between that right-most bar for Spirit or Delta. So, you may get fewer customers to begin with, but the customers you get are more likely to stay with you with full disclosure, and we also see that they are more likely to buy the premium seat. So, with full disclosure, they are more likely to return and to buy these add-on options if they don't feel like they're being fooled.

So, in summary, again, hypothetical, a hypothetical scenario, we saw that consumers are more likely to buy the less they knew about these surcharges; the more likely with drip and partitioned pricing. The disclosure of fees reduced their buying intentions, but the effect only occurred for inexperienced consumers. Not disclosing all their fees was viewed to be deceptive. When the firm discloses all the mandatory and the optional fees, the good news for the firm was that consumers are more likely to return; they are more likely to buy the additional add-ons.

Now, there's a lot of limitations. Just a few of them are that the surcharges for Spirit were quite egregious. They are real, they came off their own Web site, but, you know, will this translate into situations where the surcharges are more reasonable? And it was also a choice scenario where there's a lot of moving parts.

So, in the next study, we're going to instead look at purchase incidence. It's still a choice, but we're going to hold one choice constant with no moving parts. So, it's another travel scenario, it's a rental car scenario, 316 members, again, of MTURK's online panel. In this case, people were thinking they were going to be traveling, and they're trying to decide whether to take a free hotel shuttle or to rent a car.

And in the rental car scenario, that's where we'll move the price around. The rental car price either, as we saw in the previous scenario, either excluded or included all mandatory taxes and fees, and they either had a menu up front or after choice of the optional add-ons.

So, I'll just skip through the scenarios, because you have the basic idea from before. The vast majority of people would rent the car over taking the free shuttle. We found, similar to what we saw in the previous study, effects of reduced demand, in this case from drip pricing and in interaction, so it wasn't a straightforward effect of partitioning, but a general pattern that was pretty similar, where people are more likely to buy the lower the price appears to them, the less they know about the surcharges.

We see a similar effect -- I'm not going to show you all the DVs of unfairness and deceptiveness. I combined some of them, but basically the same effect, that only when you disclose everything do unfairness perceptions begin to drop.

And then we saw a similar -- not exactly the same, but a similar pattern in terms of some beneficial

effects to the firm of disclosing everything. In this case, it's not just the right-most bar. It's the three right-most bars. So, you might want to focus on the left-most bar instead in this case. And we see that only in the case where the firm discloses nothing are consumers less likely to want to rent again from that firm, less likely to want to add any options.

We didn't see experience effects in this study, but we did look at their familiarity with Enterprise, and we didn't find it for all the DVs, but we found that the effect, at least on the unfairness perceptions, is much stronger for those who have lower familiarity with Enterprise. They're not quite experienced, but something that a bit mirrors the effects that we saw for experience.

So, in summary, for a hypothetical scenario, we saw that consumers were more likely to buy with drip pricing, that the disclosure of the mandatory fees reduced their buying intentions, that consumers do view both the partitioned and the drip pricing to be deceptive, although it depends on their experience with the brand.

When the firm disclosed everything, we saw, again, that consumers were more likely to rent from the firm again and to buy some of these optional add-ons, but, again, another limitation of both of these is that they are hypothetical scenarios and that these scenarios didn't allow the consumers to do what we can do in real life usually, which is to walk away if the deal looks bad in the end.

So, next steps for us are to look at these in decision-making scenarios where there are real consequences for the research participants, not fully hypothetical; to further explore what we're seeing about experience and learning, because that seems to be something that's very important from a regulatory aspect and very interesting to us, whether you can learn, and we didn't see this in our other partitioned pricing studies; and to see what happens if you have this option of opting out after you learn about everything.

And what we really want to know is sort of the psychological underpinnings. We had some discussion about that this morning. Is it escalating commitment? Is it mere ownership? Is it the loss aversion we talked about? Is it a status quo bias? Is it this expectation of what belongs in the transaction versus not - we expect to carry a bag on the airplane and get a free cup of coffee? But a GPS I view as something that isn't

necessarily part of the equation for a car rental. So, those are some of the things we want to look at next.

Thank you very much.

(Applause.)

MR. YOELI: Thank you.

Our next speaker is Meghan Busse. She's an Associate Professor of Management and Strategy at the Kellogg School of Management at Northwestern. Her research focuses on market structure and competition, with particular interest in pricing and price discrimination. She has conducted studies in a variety of industries, including automobiles, cellular telephones, airlines, and advertising.

MS. BUSSE: Thank you very much. So, I know from previous experience that it's impossible for me to stay still when I talk, so...

So, I'm very pleased to be here today. Let me tell you a little bit about what I'm going to do in my presentation. So, I'm going to talk about some particulars of opportunities that arise for drip pricing and partitioned pricing in the car industry, and then what I'm going to talk about in this study is really some of the interactions between drip pricing or partition pricing and consumer responses to that, and that's really what this presentation is going to focus on.

So, let me tell you a little bit about the car-buying process, about the retail car-buying process, which, as I said, gives a lot of opportunities for drip pricing and partitioned pricing. It's constructed in a way that makes sort of the price discovery sort of a process of evolution. So, if you go to buy a car, you start by going in and making a visit to the dealership. You've probably done some kind of research online that might have some pricing research that you've done.

Typically then you take a test drive with a car. There is a nice friendly car dealer who's going to help you out with all this. You sit down with the salesperson or the sales manager, and there's going -- he's going to make you an initial price offer, which is probably going to be MSRP, which is to see whether he can get you to bite on that really high MSRP price.

Then you're going to talk about your trade-in. He's going to ask what kind of trade-in you have. He is going to negotiate with you about the price of the trade-in. You're going to negotiate the monthly payment and the down payment if you're financing. Many, many customers are, although people in this room are not likely to be the ones who are financing.

You know, then you sit down with the F&I guy, the finance and insurance manager, who will work out all the particulars, and he will try to upsell you on a bunch of stuff. There will be a credit check and a negotiation of financial terms. Then the F&I guy is going to try to sell you life insurance, he's going to try to sell you a warranty, he's going to try to sell you underbody coating, all kinds of things.

Then you're going to learn about additional fees, doc fees, things you didn't suspect. And then, finally, you are going to sign on the dotted line, and if the picture is right, you're going to be super, super happy about this whole process that you've gone through.

So, as I said, there's a couple of different kinds of pricing of the sort that we've talked about that occur when you're talking about cars. So, we have examples of drip pricing, where consumers learn about surcharges or add-on prices only after they see the base price. So, that's something like the doc fee, that you only learn once you get to the F&I guy's office.

And there's also things that are partitioned prices, prices that you could know about beforehand, things like the destination and handling fee that is hypothetically $895 for a BMW -- don't know how we would know that -- that's always charged. In fact, it's written on the window sticker that you've seen but isn't included in the MSRP.

So, you're going to see a big MSRP price, and then you're going to see a bunch of other things that are posted up there that you could tell were part of the price, but it isn't necessarily going to be added up for you.

What I want to talk about today is a different feature of pricing that is similar to drip pricing that occurs specifically in the car industry, because prices are negotiated, and that's what I call multicomponent negotiation. So, in order to figure out the total price that you're going to have to pay for the vehicle that you walk out the door with, you're going to have to negotiate with the dealer about a couple of different things.

You're going to have to negotiate about what the new vehicle price is. You're going to have to negotiate about how much you're going to get paid for your trade-in. There's going to be a negotiation over financing terms. There's going to be a negotiation over add-on services that you want or don't want, okay?

And oftentimes, these kinds of negotiations are going to seem like they're independent to consumers, and I'm going to show you in a second that the dealer is

trying to do very specific things to make you think that you are negotiating a whole bunch of individual things, but the dealer, the sales manager, in the back of his or her head, knows that there are trade-offs, right, that this is all one big pot of money that he's trying to extract out of you, and he's making trade-offs along the way, but he doesn't want you to think about them being trade-offs. So, let me talk a little bit about this.

So, dealers like the fact that you engage in a multicomponent negotiation for a really specific reason, which is that they can be really friendly and make concessions to you on the attributes of this negotiation that they discover you are really sensitive to, that you're focused on, or that you have a lot of price knowledge on, and they can stick it to you on the attributes of this negotiation that they think you're not paying attention to or that you're not well informed on, okay?

And they have -- as I say, they have really specific ways to do this. One of the most common mechanisms is what is called four-square pricing, and it's called four-square pricing because the dealer actually has a piece of paper that has four squares on it, and the things that are in these squares are, as I said, the vehicle price, the trade-in value, the monthly payment, and the down payment. So, those are the four elements.

So, what's going to happen when you go into the dealership is the dealer is going to try to get you -- he is going to say, "Okay, you want to buy a car? Here's the price of the car." And he's going to write down the MSRP, and if he's bold, he's going to ask you, "And will that be check or cash," right? And you're probably going to say, "Wait a minute, wait a minute, I'm not paying that price," right? But instead of negotiating with you at that point, he'll say, "Oh, of course not. We'll get you a good price. Let's talk about your trade-in," okay?

And then he's going to have you talk about a trade-in. He's going to give you a low-ball offer on your trade-in to destroy your confidence on how much your trade-in is actually worth. And you say, "That's ridiculous, $6,000 for this car that I think is worth $10,000?" And he'll say, "You know, I think I can probably get you $6,200 for it," right? And he's going to crank it up a little bit, a little bit, a little bit, until you get to some kind of agreement on this.

And then on the bottom half, you're going to start to just talk about financing, and the way the dealer is going to try to frame the conversation on

financing is about what monthly down payment -- what down payment can you put down and how much were you looking to spend for your monthly payment, right? And the dealer will adjust the terms of the deal however he needs to in order to maximize profits while managing to satisfy you on those two particular terms, okay?

So, you see that -- so, sort of going to sort of David's schema that he gave us this morning, this is what I would call explicit shrouding in that scheme, and not because the dealer is specifically hiding terms, but because the terms are going to -- don't yet exist. The pricing component terms don't yet exist until you engage in the negotiation, okay?

And like David said, this is the opposite -- sort of this bottom half, when you're talking about financing, this is exactly the opposite of David's big pink sticker, okay? So, what the dealer is trying to do -- the big pink sticker analog would be something that says, "If you borrow X amount of money at an interest rate of Y for a term of Z months, you will pay a total of this much over the term of the loan," okay? And exactly the features that the four-square pricing is trying to get you to focus on are exactly not the interest rate and the term of the loan, right? Instead, we're trying to get you to focus on the down payment and the monthly payment, and you just let me adjust this stuff in the background, right? So, it's exactly trying to distract you from the big pink sticker things that you ought to be paying attention to.

All right. So, naturally, as a result of this, if you look for advice on how to buy a car on the Web, you will see lots and lots of frightening warnings that tell you about what's going on. So, an article on Buyingadvice.com, the biggest advantage a car dealer has is the knowledge that a car sale involves three negotiations, not one, spelling them out. In the carefully choreographed dance of car salesmen all over the country, the key element is to identify which of these elements is the most important to the customer. They can use this information to meet the customer's goals, while making their profit from other areas.

Edmunds.com tells you, "Remember, a good deal isn't just the lowest selling price. It's the lowest out-the-door price." This means that to get a fair deal, you have to be alert throughout the entire purchase process.

Consumer Reports will tell you to negotiate one thing at a time. Salespeople like to mix financing, leasing, and trade-in. This tactic gives the dealers

more latitude to offer you a favorable figure in one area while inflating their figures in another. A good price in one area can be cancelled out by a poor price in the other.

And, you know, Cars tells you that if you get too good an offer on your trade-in, you can be sure that they're making up the difference on the new car.

Okay. So, what we're going to investigate in this paper is to what extent do customers have the same view of the negotiation that the dealers do, okay? So, when you vary -- you would think of the profit that the dealer is making on the transaction in this sort of very simple way. It's the new car price that you agree to pay minus their cost of getting the new car, plus the cash value of the trade-in, right, the value of the vehicle that you're going to give to them, right, essentially what they think they can sell it for at auction or what they think they can make on it by selling it to somebody else, minus what they have to pay to you.

So, it's essentially two margins, a new vehicle margin and a trade-in margin, okay? And there's financing and insurance, and we'll talk about that in a minute, but this is the simple version, okay? And so the dealer, you know, can -- you know, alternatively, you could think of rewriting it this way, all right? The dealer profit is a new car price, minus a trade-in price, plus the trade-in cash value, minus the new car cost. That's what they're going to make.

There's going to be a piece of this that can be negotiated, which is the two prices, and a piece of this which is exogenous, which is what your trade-in is actually worth and what their cost is of acquiring the car. And the trick about the dealer is that the dealer realizes that those two pieces in the negotiable part can both be negotiated and essentially trade off one or one in their profit calculations. So, if they offer you a dollar extra on the trade-in price, they can make it up with a dollar extra in the purchase price of a new car.

And the question really is, how do consumers view their half of the negotiation? So, you can think of a consumer surplus as a consumer who's buying a car as the new car utility, what they're going to value that new car at, minus what they have to pay for the new car, plus what they are going to get paid for their trade-in, minus the utility they lose when they give the trade-in to the dealer.

