SESSION B: **INFORMATION, PERSUASION, AND DECEPTION: MARKETING**

TECHNIQUES AND THEIR IMPACT ON CONSUMER CHOICE.

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PRESENTER: **DEAN KARLAN, Yale**

DISCUSSANT: **PAUL RUBIN, Emory**

PRESENTER: **DAVID LAIBSON, Harvard**

DISCUSSANT: **ALAN SCHWARTZ, Yale Law**

MS. HOLT: I'm Debra Holt from the Bureau of Economics, and we're very pleased to have with us today Dean Karlan, David Laibson, Paul Rubin and Alan Schwartz to talk about information, persuasion and deception, marketing techniques and their impact on consumer choice, and first speaker, Dean Karlan, will talk about what's psychology worth, a field experiment in the consumer credit market. Thank you.

Mr. KARLAN: Thanks everyone, and thanks for inviting me here today. So I'm here to talk about basically two of the points that we heard earlier in the opening panel, based upon the question that we have a lot of evidence from the laboratory about the importance of potential behavioral issues in decision-making and judgment, and the evidence that we find from the field is sometimes more anecdotal. It sometimes comes from observational data that comes out of a less controlled setting where there are

many alternative hypotheses one can put forward as to what is really driving behavior.

The second thing that really comes out that we don't get when we go from laboratory evidence to looking in the real world is the sense of the magnitude of these issues, and this is really what this project was really all about is trying to understand: What is the magnitude of these different behavioral decision-making processes, relative to the things that we as economists and regulators probably pay more attention to such as price?

So when we talk about how to regulate a loan market or a savings market, a lot of attention is put on interest rate caps, for instance, particularly in developing countries, and a lot of attention is put on the terms of credit and users and things of this nature and less attention is sometimes put on the actual marketing.

There might be rules about misrepresentation and lying and things of this nature, but what I'm talking about is just more subtle marketing cues and how does that actually affect decision-making, and the key question here we're asking is, relative to price? Is this something that gets kind of drowned out by the things that really matter, like the price in the firms, or is it something that on its own right is of significant importance and magnitude.

So I'm primarily a development economist and behavioral economist. The behavioral work that I do is traditionally overseas. This is one of the projects that I'm personally most excited about because it's working in a lending market, which is a little bit of crystal ball for many developing countries, and also provides some insight to the United States, because we're working in South Africa where there's a very strong consumer lending market that in a lot of ways looks and smells a lot like our high risk market here in the United States, every day from payday lending to higher interest rate credit card debt markets.

And there's a lot of similarities in the market that we're working on in South Africa to here, so we find this to be a very interesting project from a policy perspective because it sheds insight both into some of the questions we care about in the United States, and also we think probably provides a little bit of a crystal ball for some developing countries whose credit markets are less developed but are pushing towards this type of formalization so we can potentially see a little bit of what's to come.

Most of the economic literature when we talk about credit market and access to credit and the impact of access to credit is all talking about the price of the loans. It's talking about the liability structure. It's talking about whether loans are

cosigned or not, what the collateral is, whether there's joint
liability or individual liability. It's talking about the
selection process, screening rules.

This is where all the attention has been paid in economics,
and there's very little attention from economics that has been
made on ironically what you might argue is the single most
important thing which is simply: Well, how do people actually
choose what to borrow, where to borrow from and what loans to
choose? And there's reasons to think that psychology could play a
lot in influencing this decision.

So suppose you receive the following letter, and as you
might guess this is not an entirely hypothetical question. The
field experiment we did included mailing out this letter to
people. So this is a direct mail solicitation. It very much is
like what's done in the United States when you send out that
direct mail on credit cards.

And for those of you -- oh, you do you have a screen over
there, okay. So this direct mail solicitation was sent off to
former borrowers of a large bank. We sent 50,000 of these people
throughout South Africa, and there's really two categories of
things that were randomized on this letter to the 50,000 people.
The first was the price of the loan. There's a very large range
of interest rates that were tested ranging from 3 and a quarter

percent per month to 11 and 3 quarter percentage points per month. The normal interest rate in this market is 11 and 3 quarters rates per month for this lender. This could take an entire three hours. In fact I'm giving a seminar at a different conference in which the entire discussion is like, how on earth is there not a lot more -- let's not go there. This is entirely -- just accept these rates for what they are.

Now, along with interest rate, the data we randomized, a lot of the other marketing ideas that are on this letter, and some of these marketing ideas come specifically from ideas from psychology and some of them are probably best described as marketing, so one of the ideas that comes from psychology that we've seen lab evidence from and limited field evidence as well is that when you give people more choice, the mere giving people 86 choice delays decision-making, cause procrastination, cases to go back to the old discussion, causes whatever the default option to be more likely to be chosen or inaction takes place and so the default takes over.

So in a situation like this, the decision to borrow or not borrow, a psychologist would say, "Well, if you give people more choice, people are less likely to actually take out the loan." An economist would say the exact opposite, would say if you give people more choice, well, odds are one of those was actually --

we increased the probability that one of those passes their cost benefit analysis, allows them to maximize the utility relative to the cost, and one of these has high enough utility so we're increasing the probability that there's a match.

So the economist would say more choice should lead to higher take out, so this is one of the things that we tested. You see this table in the beginning, had a few different variations, some with fewer choices, some with more. There are a lot of different things and given the short -- this is a short presentation. I'm not going to go through every one of the items that we tested here, but one of the other ones that's important is this photo in the bottom right.

This is one you might argue is more on the marketing side of things than psychology, although obviously there's certainly psychology theories as to why photos of women are going to perhaps attract men in particular, but potentially even women as well to be more likely to borrow.

We also matched or mismatched the race. As you all probably know, race is a big issue in South Africa. The majority of these borrowers are I was going to say African American but that's wrong, are African, but there are a sizeable portion who are either colored or Indian and there is a very small portion that are white as well.

So when we look at this from an economist's view from that letter, the economist says this person gets this letter and is doing a cost benefit calculation. They say to themselves, why would I buy with a loan, what benefits would this loan provide, what are the interest payments, how will it affect me having the burden of these interest payments, and basically they make a choice and make a plan to go to the bank on Tuesday and get that loan. All right.

And the economist looks at this and puts everything into these types of terms, what are they going to do with this money, what is the cost of repaying the loan, the person is simply making the calculation of the cost of the loan, do the costs of paying off the loan outweigh or under weigh the benefits that are going to accrue, and of course the key variable at the end of the day is that they're going to be choosing on is the interest rate because at the end of the day, that is the cost of borrowing and so that's the price, and they're making a calculation of the cost versus the benefits, whereas the psychologist, there's a lot of other contextual details which a psychologist would argue is going to influence the decision of the borrower.

What was the mood when receiving the letter? What was the perceived complexity of the choice? Does the table make it easy? Does it ease or complicate my thinking? And what are the other

dimensions along the terms that I'm going to be deciding on, so
one of the other things that we randomized was whether there was
a free lottery for a cell phone. That's a very common marketing
gimmick in South Africa, and the lender wanted to know: Is this
effective for bringing in more clients? So if you view that as
from an economist's perspective, well, this is clearly a benefit.
It wasn't -- there was not, you're going to get a lottery ticket
or a lower interest rate. It's just that you get a free lottery
ticket for a cell phone.

So an economist would look at this and say, We can't make
you worse off all else equal, but a psychologist would look at it
and say, Well, what if all of a sudden they're going to take out
this loan based on whether they want a cell phone. You got this
thing and it has all this information alone, but now there's this
cell phone on here, so now their mind is thinking, "Do I want to
win us a free cell phone? No, I already have one so I don't
borrow," right.

It's not -- obviously these are apples and oranges, but the
point is the focus all of a sudden became -- the attention became
on the cell phone, and so maybe that actually deters that.

So the biggest issue though here and the take away that I
would like you all to leave from is not kind of what was our
finding, we found this one worked and this one didn't, et cetera.

What we think and what we've really learned from this exercise is something about the magnitude of these effects relative to price, because that is the dimension that we, as economists put so much weight on and we want to see, what is the magnitude.

As a general point, we also like the idea that this is -- there's a trade off as you go from the lab to the field. There's a lot of context. There's a lot of control that is given up, and so there's less that we can say that's tightly drawn from a theoretical model that walks people through a series of treatments and a series of experiments.

One of the beautiful things that I love about listening to psychologists give papers is that they start up with a basic puzzle and an experiment from the lab that shows why it's a puzzle, and then they'll walk you through five stories and five more experiments that tease out which ones seems to be salient, which one's not. They'll hone in on two. They'll show you two more and you walk through and you hear the whole story.