And the real question is, how do they view this? Do they see this essentially the same way the dealer sees it, which is a trade-in price minus a new car

price that can be negotiated, plus a new car utility minus a trade-in utility, which is exogenous? If they view it that way, then in some sense they're viewing the negotiation the same way the dealer is.

Now, you may have some buyers being better negotiators than other buyers are, so some buyers may give dealers higher total profits then others, but if this is the case, if this is how customers are viewing it, you should expect to see that the profit margin on the new car and the profit margin on the trade-in car essentially trade off one for one, right? That I, as the customer, realize if I'm giving -- if I'm paying you a dollar more for the new car, I better be getting a dollar better price on my trade-in, okay?

Now, we call that model the one discriminatory rent. You, as a customer, have some kind of rent, depending on what your negotiation ability is. The dealer is going to get that out of you, and it's going to be flexible sort of which term that comes out of.

Alternatively, consumers might see this as two different negotiations, right, that there's consumer surplus that arises from the new car transaction, and there's consumer surplus that arises from the trade-in transaction. If that's the way they see things, then you might think that buyers are going to be either better negotiators or worse negotiators, and they're either going to do well in both of these negotiations or poorly in both of these negotiations.

If that's the case, then what we would expect to see is that the trade-in margin and the new car margin are going to be positively correlated. You are either going to do badly in both or you are going to do well in both, okay? This is what we call the double jeopardy model, right? If you do badly in one, you are also going to do badly in the others. So, that's essentially what we want to investigate.

So, we're going to use data on individual automobile transactions. We've got a sample that gives us about 20 percent of the transactions that occur at new car dealerships in the U.S. We are going to use actually two years of car data, the 2006 and 2007 model year.

For each transaction, we have really detailed information on exactly what the financial terms of this deal were, what was the price, what's the dealer's cost of obtaining that car, what are the customer demographics. We have very detailed information on exactly what new vehicle and trade-in vehicle is being used in this transaction, the make and model, model year,

body type, doors, trim level, so on and so forth, what we call the vehicle type.

The two variables that we're going to be interested in are the new vehicle margin, which is the contract price, the price you agree to pay the dealer, minus the dealer's cost of the vehicle, and the trade-in margin, which is the actual cash value, the market value of the trade-in, minus the trade-in price that the dealer pays the customer. Those are going to be the two variables that we're interested in.

Ideally, the ideal experiment we would like to run is we would like to observe the new vehicle price and the trade-in price that are actually negotiated in a transaction, and then we would like to observe the same customer and dealer transacting the same car with a higher new price, new vehicle price, and we'd like to see, okay, now, what's the trade-in price, okay? That's the ideal experiment that we'd like. Of course, we can't observe such hypotheticals. Zhu, Chen, and Dasgupta tried to do this experimentally, tried to get at that kind of interaction experimentally.

Instead, what we're going to use is a matching approach. So, what we're going to do is we're going to -- we want to match transactions where the same vehicle type, which is the interaction of all these variables -- make, model, model year, trim level, drive, displacement, so on and so forth -- the same vehicle type that's purchased at the same dealership in the same month when both buyers are using a trade-in, okay?

Now, the way we're going to think about this is we're going to create matches. Suppose transaction A in our match, without loss of generality, gives the dealer a larger new vehicle margin than transaction B. What we want to know is, how does the trade-in margin between those two transactions compare, okay?

If the one discriminatory rent story is right, then the trade-in profit margin should be lower by the same amount that the new vehicle margin is higher. We should see them trading off exactly.

If double jeopardy is right, then when the new vehicle margin is higher for A than B, we should also see the trade-in margin be higher for transaction A than transaction B.

And in the intermediate case, you could think of as sort of a substitute case, where the trade-in -- you know, if the trade-in margin for transaction A is higher than B, we should see the trade-in margin be lower for transaction A than transaction B, but not one-for-one

substitution, okay? So, that's what we're going to be looking for.

So, specifically, what we're going to do is we're going to group our transactions by vehicle type, dealer, month, and actual cash value of the trade-in, all right? So, we're going to say we're buying exactly the same detailed vehicle type as a new car. We're also going to match on dealer month, and we're going to match cars by the actual cash value of the trade-in, rounding to $500. So, we are going to have trade-ins that aren't exactly the same vehicle, because we can't find enough matches in the data, but we are going to match on cars rounded to the nearest $500.

We're going to draw pairs randomly within this group, without replacement, label as transaction A the transaction that has the higher new vehicle margin and transaction B as the one with the lower new vehicle margin, and we are going to define these two margin differences, the new vehicle and the trade-in vehicle margin differences, okay? So, it's the new vehicle margin of transaction A minus the new vehicle margin of transaction B.

By construction, because we've chosen A to be the one with the higher new vehicle profit margin, that difference is always going to be positive. The difference in the trade-in margins could be either positive or negative, okay?

So, then we're going to run this regression, the regression of the trade-in margin difference -- so the amount by which the trade-in margin in transaction A is higher than the trade-in margin in transaction B -- on the new vehicle margin difference, okay, the amount by which the new vehicle margin in transaction A is higher than the new vehicle margin in transaction B. That one's always positive because of the way we've constructed it. The trade-in margin can be higher or lower, okay?

So, what do we see? So, if this is negative one, then what we have is one discriminatory rent. Every, you know, dollar you give the dealer in the new car margin you make up with a dollar by giving them a lower trade-in margin, okay? If this were a positive number, that's the double jeopardy case, where if you pay more in the new vehicle margin, you're also going to pay more in the trade-in margin.

So, what this tells us is we find evidence of imperfect substitution. So, when you're paying a higher new vehicle margin, you're paying a lower trade-in margin, but not dollar for dollar, okay? You don't quite

make it all the way back. You don't quite offset it all the way.

We also look at whether this is explainable by customer demographics. So, what we're going to do is we're going to use the demographics we observe to predict, for transactions that don't use trade-ins, what customer demographic characteristics lead to the highest new vehicle margins, and then we're going to calculate -- we're going to calculate an index based on those observable demographic characteristics.

And then for each pair of transactions, we're going to measure the difference in that index to see whether transaction A has characteristics that would, you would think, lead to higher new vehicle margins than transaction B. And then we're going to estimate this regression separately by that index difference, by where that index difference falls in the distribution.

And so the thing to note here is that the coefficient is very similar across these, which means that even when you have transaction pairs where the observable characteristics for transaction A suggest that this is going to be a customer who's going to pay a much higher new vehicle margin, you get the same trade-off between the new vehicle margin and the trade-in margin. So, the observable characteristics don't seem to explain very much.

The second thing that we do is we look at the financing margin. So, we can observe from our data record the dealer's estimate of what the net present value of the expected profit is from the financing terms and from sales of insurance and service contracts. So, the financing profits -- I don't know whether you know this. If you go in, you finance your car through the dealership, the dealership's going to call up a bank, and the bank's going to run a credit check on you, and that's going to give -- that's going to give them an interest rate at which the bank is willing to lend money to you.

And then the dealership is going to come and tell you, "Great news. They've got a loan for you at," and then they're going to mark up that rate by some number of percentage points, depending on how much they think they can do that to you. So, that's the financing margin, is how much of a markup are they making on the loan they're giving to you, given the rate they've gotten from the bank.

So, we're going to look at the financing margin difference between transaction A and transaction B. What are the financing profits made in transaction A and transaction B? And here we see evidence of double

jeopardy. So, here we see evidence that people who pay higher new vehicle margins, customers who pay higher new vehicle margins also pay more on the financing margin, okay? Now, huge is like six cents on the dollar, okay, or $6 on $100, all right? So, that gives us evidence of double jeopardy.

And very interestingly, now if we look at differences in demographic characteristics, we do see that those demographic characteristics predict who does better and worse in terms of negotiating the finance margin relative to negotiating the new car margin, okay?

I'm going to skip this, because I haven't got time to talk about it. So, let me tell you a little bit about what we've done and what we've taken from it.

So, what we've tried to do is estimate the correlation of the profit margins for different components of a new car negotiation between consumers and dealers, looking at the new vehicle margin, looking at the trade-in margin, and looking at the financing margin.

What have we found? We've found that the profit margin on the new vehicle and the profit margin on the trade-in are generally negatively correlated. They don't reflect one-for-one trade-offs. It's more like an 85 percent rather than a 100 percent, which is pretty good, but not complete. However, the profit margin on the new vehicle is positively correlated with the financing profit margin, which is evidence for some double jeopardy in that.

What do we think it means? We think it means that consumers realize that there's some substitution between the new vehicle margins and other margins, but they fail to negotiate a full offset, and that there's double jeopardy with the financing.

Thank you very much.

(Applause.)

MR. YOELI: The lesson is that you should keep your car for as long as possible.

Our next speaker is Sara Fisher Ellison, who's a senior lecturer at MIT. Her recent research has investigated a number of questions in industrial organization, with a focus on the pharmaceutical industry and e-commerce. In e-commerce, some of her research involves a study of search and obfuscation.

MS. ELLISON: So, I am going to follow Meghan's lead and use the mobile device, give myself a little more freedom up here. Okay.

So, thanks very much to Mary for inviting me here. This has been so far a very interesting and informative session, and I'm happy to be part of it. So,

today, I'm going to talk about add-ons as an obfuscation strategy on the Internet, and the talk today is going to be based mostly on some work I've done with Glenn Ellison, "Search Obfuscation and Price Elasticities on the Internet," but I will also touch on the sort of companion theoretical paper by Glenn alone in the QJE in 2005, "The Model of Add-On Pricing."

So, the motivation for the Ellison and Ellison paper was that we wanted to know how retailers responded to the advent of low-cost price search. We chose an Internet industry where, you know, price search had just become very cheap and easy, and -- you know, through the sort of opening of a price search engine, and we noted one thing, which is that, you know, the effect of Internet technologies on search frictions were not unambiguous.

And in particular, we noticed that a lot of firms were adopting add-on pricing strategies to escape this sort of Bertrand Paradox that seemed to be -- that they seemed to be trapped in because price search had become so cheap and easy, okay?

So, in other words, when retail moved online in some of these markets, price search, you know, was cheaper, but so was implementing the obfuscation strategies. So, you know, the sort of Internet technologies were kind of double-edged swords in some sense.

And then we were also just interested more generally in how add-on pricing strategies affected demand and competition. There -- you know, these strategies have existed for a long time. There are lots of anecdotes on how they affected demand and competition, not a lot of solid empirical evidence, and that's what we were interested in.

Okay. So, our empirical setting was the -- a price search engine called Pricewatch that specializes in computer components and electronics, and we are looking particularly at demand for one product, in the upper left, of memory modules. And here is just a representative Pricewatch screen.

So, the idea is you go to Pricewatch and you're interested in buying a memory module. So, you go, you find a category in Pricewatch that corresponds to the type of memory module you need to plug into your computer to upgrade its memory, and then you're given a price-sorted list of all of the vendors that sell through Pricewatch. And you can see the prices are pretty tightly distributed. I think I've given you the first seven here or something like that in the price-sorted

list. And they also had -- the price search engine also lists the shipping terms, et cetera.

And it's important to note that if a firm offers different qualities of memory modules or different terms for different types of -- for, you know, sort of -- like, offers as add-ons, sort of different warranty terms for memory modules, all of those products are going to be in this same category, okay?

And so basically when you're a consumer and you're looking in this category, you are not going to go up to, you know, the fifth page or the 20th page or the 30th page of Pricewatch results and see the much more expensive memory modules, even though those might have qualities that are efficient for you to purchase, okay? You're just going to probably go to the first, maybe the second page, and click through to one of these vendors who has the low price, you know, who has a pretty low-priced memory module.

Okay. So, then what happens when you actually click through to the vendor? You might see something like this. So, on the right is the product that was advertised on Pricewatch, and that's sort of the low quality memory module, the bare bones version. For an extra $15, you can upgrade to better return terms, better warranty terms. You can have a higher quality margin. Instead of CAS-3 latency, you can have CAS-2.5 latency, whatever that means. I presume it's better, because you're paying more for it.

You can have a hand-picked 5NS -- I don't know, whatever that means -- but basically for $15, you can upgrade to a higher quality product, and you may or may not understand all of these dimensions of quality, okay? For an extra $25, you can upgrade to even a higher level of quality, okay?

And this kind of pricing strategy is ubiquitous in Pricewatch. So, basically, this isn't just an isolated example. This is very common. You go to Pricewatch. You find the product category you're interested in. You click through to one of the Web sites. And then you're offered the opportunity to upgrade, okay?

And this is -- by the way, the term I often -- we often use for this is add-on pricing, and it is -- in some sense can also be thought of as kind of a hybrid between like a bait and switch and a loss leader kind of -- it's not exactly either one, but it can be thought -- thought in -- you know, it's similar to both of those.