That's not how economists do research for the most part and why particularly with field experiments it's very hard to do that type of analyses. We do see some projects that have begun. This is not an example of one of them. I'm going to show you a one shot mailer that was sent out over three waves with the same

exact material. In an ideal setting we would have done 20 more waves of these and teased out some of these type of sub issues the way psychologists are able to do in the laboratory.

So the basic experiment is part of other papers that we did where we were focused on the interest rate and we wanted to know things like: Is there adverse selection in morale hazard and some first order questions like, what are the elasticities of demand for consumer credit, how does that differ for the poor versus the wealthy and what can this tell us about credit constraints for individuals.

So the lender conducted this field experiment. This was nothing about this field experiment from the borrower's perspective that had anything academic about it. This was a real experiment. They got a real letter. At no point was there any premise that this is for research purposes. This is a very important element in terms of observing people in their natural behavior making natural decisions, not with any sort of awareness of kind of being watched.

So what we randomized on the rates, we randomized the different rates that people were offered as well as some of the terms in the contract, which is the subject of the other papers. I think I'm probably going a little bit slowly here, so I'm going to skip a couple slides.

Just to tell you briefly about the consumer credit market in South Africa, there's four types of lenders. There's commercial banks. There's nonprofits who have a very small share of the market who do what traditionally would be called micro finance lending. Then there's these cash loan companies which were also called micro finance in South Africa. They also fall under that rubric, although not as perfectly as some of the other organizations, and there's also cash loan companies, and they basically operate similar to payday lending here in the United States, no collateral. They lend to the working poor based on a paycheck and an ID, and that's it.

And you have two types. You have the real high risk ones that just take paycheck and ID and don't do a credit check, so literally that's it. There's no references, and then you have ones like the one we work with where they actually do pull a credit report and will only lend to you if you have a reasonably clean credit report.

In South Africa in this market it's virtually impossible to find someone who literally has a clean record on their credit report, but if you've only had one or two defaults, then they'll lend to you, so the high risk market is typically in the 20 to 30 percent per month range for interest rates, and like I said our lender was in the 11.75 percent market.

I'm sorry, you also have money lenders, informal money lenders which typically start at 30 percent per month and up.

So our lender has 86 branches all over South Africa. The clients are all employed. They range from 20 to 80th percentile of income distribution in South Africa, although most are in the 30 to 40th range. There's a significant amount of unemployment, but where you're seeing below 30 is really basically a lot of unemployment.

So these are some more -- let me skip to the actual treatments. So we have the offer display features. We randomize how we compared their loans to competitors, the social cues, the gender and the race and the promotional lottery.

We also tested out time management. If we give people more time to borrow, does that make them more able to come in, or do you need short deadlines in order to inspire quick action. That's actually one that the economists won. Longer deadlines actually led to higher take up, not what the psychologist would say which is you need to tighten the deadline in order to get people to make quick decisions.

So this is an example -- I'm going to flip back and forth so you can see this. Here's the short table and the long table. The short table just gave one loan amount, a thousand, four months, monthly payment and the other one gave four different

loan amounts, three different terms.

And the same thing you can see, the woman, the man, and so what's the value of simplicity? So here's where it gets fun. Now we can say because we randomized the interest rate, I can tell you for every one of these marketing interventions what the equivalent drop in interest rates would have to be in order to generate the same increase in take-up, so this is where we can say something about magnitude, and this is the fun part of this paper.

All right. So I can tell you that simple tables work better than big tables. The simpler, fewer choices led people more likely to come in, and it had the same affect on take-up as dropping the interest rate by 2.3 percentage points per month. That sounds a little bit larger than it should because remember the denominator here in terms of the interest that's being charged is 11.75 percentage points per month.

So if you want to put this in U.S. terms, what would it be, so 2.3 divided by 11.75, we're dealing with something around 12, 13 percent -- sorry, 20 percent. 20 percent of a credit card debt in the U.S., say 18 percent a year so think about this as just as effective as a U.S. credit card company that's lending at 18 percent a year and then dropping their interest rate by 3.6 percentage points per year, so if we think of it as a proportion

of the annual rate, that's I think the right way to scale this
effect.