Okay. So, what we did is then we scraped prices and product information for a year from

Pricewatch, and then we also got sales information from one of the market participants, and we put together a data set. And I'm just going to focus on one particular product today. We actually studied a wider range of products, but I'm just going to focus on 128-megabyte PC100 memory modules.

And I want you to notice that we have -- that these were sold in three different quality levels, low quality, medium quality, and high quality, by the firm that we have data from, and you can see the prices vary quite a bit. The low quality averages $67; high quality averages $115, okay?

And you can also see that we have quantities for each one of those qualities. The vast majority of memory modules being sold are the low quality ones. These are the ones advertised on Pricewatch, but there are some consumers who visit Pricewatch, go to the Web sites, and then end up upgrading to the medium and high quality products, okay?

And then also, importantly, we construct this variable which is from -- this log one plus PLowRank. This is just a function of the rank of the low quality product on Pricewatch, okay? And this is going to be important in determining demand for not just the low quality product, but for all the quality products, because this is, in fact, the mechanism that firms use to get people to their Web site. They, you know, change the price of the low quality product to get an advantageous rank, and then that attracts people to their Web site to purchase perhaps the low quality or the high -- or medium or high quality.

Okay. Okay. So, let's go on to the demand estimates. So, from these data, we can estimate, you know, a demand system for the three different qualities of products. And so on the left-hand side, we have demand for low quality, in the middle is medium quality, and so forth. And you can see, if you look at -- let me page ahead a couple -- oops -- there we go.

So, not focusing on the first row yet -- we'll come back to that -- but if you look at the patterns of the demand estimates, they're exactly what you would expect for three products that are, you know, somewhat close substitutes. You would expect that their own price sensitivities are negative, and then the cross-price sensitivities tend to be positive, although you'll note that none of them are significant here.

Okay. So, none of that is particularly surprising, but then if you look at the top row, this, again, is the rank of the low-priced product on

Pricewatch, okay? It has a huge negative effect on the number of sales of the low price product. Again, not too surprising, but the magnitude is quite large. And so basically that means if you lower your price, you get a lower rank or you move up on the Pricewatch page, and your sales of the low quality product go up, okay?

The interesting thing is that the effects are the same for the medium and high quality product, even though these are, you know, close substitutes. So, basically, you lower your price for the low quality product, you get a lower rank that attracts more people to the Web site, and some fraction of them will upgrade to the medium and the high quality, okay?

So, the -- you know, even though this low rank is just based on the price of the low quality, doesn't have anything to do with the price of the medium and high quality, it still affects the sales of the medium and high quality.

Another important thing to note from this table is that the effect of the -- of the rank of the low quality product on the medium and high quality sales is smaller in magnitude than the effect on the low quality sales. And I'll come back to that point, because that's a very important point.

Okay. So, then, based on these demand estimates, we can calculate just a standard matrix of cross-price elasticities. And so, again, this is -- with the exception of two of the entries in this matrix, this is sort of a -- you know, what a sort of naive economic theory would tell you about a matrix of elasticities of substitutes would look like. The diagonal is negative, and all of those are -- all of those elasticities are significant. The off-diagonal, with the exception of two entries, are positive, and, you know, this is not surprising, but there are a few things here that are quite noteworthy.

First of all, the elasticity for the low quality product is enormous, okay? So, demand for the low quality product is highly, highly sensitive to price, and this sort of -- this is suggestive that if these firms have fixed costs, if they're sort of firms that operate in a -- you know, that need to -- you know, that have fixed costs necessary for their operation and they're facing price elasticities like this on their products, they're going to have to do something to escape that Bertrand Paradox, because these kind of elasticities, if this is what they face for all of their products, are not going to be enough to allow them to survive.

Okay. Then the -- but note that the price elasticities on the medium and the high-priced products are substantially lower, okay? Still pretty elastic demand, but not nearly as elastic as the low price, okay?

Now, the -- I think the most interesting thing in this table are the elasticities of the medium and the high-priced products with respect to the price of the low products, and those are negative, quite significant, and the opposite of what we would expect from sort of a naive economic model of close substitutes, right? We'd expect, since all of these products are fairly close substitutes, that we'd have positive cross-price elasticities here. We see them, and they're large and they're negative.

And basically this is -- we interpret this as, you know, evidence that this add-on pricing strategy is working, okay? You lower the price of the low -- of the low quality product, and that attracts more customers into your Web site, and some fraction of those customers will upgrade to the medium and the high-priced products, okay?

So, a couple of observations just to reiterate on the demand and the elasticity estimates. So, the first point I made already, that the price elasticity of the low quality product is extremely high, and -- which suggests that the firms have to do something to escape this Bertrand Paradox.

The second point I have labeled as bait and switch/loss leaders, but I could have also labeled it as add-on pricing strategy. So, basically, we have evidence that the add-on pricing strategy is working, because the reduction in rank of low quality increases the sales of higher qualities, of the medium and high quality.

Also from these estimates, we can take -- we can make the -- draw the conclusion that search frictions do exist or at least these results suggest that search frictions do exist to a greater extent for the medium and the high quality products than for the low quality products, just by virtue of the fact that their elasticities are much less -- are much higher than the elasticity for the low quality product, okay?

And then fourth, there's what we call the adverse selection problem, and this is the point I said I'd come back to in a moment. The reduction in the rank of the low quality increases the sales of all products, but note, very importantly, that it increases sales of the higher quality products less than it increases sales of the low quality products. So, why is this important?

Another way to think of this is that as you lower the rank of your low quality product, you're

getting a worse mix of customers, okay? And that's what we mean by adverse selection. You're getting more cheapskates. You're getting a worse selection of customers, and by "worse," I mean ones that are less likely to upgrade to the medium and high quality.

So, basically, you're -- there's a trade-off. If you lower the price of the low quality product, you do get more customers, but you're getting a worse mix of customers from your perspective. And this is, we think, a very important factor in preventing firms from competing away all of the potential profits from add-on pricing. And I don't know if I have anything else more to say about that. But, I mean, basically, this point is discussed in Glenn's model of add-on pricing, and, you know, we think it's sort of an extremely important mechanism that's going on in this market.

I also do want to point out that we have performed these estimates across a variety of different products, and we have consistent results across all those products. I'm just showing you one set today, okay?

Okay. Then the final thing I'd like to show you is some evidence on markups. So, we have actual wholesale acquisition cost data on these memory modules, and so we can calculate markups, and that's what we've done in the first four rows of this table. So, we have actual markup for the low quality, for the medium and high, and you can see that the markups increase quite a bit as the quality of the product increases.

And then what we can also do is we can compare those markups that we've calculated to two different things. One is a naive markup that we would expect just based on the estimated elasticities that we have for these products; and the second is a more sophisticated markup that we would expect based on our estimated elasticities and taking into consideration this adverse selection, the fact that when you lower your price or when you lower your rank, you're getting a worse mix of customers.

And so the -- so, the -- let's see. The markup you would expect just based on sort of the naive calculation based on the elasticities is 4.2, and then the predicted markup, taking into account the adverse selection, is 8.3. And you can see the 8.3 is closer to the markups that we actually calculate using the cost data. And also, if you look across the different product categories, you'll see that the markup base, taking into consideration the adverse selection, more closely matches the actual markups that we compute.

Okay. And so these calculations not only go some distance towards confirming our model, but also, I think, make the very important point that the profits from these add-on strategies do not get competed away in the presence of this adverse selection problem.

Okay. Okay. So, let me just conclude now by saying that we do find that a price search can lead to super-elastic demand and the potential for Bertrand Paradox that firms have to find some way to escape from. And then, you know, in addition to facilitating price search, we note that the Internet can also facilitate sales strategies that allow these firms to escape from the Bertrand Paradox, like add-on pricing.

And finally, that add-on pricing leads to higher prices, or at least can in our setting lead to higher prices through, you know, both consumers doing -- you know, engaging in sort of incomplete search and also the equilibrium effects of adverse selection.

Okay.

(Applause.)

MR. YOELI: Our discussant is Jonathan Zinman, who is an Associate Professor of Economics at Dartmouth. His research focuses on intertemporal choice and household finance. His work tests economic theories of how firms and consumers interact in markets and closely examines the merits of incorporating specific features of psychology into economic models. I really like your paper on the snow, the iPhone apps.

MR. ZINMAN: Thanks.

All right. And I apologize for the jargon proliferation here, sketchy pricing. I was looking for a handy term that would encompass broadly all the various formal definitions of, shall we say, nonclassical pricing practices that we've been talking about today, and I have an 11-year-old. So, sketchy came to mind. So, I'll just use -- I'll just carry around that term.

What I have in mind, in case it's not obvious, is pricing that's done along multiple margins, perhaps strategically, almost certainly strategically, with questionable disclosure or nondisclosure practices involved.

What I plan to do and hope to accomplish today is to sort of briefly highlight what we've learned about the papers, and perhaps almost as importantly, what they -- what those papers, in particular, get us thinking about in terms of what we still need to learn, and then use those take-aways to sort of more broadly highlight the state of the evidence on sketchy pricing, and

particularly what we don't know vis-à-vis potential applications, including policy applications.

And since I don't merely want to be pessimistic about what we don't know, I'll take a few minutes to sort of motivate and describe, sketch out a new research design that is meant to fill some of the gaps, some of the evidentiary gaps. And then I'll close, if there's time, to hopefully segue us into the policy discussion by talking about how the state of research on sketchy pricing actually highlights some hows and whys of how a very useful role for policy can be to support research and development, including research and development on the types of debiasing techniques that were talked about this morning.

All right. So, I'll start by just briefly highlighting take-aways from the very interesting and ultimately convincing work of all three panelists. So, Ellison and Ellison, I think the main thing we take away from this is that innovation that promotes transparency may also promote obfuscation. You have some underlying technical change that makes it easier for people to shop or compare, well, that same technological innovation can make it easier for suppliers and whomever else to obfuscate a very deep and profound point that's supported empirically.

And, frankly, that's sort of the type of paper and type of analysis that makes us proud to be economists and recognize that it's important to study things in equilibrium, all right? And sometimes we're not sure if we're in partial or partial-partial equilibrium or general equilibrium or, in the Ellison and Ellison case, probably somewhere in between, but it highlights the value of studying market outcomes.

In terms of sort of the cliffhangers that this work leaves us with, I think, you know, I seize on longer-run dynamics here. Do we see -- you know, do we see an arms race between transparency engines and obfuscation strategies? Michael Baye put up some, you know, very thought-provoking slides along those lines this morning. Certainly, that seems like an area where some more formal analysis, both theoretical and empirical, would be valuable. What does this competition look like? If we don't see this sort of arms like -- I mean, it seems like we see it in some markets. Do we maybe not see it in others? Well, what explains why we do and when we don't?

So, Morwitz and Santana, what I took away from this work is that drip pricing matters a lot, sometimes upon sometimes. So, for example, in Morwitz and

Santana's study, if I'm reading it correctly -- and I think this also jives with your summary of prior work -- well, you know, sort of how people respond to different pricing frames depends on experience, sometimes, and it depends on what's included in the base, sometimes, and just to sort of hopefully convince everyone and remind myself that I'm sort of not making this up, you know, there's -- if one -- one set of findings that I tried to summarize in this small bullet point is that drip pricing doesn't affect choices if mandatory surcharges are included in the car base price, but it does if mandatory surcharges are included in the airline base price.

Did I get that right? Okay.

So, this is what I mean by sometimes upon sometimes, which gets us thinking, you know, about, well, can we hope for regularities, for being able to model or otherwise uncover regularities in how consumers respond to different types of information, different types of frames, different types of sketchy pricing regimes, if you will? And this is -- I mean, this is quite challenging, because, I mean, when we talk about -- particularly when we get into framing, we're not just talking about content, right? I mean, we're talking about timing, the source of the information or the frame, other very fine aspects of context. It quickly can get very discouraging.

And I echo something that David said this morning, which is once you get into the business of sort of trying to take behavioral models seriously and develop nudges that are meant to move people in a certain direction, even if you do this in an institutional or market context that you think you know very well, I can say from firsthand experience in many household finance markets, you will often be surprised and confounded at what you find or what you don't find.

You know, so there's a lot of -- there's a lot of -- you know, personally I've found a lot of null effects of nudges that I thought were -- you know, ex ante would be effective, right? So, I think this is -- you know, this is part of the challenge that lays in front of us, and hopefully I'll be able to speak a little bit to how we might begin to make some inroads towards solving that.

So, Meghan and coauthors. So, the take -- the take-aways there -- and as Meghan probably knows, the car market, in particular the auto financing market, is one that's been close to my heart in prior work, and so I read this with great interest. And so what I take away from this is that the average car buyer more or less --

you know, not perfectly, but more or less grasps that the new vehicle price and the trade-in value affect the net purchase price, and negotiates not a perfect offset but close to a full offset.

And so you start -- you know, you start reading this paper. We saw the first side of the -- the first part of the talk, and we say, "A-ha, well, now we know what's going to happen when we look at the same question on the financing margin." But, no, it goes -- it goes in the opposite direction, again, not in a huge way, but on the financing margins, car buyers who pay higher margins on financing are also paying higher margins on the purchase price.

And so, again -- and the reason I saved Meghan and coauthors' paper for last is the cliffhangers are sort of a combination of what we saw in the other two papers. Again, we have this question of how do we -- how do -- you know, how can we -- can we or how can we uncover regularities, predictive models of consumer decision-making, and what explains equilibrium and how equilibrium evolves over time?

So, for example, are we seeing -- are we seeing the growth of negotiation-free options or, you know -- you know, Saturn didn't make it. Why don't we -- you know, I guess maybe the operative question is something like, why don't we see a Southwest Airline in -- Southwest Airlines in the -- in the car dealership market? Do we see a growth or is there -- or is there still a dearth of dealers who commit to somehow unbundling financing, so that they sort of reduce what's in their bag of tricks? So, again, I think pushing forth on trying to understand the competitive dynamics of the industry in the face of these sort of underlying technological developments that -- that can affect search and switch in various ways is key.

All right. So, let's -- let me now sort of start to zoom out to a bit more of a 30,000-foot view of where I think we're at. When Mary and core organizers first started advertising this conference, they sent out a laundry list of questions, which I've only tried to approximate here, and this is an intentionally dense slide. So, we're all interested in policy-making here, and there are -- and if we're going to take evidence-based policy-making seriously or empirical evidence-based policy seriously, there are many questions we would like to have reasonably well-informed answers to.

And, you know, is sketchy pricing prevalent? Well, we're all here, so it's probably prevalent enough. Does it affect market outcomes? Well, presumably. Does

it create worse outcomes? Well, maybe. Some of us would say probably, even. Why does it -- why -- you know, why does it persist? Why doesn't competition make it go away? Well, we don't really know. So, as you can see -- you know, so there are a bunch of questions on this slide, and as we get about halfway down, we really get into a high degree of uncertainty.

And particularly with respect to a couple of the cliffhangers I advertised earlier, which is what do we know about how consumers make decisions with respect to different information and frames that they encounter in various pricing regimes out in the market, and how does this all play out in equilibrium when we have suppliers who are also perhaps benefiting from the very technological innovations that make it easy for people to collect information on the Internet, say?

And so the -- I think it's -- I think it's fair to say that sort of the overall evidentiary state is rather humbling here. And so what can we do about this, all right? And so let me sketch -- let me begin by talking about sort of a meta approach, and then it's -- you know, meta approaches are cheap and specific projects are expensive. So, let me sketch how one might apply a meta approach in practice, and it's sort of a complement to some of the pilot studies that David laid out for us this morning.

So, one way to tackle problems with all of these moving parts, remember my laundry list of questions on the prior slide, is to build a theory model and test it. And so I think, you know, most of us in the room here understand how this works, but let me err on the side of being a little bit didactic here.

And so, you know, a good theory yields distinct testable predictions. If those predictions are supported, we can use the model for equilibrium and policy and welfare analysis. I'm going to -- I'm going to start with David and Xavier's model that he presented this morning and talk about how we might test this -- go about testing this model in the credit card market.

And I focus on the credit card market not just because I know a little something about credit cards and I know a lot less about printer cartridges and memory chips, but I think it's also interesting pedagogically here, if not necessarily jurisdictionally, because it's actually quite complex in some ways when we start thinking about how we would design and actually be able to implement a test of some sort of sketchy pricing model, all right?

So, in -- you know, there's -- there's, you know, sort of within-supplier -- within-person price discrimination going on that does not solely come from risk-based pricing, although risk-based pricing is clearly important in this market. There is multihoming. A lot of the outcomes of interest are not at the sort of individual product level. They're at the consumer level, where the consumer has multiple credit cards.

And there's a meaningful -- and I think sort of Michael Waldman was veering interestingly into this territory. There is a meaningful intensive margin as well as an extensive margin when we start to think about sketchy pricing in the sense that there are these penalty fees that I can avoid if I change my behavior, all right, or there is rolling over balances and paying revolving interest charges that I can avoid if I change my behavior, and those margins may be at least as important, if not more important, in the credit card setup as opposed to some of these other markets.

So, sort of in contrast to David's meta approach this morning, which was laying out -- sort of laying out a process for a sort of big-picture methodology for doing many very simple studies, I'm actually going to go to the opposite extreme and sort of take on the task of designing what I hope will be a sharp test of a useful model with a relatively high degree of difficulty, yet hopefully still convince you that this is actually doable, all right?

So, this is sort of -- I am going to take, like, the other limiting case. Like, if we know we can do the quick and dirty and simple stuff and learn something from that, and we know we can take theory really seriously, maybe too seriously, and learn something from that, well, hopefully this opens up the door to all kinds of useful empirical research on sketchy pricing.

All right. And so just to quickly recap the Gabaix-Laibson model and flesh out some ideas about how this might apply to the credit card market, so in their model, we've got a base price, the printer, or you can think about the contract rate in the credit cards. An interesting and complicated feature of the credit card market is that there are many margins of prices that might serve as the base price here. You know, it might not be the contract rate. It might be the fact that we can float or that there's a teaser rate. And so there are actually many margins on which -- in the credit card market on which there's, you know, sort of a base price,

and then there's an add-on price that is more or less shrouded in some way.

All right. And so the add-on in the printer market is clearly the cartridge. Here, to fix ideas, I'm going to think of penalty fees, all right? So, base price, contract rate, add-on price, penalty fees. There are some consumers who -- these are the myopes -- who don't infer that shrouded add-on prices, shrouded penalty fees are going to be high prices and/or, you know, sort of lurking beneath this, they might be underestimating their future likelihood of incurring penalty fees.

Why don't issuers compete by unshrouding and debiasing people? You know, we certainly get all kinds of direct marketing from credit card issuers. Why aren't any of them telling us -- I mean, the last I checked, why aren't any of them telling us to avoid penalty fees, because it turns my -- it turns naive people, myopic people, into unprofitable, sophisticated people, all right?

And so one thing to think about that I think, in talking with David a bit, is a bit outside the existing models, but probably worth thinking about, is, you know, how stable are these shrouded equilibria? You know, how persistent or robust is this curse of debiasing? And how does it relate to the level of costs of debiasing someone, how expensive it is to debias someone? How does it relate to the level and distribution of switch costs, which is important in the credit card market?

You know, so you can think of -- so, imagine, intuitively -- I don't know if this is true in the formal models, but imagine intuitively that you thought you might actually be able to profit by taking a myope and stealing them with a higher base price. So, again, I'm not sure if the models can sustain this yet, but imagine you could do that.

Well, one thing you need to think about in a market with substantial switch costs is sort of what you might think of as the "Thanks, but no thanks" effect. You know, so someone -- so, I get -- you know, I have five credit card accounts. I get a direct-mail solicitation from a sixth credit card issuer that wants to steal some of my business. It debiases me. It makes me realize that I've been paying all these penalty fees that are more expensive than I thought they were.

Well, what's to stop me from saying, "Oh, this is great. I'm facing these switch costs. I'm just going to change my behavior and stick with my existing five providers," all right?

Okay. All right. So, let me quickly just sketch a general setup for how you might go about testing a Gabaix-Laibsonian-type model in the credit card market, and, again, the degree of difficulty here I think is higher than in many other markets. So, the key pieces of the research design -- and let me approximate -- you know, before your eyes start rolling in the back of your head, let me reassure you that in my own work, I have actually used each of these three key pieces separately. So, the challenge here, from an implementation perspective, is actually being able to put all these pieces together into a single design, all right?

So, there is sort of in existence proof that each of the pieces can be implemented and used by researchers -- what is it, severally, all right? So, now the implementation task is to pull this off jointly, all right?

And so the key pieces are you need to get an issuer on board, you know, maybe it's a credit union with a sizeable credit card portfolio or something that's willing to experiment with different debiasing techniques in its direct marketing, all right, or, you know, this could be some sort of third-party consumer group, although I think -- my sense is that we'd probably learn more if it was an issuer, all right?

The second key piece is we need a -- we need to be sending -- we need this issuer to be sending direct marketing to a sample of consumers for whom the researcher can observe the full set of credit card accounts, ideally, all right? And this can -- and there are actually, you know, perhaps surprisingly, several different ways to pull this off and that have been pulled off in different research projects that I won't get into.

All right. And then the third piece is we'll use this, we'll use the response of consumers and also other competitors to test these debiasing treatments, these debiasing experiments, to test hypotheses that come out of the model or that come out of extensions of the model; namely, that unshrouding will change consumer behavior, lead to a lower use of add-on. It will be unweak -- it will be weakly unprofitable for the issuer that is doing the debiasing. Sorry, Partner Credit Union, but you've provided -- so, the sell here is -- you know, the up-front sell here is, you know, let's do this in, you know, in hopes that we're surprised and that Gabaix-Laibson is falsifiable, and/or, if nothing else, we're providing a public good.

This will be, if I'm interpreting the models correctly, this -- the debiasing, even effective

debiasing, will be unprofitable for the issuer's competitors, all right? So, again, this is sort of the "Thanks, but no thanks" effect I was talking about earlier.

And we can also think about, again, taking the model seriously and developing hypotheses around how we might expect to see -- you know, assuming we eventually do this on a large enough scale, how would we expect competitors to respond to this debiasing campaign? How do we expect advice or shopping platforms to respond eventually?

All right. Now, so, one thing -- one thing I just wanted to be clear about is, you know, what does an effective debiasing campaign look like here? Well, we don't know. And sort of this goes back to -- this goes back to the points that have been made throughout the day on the sort of lack of evidence base in terms of empirical regularities about how consumers respond to different frames and information.

And so one of the nice things we would get out of this sort of work is we could test different kinds of debiasing approaches, or you can think of them as sort of alternative disclosures, you know, do you talk about competitor prices or just your own prices? Which add-ons do you focus on? Do you give people cost -- you know, when the intensive margin is important, do you give people cost based on typical usage, based on what you project to be their usage? You know, basically our model predicts that you are going to pay X. Over what -- over what projection horizon do you do this?

And one -- you know, one happy note here is that in doing work like this, it's very nice to do it in a very sort of direct, marketing-heavy context, which is certainly the case in the credit card market, very conducive to debiasing research, because you have, of course, much tighter control over what is presented to people than in any sort of high-touch environment where you have salesmen using potentially high-pressure techniques to undo the effects of whatever script or disclosure you were trying to put in front of people.

All right. And so let me conclude with a bit of a segue into the policy discussion. I think if we take these models seriously, they highlight, let's say, potential rationales for government-supported research and development in work on sketchy pricing and in related fields. You know, so one thing this sort of work gets us thinking about is, well, you know, do we expect there to be underinvestment in debiasing innovations, in which case a useful role the Government can play is to

subsidize such research and development? There are many reasons why one might think there would be underinvestment in debiasing innovations.

So, there also may be coordination problems that government agencies can help solve. So, for example, the sharpest tests of various models might require outcome data from multiple providers. I described this in the credit cart context. That's a coordination problem that agencies may be able to help solve, perhaps with what suppliers would consider to be old data and what we would consider to be, as researchers, probably fine data.

Some innovations in the debiasing space may rely on machine-readable data. So, there's a lot of interest in smart disclosure. You know, you can think of that as involving a standards problem that, again, might be usefully helped with some relatively light-handed government intervention.

And the one caveat I would leave you with is something that comes, I think, a bit out of the Ellison and Ellison work and also out of the new work that David mentioned by Heidhues and coauthors, is that I'm conveniently abstracting from the possibility here that investments in debiasing R&D feed back and end up helping those who would like to obfuscate. So, again, you know, it's like we can't -- given everything we've talked about, I can't ignore the possibility that basic research on consumer decision-making and competitive dynamics can be used to obfuscate as well as to debias.

Thanks.

(Applause.)

MS. SULLIVAN: We have time for a couple of questions if anyone has questions for the panel.

MR. DANIEL: I'm Tim Daniel from the Bureau of Economics. It's been a while since I bought a car, but you brought back memories of the car-buying process.

MS. BUSSE: Good ones, I hope.

MR. DANIEL: We'll talk later.

But I'm wondering, when you -- when you have these con -- potentially conflicting results, where the margins move in opposite directors on the trade-in versus the new car, but in the same direction for the new car if you don't have a trade-in and the financing margin, what -- why is that not just that the car dealer can discern or detect an inelastically demanded consumer -- an inelastic consumer?

The consumer's done some search, they know what car they want, they go in to the dealer, and the dealer can discern that somehow. They have a way to do that.

They say, "I've got one now I can get high margins from, but he's not an idiot. He knows he's got a trade-in, so I can't really make my margin there, but I can get a higher margin on the new car price if he doesn't have a trade-in, and I can charge higher margins on the financing, because the consumer's clueless about what interest rates might be available for new car purchases."

So, is that a possible explanation for the data? And if not, what would you say would be?

MS. BUSSE: Yes. I think there's a couple of things that can be going on. You know, one is exactly sort of the separation that you talk about. It depends how consumers think about this. So, that's one thing.