I don't know about you, but I think of that as a huge effect
but that's not the biggest one. The biggest one was the woman.
So for males, giving a female -- a photo of a female was
equivalent to 4.5 percentage points per month, so that's the
equivalent of slashing a third of the interest costs off of the
loan. Female photos worked well for females, not as strongly but
it was more effective for the females as well.

We didn't really have -- one of the obvious questions that
might come out of this is maybe the women are just better looking
than the men that we just happen to put on the letter, and no, I
can't really get at that. This is an example of what would
happen if we had lots of room for follow-up experiments here.

So the lottery, what happened with the cell phone lottery?
This lottery actually had a negative effect, so it wasn't just a
bonus that you get that makes you more likely to borrow. It was
particularly the more experienced borrowers they had, the
negative -- a negative effect from giving this lottery, so it
might be that it distracted them. It might be that it was a
negative association, that they associate these lotteries with
high risk, higher interest rate lenders because it is very common
for the 20 to 30 percent lenders. It was a huge effect in terms

of driving down the take-up.

So a few questions which often come out, I'm not going to go through the results, I'll just tell you the punch line to the answers, is: Were there psychological effects non linear? When we added them up, was there some kind of diminishing returns to them? We didn't really see much evidence for this. Do they interact with the interest rates? And the answer is, yes, they basically compensate for a worse deal, so if you lower the rates, you can compensate for that by adding marketing to the table.

Do they vary by education, income? That was an interesting one where a lot of the ideas here would be that we think maybe it should, that maybe the more educated people are going to know to focus on the interest rate and that was not the case.

Do they create adverse selection? Do people who are suckered in by cheap advertising tricks -- are they also just riskier people? No. In fact it was slightly the opposite but not statistically significant, and another question we want to know was: Was this new borrowing? Did we actually generate more debt by bringing these people in by doing high marketing or simply was it just a stealing from competitors? But the weak evidence was that it seemed to be more new borrowing but it was statistically harder to detect.

So the key strengths of this project really come from the

explicit randomization that allow us to wash away a lot of issues that often come up when we do observational research. Testing out takes very specific ideas and tests them out, and each one obviously is limited in terms of the complexity with which we can state the theory that it's testing.

The single most important strength is the quantification of the psychology in the marketing and then the external validity of working in the field.

What are the weaknesses? The weaknesses of this project is first: Do people read their mail, right? So we probably all throw a lot of our junk mail out. In South Africa, at least it was reported to us anecdotally that people actually do read these things. Why? They're not flooded with nearly as much as we are. It's actually somewhat unique to get this type of mailer. It's not unheard of, so it's not seen as like this freakish thing, but it's still something that they don't get that much of.

The one thing to note is that it's not the case that we saw the effects that much stronger for frequent borrowers or less frequent borrowers. If anything it was more salient for the more frequent borrowers, the effectiveness of these things. These are the people who are more experienced, but yet then also more sensitive.

The other main weakness is the mechanisms are less

identifiable here just because we don't have the ability to do 20

of these repeated experiments in this setting. There's nothing

about working in the field that precludes it. All that happened

here to be perfectly blunt is our lender got bought out by

another bank who kicked us out, so we're working with the same

people but at their new firm.

So the basic conclusion from this is that the psychological

effects are very large. They're predictable, but only

imperfectly. Not all of them worked, and we certainly can't

claim that we were able to tell you upfront that we expected

these four to work and these five not, and we ranked them in the

correct order and magnitude, et cetera.

So the real challenge for the future is to incorporate these

effects into standard models, to take some of the models that we

are using to try to make predictions about how people make

choices over consumer loans and figure how to incorporate this

type of information into these types of models.

Thank you. Sorry I'm over.

(Applause.)

Ms. HOLT: The discussant is Paul Rubin.

Mr. RUBIN: Like Jack Calfee I worked at the FTC in the

early '80s, and it's good to be back and realize that people

didn't hate me so much that they didn't want to see me anymore so

I'm commenting on this paper. Very interesting paper, massive data set, 50,000 letters, real subjects, so we're getting out of the web, good things.

I was particularly pleased to see the results reported, as someone pointed out, not only in terms of statistical significance but also economic significance, what are the interest rates so there are a lot of nice things about this paper but overall I found it fairly unconvincing I have to say.

One point that's in the paper, although it's difficult to tease out, there's this new style of reporting results where people don't put significance levels on their data so you have to do calculations, simple ones, tedious, but it turns out that as near as I could tell, of the 66 possible treatment effects, only 18 percent were significant.

So in 80 percent of the cases, the psychological effects didn't have any impact. The write-up, the authors are of course experts in presenting data in various ways, and so maybe they framed it one way or another. Had they framed it by saying, "Most of the time they didn't matter," we might have gotten a different impact, so and as Dean said at the end, they really don't have any theory as to what's driving the results. They say context matters, but there's no theory as to what context matters or when it would not matter.

In looking it over, looking the paper over carefully, it turns out that as Dean says, in almost all cases people are getting a better interest rate than they would normally get. From what I gathered reading it, people are in different risk classes, but everyone is getting a better interest rate. You can't tell from the letter.

I don't think they controlled for how much better the interest rate was for each borrower relative to his risk class which would have been something -- I think it's available but I don't think it was in the main regressions. Only the interest rate was in the main regressions. No? I'm sorry, so they did control. I'm sorry, so I missed that.

But anyway, everyone was getting a good deal, and so another thing you would have to think about, and to me the question is: Did people read the letter? And there's anecdotal evidence they did. They divided their sample in two parts, based on experienced borrowers and non experienced borrowers, and they said they thought experienced borrowers would pay more attention to the letter, and it turned out to be quite significant. The experienced borrowers borrowed much more.

I really think that most of what they're picking up is attention. At least as Dean said, they like to go back and do more. To me, as I looked through the letters, that young lady

caught my attention, right? She was a fairly attractive person.

If I had seen that letter, I might have been more likely to look

at it.

I think you saw the slides, the table with one row, if

you're just quickly looking at your mail, you see a table with an

interest rate that looks good or a payment term that looks good,

you may read it more carefully. If you see a table of nine

numbers, economists love that, right, we read tables of nine

numbers eagerly, but most people don't, so I just think that what

you've done here is you've offered people a good deal.

If they noticed the good deal, they're more likely to buy

into it, and the way the letters were structured, almost all of

their treatment effects at least struck me ex-post, and again

this is the nice thing about experiments. You want to try to do

it ex-ante, but all of them struck me ex-post as related to

attention. All of these things would mean you're more likely to

read the letter. If you read the letter and you're getting a

good deal, you're more likely to borrow the money, and I don't

think you -- and Colin told me this morning, and I think he's

right, attention is a psychological effect.

It's something that economists haven't paid enough attention

to, and unless they did consider attention in the sample, but so

far as I could tell reading the paper, there was no mention of

attention in the treatment effects, which treatment effects would lead you to be more likely to read the letter, and if you're more likely to read the letter and it's a good deal, then you're more likely to borrow the money.

So as I read this, what I really seem to think was that that's mainly what they're picking up, the fact that people read the letter. If you read it, you borrow the money, what leads you to read the letter, and as they write it up, just a couple other things.

They say race doesn't matter, and it's an interesting statement. They say it doesn't matter, and then it's sort of because race is so important in South Africa or because it's not too important in this letter, and it's hard to test that particular implication, but overall I think it was a very nice paper, very nice results, but I was not convinced that they were measuring the psychological effects that they thought they were measuring.

I thought they were measuring something else, and I would like to see further experiments to try to control for that. Thank you.

(Applause.)

Ms. HOLT: Dean, would you like to do a quick short response now or wait?

Mr. KARLAN: We can wait.

Ms. HOLT: The next speaker is David Laibson.

Mr. LAIBSON: I'll be talking about a lot of different papers, but all of them are collaborated with Xavier Gabaix, and some of them have other collaborators that I'll mention along the way.

There's four things I want to talk about today, and then I'll squeeze one more thing at the end. First, the economic intuition that competition is often protective. Secondly the, behavioral economics observation that sometimes competition in the marketplace will not be protective, and I'll link that to something that we call the curse of education. I'll then illustrate that with a set of quick anecdotes and then two extended examples: One, shrouded attributes, goods, that have add-on costs that are hard to see when you initially engage the good, and then secondly, cases in which consumers have noise in their evaluations.

So this is the kind of standard I/O analysis which I think by now is very familiar about the protective aspects of competition. I won't read the whole quote but it basically says, I'll read the first sentence: "Furthermore, manufacturers in a competitive and equipment market have incentives to avoid even the inefficiency caused by high markups on aftermarket goods by

providing information to consumers."