It's also the case that I think the financing contracts and the terms of the financing deal are much more difficult to understand than here's a car and here's a trade-in price, right? And "I'm going to give you the car, and you're going to give me the trade-in price" is much simpler than worrying about what are interest rates and what are terms and what is that going to mean to me and so on and so forth.

I think it's easier for a dealer to play a shell game with a bunch of financing terms than it is with, "Here's your trade-in car and here's the trade-in price." So, I think that's one thing.

They're also separated out, so that the new car and the trade-in car temporally tend to be negotiated more closely, and then the financing terms perhaps not with a salesperson, but with the F&I guy in the office, and so that's going to be separated in term in a way that's potentially not going to be able to -- going to make it more difficult for you to get the high profits you're paying on the financing margin recouped on something else.

The final thing is -- and this speaks a little bit more to the hypothesis that you suggested -- the results that I skipped because I didn't have time divided customers on the basis of whether they negotiated a trade-in price that was more than the actual cash value of their car or less than the actual cash value of the car. And the idea is you may have consumers who come in who are very focused on getting a good price for their trade-in, right? And you could think of there being sort of behavioral reasons for this.

So, Zhu, Chen, and Dasgupta propose that customers think of cars sort of having a mental account, right? You bought this car, and you opened this mental account, and you want to close this mental account as

positively as possible, so you want a good trade-in price for that.

So, customers who get good trade -- good prices, high prices for their trade-ins relative to the actual cash values, do much better on this substituting offsets than the ones who are paid less, right? So, if you were a customer who gets paid a trade-in price that's less than the actual cash value of your car, that coefficient goes from being negative 0.9 to negative 0.13, right?

So, that suggests that -- sort of along your lines, that the things that we can guess customers are focused on are the things they tend to do well on, which suggests to me that the financing margin is not something that customers either are focused on, they know to focus on, or they are as able to focus on because it's complicated terms relative to the trade-in price.

MS. SULLIVAN: Okay, let's take one more question, if there's one more.

MR. GRAMLICK: My name is Jack Gramlick from Compass-Lexecon, and the cars are very interesting, so I had a follow-up question on that, too.

Is it possible that there is an unobservable in the trade-in car that's causing this, so that, you know, people who run their cars into the ground are also not as good at bargaining for new cars or something like that? I mean, is that something you can --

MS. BUSSE: So, we're trying to control for that by using the actual cash value at which the dealer books the trade-in, which is going to have something to do with mileage and wear and tear and the condition of the car. So, we're trying to group these matched transactions by what the dealer books the value of that car as, not what he pays the customer for it, but their internal assessment of what the value of the car is, which should take into account wear and tear and mileage. I can test the mileage, but I can't see the wear and tear, but we're trying to group it in a way that takes care of that.

MS. SULLIVAN: Okay. Thank you.

(Applause.)

(A brief recess was taken.)

PUBLIC POLICY ROUNDTABLE

MS. SULLIVAN: Welcome to the public policy roundtable. What we're going to do is continue some of the policy discussions we started earlier today, and what I'd like to do is go for about maybe 45 minutes or so and then open up the floor to questions from everyone in the audience. So, write your questions down or remember them.

Now, I'm not going to reintroduce everyone on the panel, because most of the people up here have already been introduced, but we have two panelists who are not already in the program.

First, Rebecca Hamilton is right here. Rebecca is Associate Professor of Marketing at the University of Maryland's Robert H. Smith School of Business. Her research focuses on consumer decision-making and the effects of consumers' information processing strategies on their attitudes and choices. She has conducted research on partitioned pricing and nickel and diming, both of which are closely related to drip pricing.

And then next to her is Florian Zettelmeyer. He's the J.L. and Helen Kellogg Professor of Marketing at the Kellogg School of Management at Northwestern University. His research specializes in evaluating the effects of information technology on the product market behavior of firms. Professor Zettelmeyer's studies have shown that better access to information and new institutions has significantly lowered prices to Internet consumers in this industry.

So, after listening to the discussion this morning and this afternoon, you know, I was hoping that we would help resolve all these questions, and I'm starting to think that maybe we've just raised more questions, but we have an hour. So, we can solve all the problems.

There are really two base -- sort of broad question areas that I want to address in the roundtable. One is, when is drip pricing most problematic and how can we identify where harmful drip pricing occurs? And we've

already been talking about that in both sessions. And then, second, what are the regulatory options?

So, what I would like to do is really start back at the beginning where we were -- things we were talking about in the discussion in the theory session, which is, how can we go about identifying where harmful drip pricing occurs? I mean, this is something that I was thinking of when I started to think about drip pricing, because you see all this behavior everywhere. And how do you -- as a regulator, how do you really figure out where it's happening, when it's worse?

And so without rehashing too much of what we already talked about, what else can we say about this? How should we find it? What about in -- we talked about consumer financial products. Anything else on consumer financial products? What about automobiles? Oh, just -- Michael.

MR. SALINGER: Someone's got to speak first.

So, a general principle, I think, would be you should look for products where the magnitude of the person harmed is really quite substantial. So, there are all sorts of these practices that are unbelievably irritating, like if the rental car company charges you for the van to the airport, but I think that's nickel and diming, and I wouldn't worry about nickel and diming.

I'd worry more about things like I offer you a teaser rate, and you don't understand -- and it's a variable rate, and you don't -- you don't understand about interest rates, and all of a sudden you're stuck with this mortgage that's going to bankrupt you or make you miserable for years and years. So, I would make that a priority for enforcement.

MR. ZINMAN: I mean, there may also be a bit of sort of a proportionality test to apply, if we -- you know, if we see a very high proportion of revenues in a given market coming from add-ons, I think that's cause for concern. So, take -- for example, let's contrast, you know, the credit card market. So, I just spent a lot of time talking about the credit card market. I think the fact of the matter remains that something like 20 percent of total revenues comes from fees, and so less than 20 percent from penalty fees, all right, which may or may not be a big number, but it's a small number proportionally compared to what happened in -- with U.S. checking accounts starting in the late nineties over the 2000s, where we went from, you know, next to zero percent of revenue coming from overdraft fees to 75 percent of explicit revenue coming from overdraft fees.

MR. LAIBSON: Do you want to go?

MR. WALDMAN: I want to go back to one of the things I said this morning, which is I put -- you know, I think there are some general principles, and I think repetition and learning is a situation where if you're buying -- you know, if this good is being purchased regularly, like people going to a movie theater and buying popcorn, they're ripping you off on the popcorn in a sense, but it's not something that I think we want the regulatory authorities to be too worried about.

If you're buying a car once every ten years, that -- you know, learning in that situation might be harder. So, even though it's represented, a once-every-ten-year repetition is quite different than a once-a-month repetition.

And also, going back to some of David's ideas, that, you know, sometimes, even if it's repeated, it's hard to understand what the actual cost was. So, if I'm thinking about toner cartridges, you know, I see the price on the toner cartridge, but then there is also the question of how many pages you're printing with the toner cartridge, and so it's actually pretty hard to learn in that market. And that's another market, even though there's repetition, where it's hard to get consumer sophistication, and the repetition might not actually help that much.

So, I think these kinds of general principles are things -- I think are the way to go about it, and Michael started with one of them, which is the price itself has to be large; otherwise, it doesn't seem like it's worth worrying about.

MS. SULLIVAN: Florian.

MR. ZETTELMEYER: What ultimately matters is whether consumers feel that had they known this information, they would have made a different decision or that they made a mistake. Sometimes it would be very useful to establish some kind of a metric that would give you that sense, in what kind of decisions consumers feel that they end up, had they had different types of information, would have made a better decision.

I think the difficulty the exact implementation of such a metric is going to depend on what industry you're in. However, there are a few things that I think are useful. In the auto space, for example, can it be to call an interest rate in a lease a money factor and it turns out that it happens to be the APR divided by 24?

It's not clear what the rationale for that kind of information framing would be.

Or should we not be concerned if a consumer says: "Well, I didn't realize that when there was a

lease, that I could actually still negotiate over the price of the vehicle." That's another case where describing to a consumer the process, the way, say, Meghan laid out the purchase price for a car, might change the way that consumer actually engages in this negotiation.

And I think the important thing is not to try to regulate the negotiation as much, but to at least give the consumer a head start on the structure of what they're dealing with.

MS. SULLIVAN: How do you do that in automobiles when people are going -- and people -- most people generally know they can negotiate the price of the car and the trade-in, but maybe not the financing. I think that was one thing Meghan said. How do you solve that problem? Anyone? I don't mean to put you on the spot there.

MR. ZETTELMEYER: No, no, I --

MR. BAYE: I think -- no, go ahead.

MR. ZETTELMEYER: You're good.

You know what, I think there are a couple of simple things.

I actually think that a lot of the individual components, and particularly the loan components in vehicles, are actually not that complicated. It just happens to be that you have an industry that's kind of specialized in withholding some of what you need to know. And so I think some rules about how you have to present information to consumers could potentially be pretty helpful.

In the case of trade-ins in this negotiated price environment, I think the trick, is not so much whether you disclose prices or not. It's whether you disclose any information that helps you evaluate whether the price you're negotiating over is a good price.

An example of a mildly deceptive practice is that now many consumers can see what the invoice price of the car is, which is very important for negotiating because it gives you a sense for how much profit is left once you start negotiating and what is a reasonable offer for the dealership to make. It turns out that particular number is not particularly meaningful, because at the end of the day, the manufacturers all give back to the dealer a 2 percent or so hold-back.

And so there is a profit in the sale, even if the dealer throws up his hands and says, "I'm making no more money at all on this deal, so please don't negotiate anymore." I think requiring disclosure in those areas may be a good start.

MS. SULLIVAN: Did we have any other comments down here? Oh, Rebecca.

MS. HAMILTON: Going back to one of your other points, Florian, to -- I think one nice thing we can learn at this point is about the decision quality, and certainly there are different metrics for this, but I think both in Amelia Fletcher's presentation and in Vicki's work, we see that consumers have something to say about this; in a between-subjects experimental design, you can ask people how they feel about the outcome.

And they feel like it was unfair in some cases; they feel like it was more successful in others; and they say they would go back to a service provider in one case and not in another. So, I think we're starting to build up an understanding that consumers are aware of these pricing practices, and they make a difference in -- in their experiences.

And certainly, you know, there are different metrics that we can use across industries, but this is something we can start building up our understanding of.

MS. MORWITZ: I think along those lines, it's also -- another important metric would be consumers' understanding about what these surcharges really represent, and in many cases, you know, they may be small and inconsequential, but they think a lot of these surcharges. They have names or they're grouped with taxes in such a way that consumers really don't understand exactly what they're paying for.

So, an airport concession recovery fee on a rental car is essentially rent that the rental car company is paying to operate out of the airport, yet they pass it through and make it look like it's a tax for us; or the DOT recovery -- you know, whatever it was called, the fee that I made a joke about in my presentation, I'm sure most consumers see it and see DOT and think, "Okay, this is a government tax that I just have to pay."

And so it would be nice in these behavioral studies, too, to get a sense of what consumers think these fees mean, and if there's a large misperception about what they mean, something's wrong.

MR. ZINMAN: So, to Florian's point, I think one problem with mandated disclosure, even when we have something like an APR that we're fairly confident actually helps people, even biased people, make better decisions when they're presented with that information, is that mandated disclosure is incredibly costly to enforce, in -- particularly in high-touch, not very concentrated markets, like the auto loan market. So, I just wanted to sort of throw out that caution.

And some of the work I've done along those lines has -- and some of the discussion today has made me wonder whether, as researchers, we might be helpful by sort of using models to think about interventions that might break and change the equilibrium. So, rather than needing to -- rather than relying, as we often are want to do, on mandated disclosure, where in steady state, you need this sort of constant supply of very costly enforcement, are there things we can do on a more temporary basis or a more episodic basis that will sort of shock markets into disclosing voluntarily? Hopefully, we can use models and empirical tests of those models to answer those questions.

MR. ZETTELMEYER: Do you have an example?

MR. ZINMAN: No.

MR. ZETTELMEYER: Do you have an example of such an intervention?

MR. ZINMAN: No, I don't.

MR. ZETTELMEYER: Okay. I was just curious to see, because it seems like a tall order. I'm not quite sure what one could do.

MR. WALDMAN: Similarly, why would the market not -- after this intervention was taken away, why wouldn't the market just go back to where it was before, unless there was kind of some type of multiple equilibria situation, which is not that standard, I wouldn't think.

MR. ZINMAN: I mean, I'm throwing this out. I mean, there are many people in the room who know the models much better than I do. My understanding of the models is that some of them have relatively fragile equilibria, so I'm simply, you know, throwing this out as a thought experiment to be pursued or discarded if it's completely unrealistic.

MS. SULLIVAN: Okay, David.

MR. LAIBSON: So, I want to add to the list of items that should be taken into account when thinking about how and where to intervene.