The intuition is very standard. There's a dead weight loss in the market. Firm A is generating that dead weight loss by offering high markups on their add-on goods. Firm B enters, reveals the dead weight loss and steals consumers away.

Now, I want to emphasize that actually I think that intuition is really the right intuition, but in most cases competition is protective, and free markets work extremely well even when consumers begin that relationship in a state of confusion, but this talk is going to be about the exceptions, and I don't want to suggest those exceptions dominate our thinking, but they are I think a proportion of the marketplace.

So why might competition not be protective? Sometimes firms don't have an incentive, competing firms, entering firms do not have an incentive to educate consumers because as you might well imagine, educating a consumer actually will make that consumer unprofitable, not only to the old firm the consumer was at, but even to you, the entering firm. We're going to call this the curse of education.

So here's some examples of ways in which the market doesn't have an incentive to educate a consumer, so, for example, financial markets are efficient or nearly efficient. Once consumers think that way, well why would they buy expensive

financial services? Echinacea does not reduce symptoms of the common cold. Well, if I'm selling Echinacea obviously I can't benefit by informing consumers about that, and if I'm not selling Echinacea, what am I selling where I think that Echinacea is the key competitor for my alternative product? No firm has an incentive to basically relay that message.

Bottled water is no better than tap water. Well, nobody is selling tap water realistically. Hotels make their money on the extras. Well, again which hotel has an incentive to convey that message or printer ink is very expensive. Who has an incentive to convey that message? Recently Kodak thinks it may have that incentive, but we'll see. The market doesn't think Kodak is right about that.

So the curse of education. These are the types of profit lowering education that firms do not generally have an incentive to provide. I'll divide them into three categories.

First, we'll call one the comodification effect. This is the water example. If I tell you that goods that you're paying a lot for are actually commodities, well, the competitive advantage that you might have had by differentiated product goes away.

Second is the devaluation effect. If I tell you that a good that you thought had a lot of value actually doesn't have a lot of value, well, no one can make money through that message.

The third is the cost salience effect. If I make costs that were previously somewhat invisible to many consumers salient, again that's a message that we have a hard time finding a corporate agent that will have an incentive to convey that message.

So now let me illustrate these with two extended examples. I should emphasize that the devaluation effect is kind of trivial. Obviously if there's a good that people think is really valuable and there are some firms selling that good, almost nobody has an incentive to correct them in that misbelief, so that one is kind of trivial and I'm going to omit it in these extended examples.

I'll focus on the other two effects. Shrouded attributes: This will be an example of a cost salience analysis. So obviously many, many goods. In fact I would say most complex goods have lots of shrouded attributes. You buy a printer. The real cost of the printer, as everyone at the FTC knows, is the ink. That's why printers are basically given away for free. You pay thousand of dollars for ink. It's remarkable. When I ask my students, guesstimate, what do you pay for ink, nobody knows. Do it yourself and you'll be startled.

So what are we going to find in equilibrium? We're going to do the kind of analysis that Eddie Lazear asked us to do. We're

going to actually write down an equilibrium. So we're going to find that even in competitive markets, even when demand is price elastic, and even when firms have free advertising technologies, it will still be the case that they have an incentive in equilibrium to shroud this information.

Now, there are lots of markets where this is the case, and I won't go through them all, but think about it. Almost any long relationship you have with a firm is going to involve some kind of shrouded long run cost.

So here's an illustration. I won't go through the details of the model, they're all in the paper, and it's pretty opaque, but this intuitive illustration I think is -- all the value of the paper will be encapsulated here in a few slides, and all the formalism is probably a waste of your time.

So let's assume for this illustrative example we generalized in the paper that consumers, all of them, do not perceive add-ons and that firms have no market power. Again these two assumptions are relaxed in the paper.

Let's focus on the banking industry. To have a bank account costs the bank money. It's not for free for them to actually give you all these services, tellers, ATMs, et cetera, so they can have your $300 in their bank account. That doesn't pay for all of those services. Let's imagine for the purposes of

conversation that a basic bank account costs $40. Let's take

U.S. Trust as our example. Pity the poor bank I happen to pick.

Let's imagine that the bank can provide add-on services that

cost zero dollars in this example. Again that's without loss of

generality, so what's an add-on service? For example, if you

break your minimum balance of $300, that's an add-on service.

U.S. Trust is going to charge you $25 for letting your balance

go from 301 to 299, so that's an add-on service. It doesn't cost

them anything to provide that, but of course in equilibrium,

they're going to charge people when they break those barriers.

Let's assume that in a typical bank -- and actually some of

the data my collaborator John Driscoll will present in the

afternoon supports the next number. Let's assume that add-on

services like that minimum balance breaking violation enable

banks to generate fees worth $90 per year from these naive

customers. Let's also assume that there are some sophisticates

out there who get the banking sector.

I'm going to assume that everyone in this room is a

sophisticate. We're the sub-population that understands that the

way to interact with the banking sector is to get all of the free

services and maybe even free gifts and avoid all of these

avoidable fees, and most of them are in fact easily avoidable.

The naives don't have our level of experience, don't have our

level of training, and they stumble into lots of these fees.

So what will equilibrium look like? Now, this is an honest
to goodness equilibrium of this environment. In other words, all
agents are maximizing given their information sets, so banks are
going to compete because they have no market power to attract
consumers. They're going to offer consumers free gifts,
toasters, DVDs, to open an account.

They're then going to take these consumers in and they're
going to find lots of ways to trip them up and charge them fees,
so the add-on services are going to be priced to generate what
the bank can achieve which is $90 worth of fees, so what do
consumers pay?

Well, they get the $50 free toaster for opening up the
account, DVD player, savings bond, whatever, and then they pay
the $90 in fees. Net payment to the bank over this year let's
say is $40. That's exactly the bank's cost of providing
financial services. Hence, we have a zero profit condition.
We're an equilibrium. The naive customers pay the fees. The
bank uses the fees to offset the free gifts and to pay for the
services they they're providing.

Now, the sophisticates, all of us, actually get a great deal
in this marketplace because we got the free gift in the form of
the $50 savings bond from Citibank or U.S. Trust, and we also

didn't pay anything for all the financial services that we got along the way. Great news, we were able to use the ATMs and the tellers and all this bricks and mortar without paying anything for it, and we got a $50 savings bond to boot, so the naives pay the bill. The sophisticates, all of us get, the cross subsidy. That's the equilibrium here.

You might think to yourself as the I/O economist that I quoted at the beginning of the talk did: Well, maybe an entrant could comes into this market and educate consumers, teach them about the mistakes they're making and pull them over to the alternative bank. It turns out that's not possible in this equilibrium.

Even if the alternative entrant, let's call it Transparency Bank has a free technology for communicating this message to American consumers. What will happen? Well, here's what they can do. They can say: We're going to make apparent to you that U.S. Trust is in fact charging you $90 for add-ons. That's a terrible rip off. Transparency Bank charges nothing for these add-ons, but of course we have to not make losses so we charge $40 per year to have an account at Transparency Bank. It's a standard charge for the services we're providing, the ATMs, et cetera.

Now, I'm going to assert that no one in this room would go

to Transparency Bank. If you're a sophisticate, you would much rather stay at U.S. Trust, get the $50 toaster and pay nothing for services, and then spend a little bit of effort avoiding the U.S. Trust fees. Why go to Transparency Bank? They don't have the fees, but you weren't paying them anywhere if you're a sophisticate.

So this is a case where sophisticated consumers actually want to pool with the unsophisticated, naive consumers at the banks that have high add-on fees, because at those banks the sophisticates get a cross subsidy. Training people to be sophisticates won't help U.S. Trust. It won't help Transparency Bank. There's no incentive in this market for that kind educational enter invention.

So what do we see in these markets? We're going to see monopoly prices for add-ons we're going to see that add-ons are profit centers. We're going to see the base product will be a loss leader. We're going to see firms engaging in lots of gratuitous shrouding of these add-on costs, and we're going to see no education in equilibrium even if education is free for these banks to produce, which of course it's not which only further reinforces the point.

Now, there are two potential solutions here, but I'm running out of time. These are imperfect solutions, and I'm not entirely

sure they would even partially work. One is we should have

public consumer education. I love Colin's point, where is Colin

sitting, we should have economics education in high school. The

thought that we teach people physics but not compounded interest

boggles my mind, given the number of people who are going to use

physics in their life.