I agree with everything that everyone's said. The one thing I would add to that list is the elasticities of the supply and demand curves. So, there are some cases where no matter how confused people are, our theories kind of robustly say there will be no dead weight loss. So, for example, elastic supply curve, inelastic demand curve, it ends up all getting passed through, and there is no dead weight loss in the equilibrium.

Now, of course, our theories might be wrong. I don't want to imply that we know that they're right, but that's kind of just the basic Ec-101, you know, result.

So, I would think we would want to combine what we're learning about consumer confusion with what we know or also can learn about the relative elasticities and jointly try to get our hands around dead weight loss and use that as our guide about where to think about maybe intervening first or studying first.

Again, I think we're far from knowing the solutions, but I think we're at the point where it's time to engage in measurement and do some pilot interventions to see if we can move the needle in a very small market or a demonstration project.

MS. SULLIVAN: Okay. Mike Baye, and then Sara.

MR. BAYE: But, yeah, just to echo what David said, I would pitch it slightly differently. I think margins can be a helpful thing to look at here, because margins we typically think of as reflecting, you know, market power. And I'm just kind of taken aback by Glenn and Sara's paper, and you look at the obfuscation strategies that these online retailers are attempting to use, and they're able to ferret out an 8 percent margin after all that stuff, right?

So, I don't know whether those margins include click-through fees, for example, and so forth, and so on top of that, they have got to pay click-through fees on the order of the type that -- many comparison sites, you know, 50 cents a click-through, right? So, you start thinking about how profitable it is in these industries. So, if I observed an industry where margins were incredibly high, that would be another place that I might have more concern.

And just as something that hasn't really been said this morning or this afternoon is, I mean, if you really look at the -- what drip pricing is all about, it's really about price discrimination is what it's really about. Even in the search theoretic frameworks that I presented, it's a way for firms to price discriminate between informed and uninformed consumers, they're rational, or in the behavioral world, it's a way to price discriminate between ignorant myopes and rational people, right?

And, you know, firms are always trying to find ways to price discriminate, and somehow, when we give the -- my students at Indiana University get a student discount or my mom and dad get a senior citizen discount, somehow that price discrimination seems okay, but now we're discriminating in these other metrics. There are obviously other distributional effects.

But just a closing reminder, in incredibly high fixed-cost industries -- I'm not arguing the Internet is

one of those, but I think of airlines, for example, incredibly high fixed costs to operate an airline. You know, if you require firms to charge a uniform price, they may not be able to cover average variable cost, right? So, price discrimination in those types of worlds might be necessary to sustain the number of firms that we have.

So, I think we just have to be careful that as we start, you know, eliminating the tools that firms have to cover their costs, that an unintended consequence might be, you know, making it more costly for new firms to enter that have to comply with these disclosure policies or whatever, or we might induce exit by firms that are unable to cover costs. So, margins, I think, is an incredibly important place to look to kind of get at that issue.

MR. LAIBSON: So, I agree very much about the margins. I do think that price discrimination is a little different here, though in general, as an economist, I find it unobjectionable, and I like it. But in this setting, when we think about the unsophisticated person, typically with low financial literacy, low education, low income, being the myope, they're the ones often in these models that suffer the dead weight loss and pay the -- or pay the highest cost for the product.

So, it's this unfortunate equilibrium or class of equilibria in which the most vulnerable, the most un -- you know, low paid, the most uneducated end up being the ones who are paying the high prices. Now, that's not necessarily wrong, but at least in these models, it ends up being a kind of double distortion, because not only is there a dead weight loss and a gratuitous source of inequality, but it particularly hits the people who already had high marginal utility anyway.

MR. BAYE: Yeah, I'd agree that there are important distributional effects. I think this gets at Michael's point. You know, if we're talking about a mortgage, for example, obviously that's one issue, but I think if you're looking at many classic online markets, you know, maybe it's the rich lazy people that aren't willing to do all the additional searching, and the poor people are, you know, scouring for the better deal.

So, it's not obvious to me, in the online environment, that the myopes are the poor dumb people. They may be the -- you know, the rich consultants or whatever. They just don't have the time to -- or don't care about ferreting out that information.

MR. LAIBSON: That's a great point. We should add that to the list of questions that are on the

empirical table. Who, not just are people miscalibrated in their beliefs, but who's miscalibrated, and is it the rich who are getting caught or the poor who are getting caught?

MR. ZETTELMEYER: I can answer the question just with respect to bargaining, which is if you look at just new vehicle prices and you ask the question, who is actually paying a lot for a vehicle, it's basically a U shape. So, you get a big effect of the poorest, and then once you reach about the eighty or a hundred thousand dollar household income, you are at the bottom, and then once you go back from that, you end up paying more for the identical car at the identical dealer.

MR. LAIBSON: So, it's both.

MR. ZETTELMEYER: But, of course, in terms of numbers of people, you had a lot more at the lower end then at the upper end, right?

MS. SULLIVAN: Okay, Sara.

MS. ELLISON: So, I just wanted to emphasize a point that Mike had made earlier today that I think is quite important, and it's that in some of these markets, there seem to be sort of third-party -- you know, private parties that have an incentive to undo obfuscation, and, you know, the example he gave was price search engines, and they have a strong incentive to try to get people who are listing on them to, you know, disclose. You can think in the auto market of Web sites like Edmunds and so forth that exist to educate consumers.

So, I think that's also an important piece of the puzzle that we have to keep in mind, that some of these markets do have, you know, sort of -- there are strong private incentives to sort of undo some of these problems, and they may take a while to unravel, but...

MS. SULLIVAN: Okay. Let me raise another question now. As I was going through this whole literature, I was really puzzled and don't know what to think about some of the results from the partitioned pricing research, and in partitioned pricing, what they've found is when the price is partitioned into two or more components, even when all the components are fully disclosed, consumers systematically -- not all consumers, but on average -- come away thinking that the price was lower than it actually was.

Now, from the perspective of how we would want to disclose things, this really bothers me. So, is partitioned pricing harmful or is it -- can it be good? And should we think about that differently than drip pricing?

MS. MORWITZ: So, I think in partitioned pricing, there's a trade-off. So, on the one hand, when you partition out all the surcharges and fees, it's kind of full information. It's disclosure -- in a sense, it's disclosure, right? And many of the firms make that argument, that consumers should be able to see how much is tax, how much is a mandatory surcharge.

But the flip side is that the consumers, at least on average, underestimate the price in certain situations and can make mistakes. They can make mistakes to that can affect the competitive nature of the industry. They can assume that those mandatory surcharges are the same across competitors when they're not. So, they just do the comparison on the base price. They anchor on those base prices, they do the comparisons on those base prices.

So that the hotel room example that we talked about earlier, using your comparison shopping on that, figuring all those surcharges are the same, but they're not, because one hotel charges a resort fee, another one includes Internet or doesn't. So, you know, I don't know the answer to it, because I think that there is this trade-off between the full information versus not, but I think it's -- it can be misleading, even when all the information is there.

And some research points to salience. So, I think there are ways to disclose that work better than other ways. If the surcharges are there but in tiny print at the bottom of the Web page or you have to click to get it, that doesn't work as well as if it's there in the same size font.

MS. HAMILTON: And something else that's interesting about partitioned pricing is that consumers seem to be differentially price sensitive to the various components. So, you might have things that -- I know this, of course, goes against the descriptive invariance consumers are supposed to display, but we find that they're more sensitive to costs like shipping charges.

And there is actually a term for this in the literature, shipping charge skepticism, that I think Vicki had mentioned earlier, where consumers, you know, display much more reactions to the increase in the size of shipping relative to the product they're buying than if you increase the price of the product relative to shipping.

So where you draw the line in terms of the total price matters to consumers. We see this in many different components. People don't like paying for

shipping, labor, or components in general that they don't feel they're getting a sizeable benefit from.

And I think related to this are components like taxes, where there's an assumption by consumers that the seller is not to blame for these. It's some other third party. And so not only are you allocating that to a third party, but you're also making your own base price look lower at the same time.

MS. SULLIVAN: Yes.

MR. SALINGER: A lot of the practices we've been talking about seem like pretty standard marketing practices. They're not really new. And, I mean, one of the challenges in formulating policy towards it is all marketing is going to be a little bit deceptive. I mean, that's kind of the point, to put -- right, to put your best foot forward. And so you have to formulate the standards in a way that companies are allowed to do this a little bit.

And from a pure perspective of the FTC, I mean, one way to think about it is, what are the statutes you're enforcing? And so you've got a statute that says that a practice has to be unfair or it has to be deceptive. Those are the two things you go after, and there are standards for when does it rise to that level.

And so -- so, the problem isn't so much do we think partitioning is good or partitioning is bad. It's when do we see people pricing in a way that it meets -- that it's as deceptive as the other things that the agency goes after as being -- as being deceptive. You're not going to get this perfect.

MS. SULLIVAN: What about -- this raises another issue. With the study of partitioned pricing, it's looking at fees that are mandatory, that are just -- you've got to pay them, they're not for add-ons, there is no way you are going to get out of them -- versus situations where there's more a la carte pricing, where, you know, you do have -- it's just a little more complicated.

When we're trying to come up with solutions for, you know, regulatory options for either, you know, mandatory fees versus a la carte pricing and add-ons, how should we think about that? Should we draw a distinction between those two? And is a la carte pricing always harmful or is it -- you know, what are some of the benefits? So, just, how should we think about that?

MS. HAMILTON: I think even partitioned pricing is not always harmful. You know, consumers may feel better off if you partition a price in a certain way, if you make one component of a price more salient, and it's

a component they believe delivers a lot of benefit, then it can make them feel better about the overall transaction.

So, I think there's definitely more potential for harm if the components are mandatory versus optional, but, you know, even partitioned pricing, I think it's just a matter of how consumers react, and consumers can protect themselves in many cases, like shipping. I think that's why we see these [online search] aggregators attending to shipping, because consumers care about shipping.

So, that seems like a case where there's been a lot of progress in disclosing those fees up front to consumers when they search online.

MR. ZETTELMEYER: So, in general, I feel quite nervous about trying to extend the logic to these options. I think that we are in a situation in many industries in which the configurability of products is an enormously important feature, and it's pretty easy to argue that a lot of that is quite positive for consumers. Of the pricing implications are that it leads to more price discrimination.

But if one starts regulating options, I think there are lots of degrees of freedom for firms to get around them. So, you could potentially trade off one harm with another harm. For example, if you don't like the 160 items on the option price list of a BMW, is it a lot better if now BMW gives you exactly three option packages and you need to buy the auto-dimming rear-view mirrors that you really don't care about?

So, I'd be very nervous about doing a lot there, in particular because if anything I expect at that kind of a pricing, simply through technological progress, is going to be increasing because of more flexible manufacturing and more customization ability.

MS. ELLISON: Well, I think I would go even one step further and say that it's unclear to me how you would even articulate a policy of transparency in optional add-on pricing. I mean, you know, I go to order a pizza, and is the pizza parlor required to tell me that the average person gets pepperoni and mushroom, and that's what the pizza costs? You know, I'm not even sure how you would sort of articulate such a policy.

MS. MORWITZ: And I think in terms of the mandatory fees, one thing, going back to what I said before, are those fees understandable for your average consumer and kind of equal across competitors? If it's really taxes and all of the firms that are operating in that business have to pay, that's fine, but if it's

something where the firms -- some -- it's mandatory, but it's really pretty clear that the firm is offering it because it is misleading and consumers aren't going to understand it and it gives them an advantage relative to their competitors, then that's a different situation.

And I agree with what everyone's been saying about the optional fees, but some of these, they're optional in theory, but if, you know, 95 percent of the consumers are taking that option, then it's a gray area between whether it's truly optional.

MR. ZETTELMEYER: I think it will be empirically impossible to identify whether the option is taken because it happens to be priced low or if the option is taken because you somehow can't use the product in any other way, and I think that could be a huge problem.

MR. WALDMAN: You want to keep in mind, there is actually two levels of transparency when you think about options. One level is the prices themselves, and the other is actually what's included in the base. And so I think trying to make clear what's included as the base product is very important -- is a very important -- potentially very important part. Trying to reveal all the prices could be quite complicated if there's so many prices. So, I think we really want to be a little careful in terms of options pricing, in terms of what we mean by transparency, because I think there are different dimensions.

MR. BAYE: And I think it's also important to recognize just the evolution of prices. Forget the Internet for a minute. Just think of traditional brick and mortar stores. You know, in the U.S., when you go to the grocery store and you see a can of lima beans on the shelf, depending on which state you're in, there may or may not be sales taxes on a particular type of food, but generally, as Americans, we know that the prices that we observe don't include taxes, except when we go buy gasoline. We know that gasoline includes excise taxes, right?

So, from the point of view of competition, I think there are multiple equilibria. You go to Europe, the VAT is included, and you know that the price that you're paying there includes taxes. So, there are different equilibria there.

I think the thing that becomes problematic from an economic point of view is when there -- when a price doesn't mean the same thing to both types of people, right? If one person's quoting a price in dollars without taxes, the other one is including it, and the

consumer doesn't know that, then you've provided a veil on information. And as economists, we think generally that's not a good thing.

But I think it really -- it's really an artifact of whether -- a lot of the anomalies we observe on the Internet is really an artifact of its infancy. They really haven't coordinated on what is the standard for quoting prices on the Internet, like we've coordinated at grocery stores and the Targets and the Wal-Marts of the world in the physical marketplace.

MS. SULLIVAN: So, you raised the question about taxes and whether they're included. I know that when you go shopping in the grocery store, taxes are not included on the price that's on the shelf, but now, according to the new Department of Transportation rules, airlines are supposed to include taxes and fees in the base price of the product.

So, what do you think? Should all posted prices include taxes or not? I mean, everybody has to pay them. They're the same for everybody.

MR. BAYE: In the case of airlines, where you're talking about the -- you know, the basic federal fees that are going to apply to everybody, it doesn't strike me that that's a problem. It may well be a good thing.

When you're talking about Internet sales, where sales tax vary depending upon the domicile of the consumer that's making the purchase and the domicile of the retailer, to require all Internet retailers to somehow magically determine what appropriate price to display to Mike Baye when he goes on a Web site, I think the big guys can probably figure that out.

I'm worried about kind of the small retailers, and, you know, one of the unintended consequences could be to make it very costly for the mom-and-pops that have increasingly tried to penetrate the Internet to be able to compete if they're required to figure out exactly what is the full price that Mike Baye is going to pay.

MR. SALINGER: I think from a consumer protection standpoint, the after-tax prices are probably the right thing. This doesn't necessarily reflect my own political views, but some people would say that from a voter protection standpoint, knowing what's -- what's being imposed by the Government and what's being imposed by the company is important.

MS. SULLIVAN: You know, one of the things that was interesting about the -- reading the Department of Transportation rulemaking comments is Spirit Airlines was very upset to have to report their advertised fare with

the taxes, because it would ruin the effectiveness of their $9 promotional fares.

But in terms of -- that's true -- comparing prices across different competitive offerings that made a difference, because depending on the route that you take to get to your destination, the taxes would be different, so that for airlines, that was one benefit.

Now, we were talking about -- I think this may be Jonathan Zinman, who had to leave, was mentioning this, but are there certain interventions that we could undertake that would change the equilibrium? And one of those interventions that -- of course, I would like to think mine would be education, but I know now from David Laibson's paper that that is sort a depressing prospect, that education could only make matters worse.

But what's -- is there a case -- if you educated people enough, is there some hope that you could use that to trigger a change in the behavior of firms?

MR. LAIBSON: So, just to add a nuance, the model -- and I don't --

MR. BAYE: Most of us are professors, right? You are going to protect us, I hope, right, as educators?

MR. LAIBSON: That's right. That's right. We're going to battle education. Everyone go home.

MS. SULLIVAN: Save a lot of money that way.

MR. LAIBSON: Yeah, it's going to get worse, unfortunately.

So, in the middle, first, a little bit of education doesn't break the equilibrium, and shrouding persists, but a lot of education does break the equilibrium, and shrouding goes away. You end up with enough sophisticates in the economy that the cross-subsidies get small, and then the cross-subsidies are small enough that you can pull sophisticates away, and the whole equilibrium crumbles, and you end up with inefficient outcome.

So, in principle, at least our model, the model that Xavier and I wrote down, does say that a lot of education fixes the problem. The empirical problem, however, is that whenever we've tried in my own research group, working with James Choi and Bridgitte Madrian and John Beshears, to work out a kind of simple intervention that educates people on some issue in a way that we deem to be kind of politically palatable. In other words, rather than telling me "You'd be crazy not to choose Brand X," we explain the hidden costs, we explain the nature of the product and why A and B are really commodities, and in some sense, you shouldn't be indifferent, but A has a price that's twice as high as B.

And when we do it in a kind of even-handed way, at a sixth grade level, we find that we can't move the needle, that these kind of neutral, kind of cool educational interventions, that last only a page and are done at a very simple, low level, just don't change behavior that much, so -- or barely at all.

So, my unfortunate belief after writing six or seven empirical papers on trying to educate people and seeing if I can get them to buy low-cost index funds rather than high-cost index funds, they're both S&P 500 index funds, but one costs half as much, and I can't get them to change, leads me to be more and more pessimistic that costly, heavy-handed educational interventions are going to really change consumer behavior.

So, I don't think education is the answer. I'm not arguing against it, per se. I mean, if someone wants to -- if someone has a budget to pay for it, God bless them, but it's expensive, and it doesn't seem to be very efficacious.

MR. ZETTELMEYER: What's the alternative, David?

MR. LAIBSON: Well, for now, the alternative is the status quo. So, I'm not advocating any revolution. I think the alternative is we should go out and figure out if there are nudges that are cost-effective that do improve welfare. So, you know, we know that we can get people to save for retirement with -- by automatically enrolling them in a 401(k) plan. It's very inexpensive, and it takes us from 30 percent to 90 percent enrollment like that.

Well, are there other magic tricks in particular markets that are going to improve efficiency? Probably not that many, but I would proceed very slowly and try to find these nudges, explore them in pilot studies, and when we find something that everyone agrees works really well -- I mean, for example, I don't even know. Does the energy labeling -- is that believed to be effective or is that also a dud?

MS. PAPPALARDO: (Off mic.) The research says that people understand it and that people recognize it, but we don't have anybody standing at the appliance store saying, "Did you use it and how did it affect your decision?"

MR. LAIBSON: Or control the treat -- yeah.

MS. PAPPALARDO: (Off mic.) But there was control past cross-treatment in an online panel that people did understand it.

MR. LAIBSON: Okay. So, for me, understanding -- I've done lots of studies where I document that people

understand, but the behavior change doesn't follow. So, I'm --

MS. PAPPALARDO: Can I ask a question? In those studies, do people -- does the research show whether or not people understand what a load is, what a fee is? Is there a comprehension research for your short disclosures where you show that people really understand the key point of the disclosure that you are trying to convey?

MR. LAIBSON: So, I would say no, that we don't know why these simplified disclosures aren't changing behavior, and it may be that they fundamentally don't understand the whole concept of a mutual fund. I mean, so I think that's a good question. It's an open question.

But for me, you know, to answer Florian's question, I just feel like we don't know what works. We shouldn't rush out and try to formulate broad solutions. We should proceed one step at a time, and when we find things that work, we should try to grow them across markets. So, defaults turn out to work pretty well, in at least some settings, and they're growing across markets. But it's a 15-year venture, and it's going to take another, you know, 30 years until that process probably reaches a steady state.

So, I would argue the same thing for disclosure, regulating add-on fees and regulating obfuscation and shrouding and all that stuff. We would be, I think, crazy to try to proceed quickly given how little we know.

MR. WALDMAN: I'm not totally con -- I guess when you ask about education and say, well, they didn't learn from a one-page form or whatever the intervention you had in mind, you know, that's a -- that's one type of education, but I'm guessing that most people in this room, when they're -- if they bought an S&P 500 index fund, didn't buy the one where the fee was twice as much as the other fee, because we all understood that, and we all have high education, and we understand the -- how these things work.

So, I guess if you're thinking about the education intervention, I think maybe the answer is, well, a really brief, you know, 15 minutes, not going to work for these people, for various reasons, but kind of educating the populace more generally might actually have a large effect on a lot of these things. So, I guess I'd be a little -- maybe sort of concerned about the way you worded it. I don't think we want to say, "Oh, gee,

education is not going to work because 20 minutes didn't work."

MR. LAIBSON: You are completely right. So, we need hundreds of more studies. I mean, there are 40 studies that I would say are probably controlled in a way that we would consider to be scientifically legitimate that study kind of educational interventions. Mostly they show small or zero effects, but maybe we're going to get good at education, and maybe the person who figures out how to do it on the Web or do it in a fun way or do it with a video game or -- I mean, and it will be revolutionary and it will come.

MR. WALDMAN: Well, just more education in general. I mean, you know, you're -- I don't know the studies, but it sounds like you're sort of saying I'm going to go and teach someone something very specific, but if they don't have a good picture of that industry, kind of going back to what was said from the audience, that might be not the right way to go about the whole thing.

MR. LAIBSON: Yeah. Absolutely.

MR. WALDMAN: What they need is sort of more general education about how the financial markets work.

MR. ZETTELMEYER: I think it's also possible that it could be that it goes exactly in the other direction, right? So, you're arguing that we didn't educate them enough. There seems to be, for example, in the health domain some studies that simply putting red, yellow, and green stickers next to cafeteria food actually moves the needle.

I mean, that is no education at all, but it is a simple decision aid that can help, which, of course, is somewhat paternalistic, and as a result, deviates from the model you were trying to describe, David, but I think that could be another direction. And it's not always clear that more education is the right thing. Perhaps less education and more direction could be the right thing. But anyway, it all boils down to the fact that we don't know what the right direction is.

MR. LAIBSON: Yeah. Yeah, I completely agree. We don't know.

I think another depressing element of all this is how quickly the world changes in the course of an adult life. So, if I had been educated in financial matters in college or high school, I would have been taught you go to the firm with the best defined benefit plan, and you work at that firm your entire life, because the key benefits are convex, and you stay there until you retire, and that's the way to get a good retirement. I

graduated high school in 1984. The 401(k), the IRA, were a glint in policy-makers' eyes at that point.

So, one problem that we have is if we're going to think about education as a key guide, it's got to be education that keeps refreshing on a five- or ten-year cycle, as opposed to what we kind of take for granted, which is high school and college. In the modern world, that kind of education, I fear, is a nonstarter in terms of the innovation cycle of marketing and of product development.

MS. SULLIVAN: Okay. We're at the point where I want to start getting some questions from the audience, but before we do that, does anybody on the panel have anything else to say?

Okay. Well, I hope you guys have questions. Okay, let's -- there's a microphone wandering around here, so --

MS. SAMOLYK: Thanks. I'm Katherine Samolyk from the CFPB.

So, I think an interesting observation from this whole day, which has been wonderful, is that there seems to be a big difference between financial transactions and real transactions. So, if I go to the store and I'm buying groceries and it's sort of an immediate thing and maybe there's taxes or not taxes, but people seem to have problems thinking about finances more than other things, because they involve thinking about the future. So, you have to think a lot about -- you know, you have to have some expectations. Do you think bad things are going to happen to you? Do you need insurance?

We seem to have no problem regulating and saying there's some times, you know, from society's perspective where it's good to make people make financial decisions, whether it's buying car insurance, you know, you may -- people may underestimate the likelihood they're going to have an accident. So, I'm sort of curious about that angle.

And then the second -- or that distinction. Then the second observation is in credit markets, like the auto market, and in brokered mortgage markets, in the past at least -- you know, maybe this will change -- the person who is giving you an offer doesn't have to tell you all the offers that you could have had. They get to choose. An auto dealer, they go give your credit contract to a bunch of lenders, and they don't have to give you the best one, because maybe they get a higher overage from one firm than another firm.

You know, the consumer has no idea what the offers were. It's just the dealer gives them one number. So, that's a real -- I mean, that could be a place where, you know, you force somebody to reveal information or you outlaw certain contract features. So, I just have -- I guess I'm curious about people's opinions.

MR. WALDMAN: I'm not sure requiring the dealer to reveal all the offers is going to make that much difference, because if you impose that rule, then the dealers would simply sort of get less offers and kind of make a deal sort of on the side to get an offer from the one that will give him or her the side payment. So, I'm not sure it's actually as easy as you suggest to get around that problem, because there's an equilibrium in terms of how the whole thing is going to work.

MS. SAMOLYK: (Off mic.) (Inaudible.)

MR. WALDMAN: Maybe, but I still think you could sort of negotiate -- you could have these side payments with a small number and just sort of reduce the scope. So, I -- maybe what you're suggesting is right, but I think it's a -- there are sort of equilibrium adjustments that could occur, which would make what you're suggesting not that effective, potentially.

MS. BUSSE: So, Mike Baye introduced an issue I wanted to ask about, which is the analog between drip pricing and price discrimination. So, you talked a little bit about sort of the efficiency implications analog of it, and I wanted to ask about the regulatory analog of it.

So, my impression is that, you know, price discrimination is hard to regulate, and we don't do it in a very inverventionist way, in part because it's very hard to keep, you know, a step even-even with the creativity of firms and getting around rules. So, mostly, you know, we are going to be a step behind. Whatever set of rules we write, firms will find a creative way to satisfy those rules and yet accomplish the objectives that they want to in terms of price discrimination.

And what I wonder is whether drip pricing is not the same kind of thing, that whatever rules one writes, one can -- the firms can find a creative way to get around it. So, you know, we say you can do a la carte pricing, and they'll figure out a way to sort of not do it. We say you must do a la carte pricing, they will find a different way. We say you can't do a la carte pricing, they'll find a way to make, you know, their product offering so complex that it becomes unwieldy not to do a la carte pricing and that any sort

of regulations will, as with price discrimination, have rapid innovation around it that will still accomplish the objective to price discriminate with their pricing.

MS. SULLIVAN: I hope somebody can answer that question. It sounds important.

MR. SALINGER: Well, so, from the standpoint of economic theory, it's natural to think of the drip pricing issue as being, is -- is price discrimination good or is price discrimination bad? But I actually think that's a mistake, that we -- that we should think about it, is it deceptive or is it not deceptive? And when does it rise to the level of false advertising on price, right?

So, you're not allowed to advertise a price of 5 and then have people show up at the store and charge 10, and that's what you should view as -- I think -- as being a problem, precisely for the reason that you're mentioning, that if you view this as we're going to maximize economic welfare, you know, particularly with respect to complex pricing, that you're never going to get there.

MR. BAYE: Yeah, I agree with Michael, and entirely. I think the hard thing for me to distinguish in my mind as I look at drip pricing is to determine which instances of drip pricing are just kind of a form of bundling or price discrimination in the traditional sense, and what types are literally designed to dupe people, right? I mean, there's kind of a different feel to those things, and it just strikes me that looking at the equilibrium responses of firms, as you suggested, if you build some barriers here to prevent this particular strategy, if firms can go around those walls or climb over them and come up with another way to extract surplus from consumers, they're going to do it, right?

And so I guess in my mind, if the reason for -- I mean, here's a story, whether the story is true or not. The Internet -- the Internet comes along. The cost to consumers of finding information falls dramatically. Firms are -- suppose they're in a monopolistically competitive industry, earning zero economic profits. All of a sudden, something happens that shocks the system. They're losing money now. They have got to come up with some way to make money, right, or exit the industry.

One response might be to figure out ways to differentially price among car buyers, differentially price among people that might want an add-on, people that might not. It's just a natural equilibrium response to an exogenous change in the information environment, right? And that's really where I'm coming from.

I'm not saying that, you know, price discrimination -- I think in the U.S., price discrimination is not per se illegal. I think in Europe, you guys tend to look a little bit differently. I know there were some cases with the airlines, for example, that were charging different airline prices for different origin city payers. You're looking at me like I'm nuts, which I probably am, but --

MS. FLETCHER: (Off mic.) (Inaudible.)

MR. BAYE: No. But I think it's -- you know, price discrimination is just a way to, you know, to earn additional money, and if there's competition over the rents that you earn through bundling or competition over rents that you earn through price discrimination, those rents will be dissipated over time.

So, if you try to plug up one way that firms can extract rents, you're going to have to exit if you're in an equilibrium, zero-profit equilibrium, or you're going to have to have firms innovate and find some other way to cover those -- to get those revenues.

MS. BUSSE: (Off mic.) It's hard to do a separating hyper plane between (inaudible) consumers and price discriminating on the basis of search cost or on the basis of whether it's a returning form or not, that -- that -- those seem pretty close together to me.

I get -- I totally get, intuitively, what you're trying to do, right, when it sort of seems fair and it's just price discriminating and we're all used to that, when you're actually duping and deceiving, and maybe the tools of deceptive advertising are the right ones to come through it, but sort of that -- you know, the sense of sort of when have I gone from duping to just, you know, sorting on information or when have I gone the other way --

MR. BAYE: Maybe this is a prior thing. I guess in my own mind, you know, when an airline originally lets everyone fly -- you know, get free drinks and check a bag, and now they start differentially pricing based on whether you check a bag or not, that's not duping. That's price discrimination. Then we can quibble about how that information is dripped.

And I think that's the distinction I'm trying to make, is that we -- I think we need to be careful to recognize that firms have got to cover their costs some way, and the equilibrium response to an exogenous change in the information that consumers have is going to disadvantage some firms.

Some firms respond to that, like Amazon, you know, and for me, I'm the guy that studied price

comparison sites going back to 2000. I used to buy lots of stuff at price comparison sites. Now I buy everything at Amazon, because I know exactly what I'm going to pay when I -- that's their business model, is to create this entity that does that. And is that because I was being duped? No. It's because it's just a very efficient way for me to go in, make a one-click transaction.

MR. SALINGER: The airline example is a really important example, because people are looking at these baggage fees and saying, "Oh, the airlines have finally figured out about drip pricing and more sophisticated ways of practicing price discrimination," whereas what I really think has happened is that the transaction technology has changed and that it was -- it was always inefficient in a zero transaction cost world to let people carry on bags for free.

It's a service that imposes a marginal cost, but -- but, you know, in the old days, where they would have to, you know, charge you cash for something, that you couldn't just check in the bag at the machine, it was just too expensive from a transactional cost.

So, there's been this technological change that can lead to a -- you know, what probably is more efficient pricing, and so it would be really dangerous just to look at that and say, "Okay, this is drip pricing that we have to worry about."

MS. ELLISON: So, while I think I agree to your basic point, I mean, I am a little skeptical that $50 is the marginal cost. I mean, you know, for me to carry on a bag on Spirit Airlines, right? And that's what you would need for the add-on pricing to be efficient, is for it to be marginal cost.

MR. WALDMAN: I don't think that's right, because most people are taking the bag on, and I don't think that calculation of saying $50 is the right cost. So, you're just basically giving a price decrease to the few people who don't take a bag on. So, I haven't thought through it completely, but I don't think the calculation is quite as easy as you're saying.

MR. BAYE: And price discrimination need not be efficient anyway, just as a general matter.

MS. SULLIVAN: Any more questions from the audience?

MR. BREYAUT: Hi. I'm John Breyaut from the National Consumers League.

I wonder if you could comment on the role that time plays in consumers' willingness to endure drip pricing. I'm thinking of two specific examples.

Number one, on airline tickets, when you go on and there's a little timer at the top of the Web site saying, "You have five minutes to get this done or we can't guarantee the price that you'll get." And then this also happens in the issue of concert tickets, where there may be extremely high demand when the show goes on sale, and there's a -- again, another ticker at the top of the Web site that you -- to get you to go through the process as soon as possible or else your ticket could be released, and then there's add-on fees and add-on fees. An article in the New York Times says that there's a 30 percent markup above face value, just in fees on concert tickets.

So, I wonder if you could just comment on that role and sort of the creating that sense of impending demand -- excuse me, demand or impending price change in a consumer's willingness to accept drip pricing.

MS. MORWITZ: Well, I think it certainly has to add to the sense of urgency that they need to complete the transaction quickly, and it also takes away the time that they could take to study those fees. So, even if it's a one-click-away kind of information source, to find out what these fees stand for, if they feel this sense of urgency, they may not take the time or they may not process it as well if they had more time. I think it would exaggerate the effects.

MR. ZETTELMEYER: Could we hear from Amelia about that piece of the study that talked about urgency and what that did?

MS. FLETCHER: Yeah, although it was not specific -- I'm sorry, it wasn't on that specific element. We were looking at things like closing-down sales, and so people -- there was a particular carpet shop in the -- in the UK that consistently said it had -- was having a sale for one week, and then it had it every week. So, we looked at kind of what the impact of that was.

But I think -- I think, actually, these -- I'm sure these ticking things have an effect, but we haven't -- we haven't measured that.

MS. SULLIVAN: Joe, did you have a question? I see you sitting there with a microphone.

MR. FARRELL: Yeah. So, let me just say, slightly out of context, in response to the previous question, my wife actually got timed out of several purchases because she insisted on reading privacy policies.

But my question for the panel is one that's been touched on several times, but Jonathan Zinman

raised, I think -- before he had to leave -- the rather intriguing idea that what we're talking about is not a static equilibrium, but an arms race between obfuscators and clarifiers, and I think one can think of the clarifiers as including both education and intermediaries or price comparison Web sites or the like.

And it's important to remember, just because you have a monopolistically competitive industry, where in some sense all the firms are gaining market power from obfuscation, that doesn't contradict the possibility that it might be profitable for one of them to clarify, make a better offer, and take a big chunk of the market in a Sardoness (phonetic) kind of way.

So, I guess one way to integrate some of the thoughts that people have talked about over the course of today is to say, what do we expect to happen in these arms races? What will it depend on? And what are the policy levers for trying to improve that? So, you've talked a lot about can we hobble the obfuscators, and I think the general sense is that's a pretty challenging or difficult thing to do. Can we make things easy for the clarifiers in some way? You mentioned education, didn't seem terribly optimistic about that. What about some of these other clarifying forces?

MR. WALDMAN: Actually, let me speak to that, because I guess it was Tim talked earlier about not having bought a car recently, which I actually bought a car just about three weeks ago. I bought a Volvo S60. And the reason I bring that up is because the last time I bought a car was in 2003, I believe it was, and at that point, it was hard, at least for me, to get relevant information in terms of what the car value was and what my options were.

Now, it took me about two minutes to get, I think, a pretty good estimate of the trade-in value for my 1999 Audi A4 and a pretty good -- and another two minutes to get a pretty good estimate of what the S6 -- the very specific S60 that I wanted to buy, what that was selling for in my zip code. So, I went in and I felt -- maybe I was wrong -- but I felt extremely informed, and when I got the first set of prices, they were both better than the information I pulled off the Web. And I said fine, and the whole process didn't take very long.

So, I think that at least my experience suggests that the sort of clarifiers are winning, at least in the automobile market. I don't know if that's a general trend, but that's a personal experience.

MS. SULLIVAN: Okay. We're -- did anyone --

MR. ZETTELMEYER: I just wanted to not leave on such a positive note. I do know that what you get is exactly the reaction that you would expect in this industry, which is that if you go to industry conventions, you get a lot of emphasis on the fact that, for example, Internet buyers aren't so bad, because they think that they're done at the moment that they have a good new vehicle price, and now we have all these other things that we can still gain money off them, whereas a typical person who walks in might be more concerned about negotiating each individual piece.

I think that there's a lot of creativity in that industry in terms of shifting profits around, and it's unclear who's winning that war.

MR. WALDMAN: They didn't win on me. Let's put it that way.

MR. LAIBSON: There is one more positive note I'll add, not about the car market, but about the financial services market. This is an odd story about a different government mechanism fixing a broken market. So, as you probably all know, if you have a 401(k) plan or a 403(b) or any one of those similar defined contribution, tax-deferred retirement plans, your employer has a committee called the investment committee that's obligated to act as a fiduciary on your behalf in accordance with regulations laid out in ERISA from the seventies.

Well, in the mid-1990s, that system was very broken, and these committees were doing a terrible job, and the fees for these 401(k) investments were sky high. And then there were some threats of lawsuits -- I mean, lawsuits were initiated. There were some settlements. Everyone got religion, particularly among large employers, and those investment committees, which are now delegated decision-makers acting on behalf of the employees in that firm, began to take their fiduciary duty completely seriously.

And acting on behalf of the employees in the firms they represented, the investment committees radically reduced the complexity inside these 401(k) plans, they shrunk the number of offerings, and they cut the fees in half. So, now, the 401(k) plan, if you work for a large employer -- and, by the way, the Federal Government counts as a large employer, you have got the best one in the world in terms of low fees -- this market's been fixed. And it wasn't fixed by making individual Americans more sophisticated. It was fixed by scaring the employers into making their investment committees take fiduciary duty seriously.

And the catalyst was a few lawsuits that were initiated in the last 15 years, none of which, I believe, were settled against the firms; some of which -- sorry, none of which were in a court of law found against the firms. At best, there were some settlements. In most cases, the lawsuits were dismissed, but it brought a radical change to this industry, and in this case, the solution ended up being delegated decision-making. So, that's another model.

MS. SULLIVAN: Okay. I think we are a little overdue now. Did anyone else from the panel have any more comments? So, okay. I think we have to cut off the questioning now.

I'd like to thank our panelists.

(Applause.)

MS. SULLIVAN: So, before you all get up and leave, I do want to thank all the speakers, discussion leaders, panelists for a very enlightening conference. This was great. We didn't answer all the questions, but I think we did -- you did answer some questions, and what I would like to say is I think you really emphasized the need for more research in this area and pointed to some ideas for doing the research.

And before you leave, I want to thank all the people here who helped me organize this conference. I think the conference would not have been possible without Joe Farrell, who was very interested in drip pricing from the beginning. I also want to thank Jim Lacko, who helped with -- in every step of organizing the conference; Jan Pappalardo and Paul Pautler -- I don't even know if Paul is still here.

I'd also like to thank Alex Verkhivker in helping out with everything we did today, and the rest of the research analysts, and Maria Villaflor, as they made all this possible. So, thank you, everyone, and thank you for coming.

(Applause.)

(Whereupon, at 4:09 p.m., the conference was concluded.)

C E R T I F I C A T I O N O F R E P O R T E R

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CASE TITLE: ECONOMICS OF DRIP PRICING

DATE: MAY 21, 2012

I HEREBY CERTIFY that the transcript contained herein is a full and accurate transcript of the notes

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DATED: 5/29/2012

LINDA R. METCALF, CET

C E R T I F I C A T I O N O F P R O O F R E A D E R

I HEREBY CERTIFY that I proofread the transcript for accuracy in spelling, hyphenation, punctuation and format.

SARA J. VANCE, CMRS