Solution two: Regulated transparency, and I'm very

skeptical of this frankly. If we could allow regulated

transparency it would fix the problem but I don't know how to

regulate transparency.

Second paper I want to tell you about. This now illustrates

comodification issues. This is a very simple equilibrium model.

Consider basically the Perlocc and Salop framework or MacFadden

framework, loose framework. Individuals have a utility function.

They get a utility U_i for consuming a product. They pay a price,

P_i, from buying that guide, and there's some noise, ϵ_i, which

represents a mistake in their evaluation.

So every consumer has a true utility U_i, has a price P_i and

has noise ϵ_i, and ϵ is distributed σ times some density F.

Consumers simply pick the good with the highest perceived value,

trivial, parsimonious model. I think this would satisfy the

Lazear criteria.

Perlocc and Salop analyzed this framework in '85. They

characterized the equilibrium markups in this setting, here's the equation. Caplin and Nalebuff prove the equilibrium actually exists, good thing. What we've done is to actually simplify this framework by providing closed form solutions for the acetonic markups, acetonic in the sense that we're studying markets with lots and lots of suppliers, very competitive marketplaces.

Proposition, which I won't go into, basically we end up with logistic demand functions, very very generally. Now, there are two potential extreme versions of this marketplace. The first version has uniform noise, so individuals, as I said, have noisy evaluations of products. Those noisy evaluations are distributed uniformly in case one, and in case one markups, the equilibrium price P minus the cost of production C are proportional to 1/N where N is the number of firms in the marketplace.

Great news here for the free market. As N gets big, markups and equilibrium fall very quickly. This is a hyperbolic function. I love hyperbolic functions, so P minus C -- a little in joke there, that was for you Matthew -- so P minus C is proportional to 1/N. Markups fall very rapidly, but here's another twist: What if the noise, instead of being uniform, is exponential? Now, P minus Y is independent of a number of competing firms. This is a well known I/O result.

Now, I/O economists have often said, "Well, hold on, the

notion that competition is ineffectual is a non starter because we don't believe that these distributions are exponential." Well, let's think about alternative densities that might be more realistic and appealing to a community of researchers.

Let's think about bounded power laws. Now, I'm going to use the approximation from the Gabaix, Laibson and Lee paper. Now the markups are going to be a power markup. Markups will be proportional to the number of firms and raised to the power minus one over alpha. What about gaussian noise? Now, it's going to be one over the square root of log n times sigma.

What about exponential noise, proportional to sigma and again independent of the number of firms, what about log normal noise? Another formula. Now, let's take a very non controversial case. Let's take the case of gaussian noise. I don't think anyone could disagree that a gaussian case for noise would be a reasonable special case to study.

What if consumers have gaussian noise in their evaluations? Well, let's now compare the case of gaussian noise to the case of uniform noise. As I said before with uniform noise, markups are proportional to one over N, so as the number of competing firms goes up from one to 10 to a hundred to a thousand, mark-ups basically vanish. If they start at one, they go to .1, .01, et cetera. With a thousand competing firms, markups are 1/100th

what they would be with only ten competing firms.

In that case competition is very effective in driving down markups. What if there's gaussian noise which I consider to be the leading case and I think economists would have to acknowledge is the leading case. Now mark-ups are very, very persistent. There are 10,000 mutual funds in the U.S., and on average they charge a hundred basis points for a product you can provide institutionally for three basis points.

Markups are very high. Advertising is very high. Marketing is very high in this equilibrium, and that's because I think we're living in column one in the gaussian noise case where markups are basically relatively incentive to the number of competing firms in equilibrium.

That doesn't mean that firms are going to make profits. It means instead we're going to have dead weight loss in the forms of lots of marketing, which is expensive, and we're going to have high mark-ups. That's because this is a marketplace where comodification has not been achieved and where firms have no incentive to produce the education that would comodify products like mutual funds.

So I'll conclude now about the noise analysis. Can firms exploit consumer confusion in equilibrium? Yes, mark-ups will be proportional to sigma where sigma is the variability of consumer

confusion. Will competition decrease markups? Well, for the leading case of gaussian noise, no. Sorry, yes, it will decrease it but extremely weekly. One over the square root of log N is a very weak decline function. Acetonically the elasticity of that function is zero with respect to competition.

How do firms maximize profits in this world? They don't educate. They confuse. Raising sigma is the way to increase profits. Raising confusion, not eliminating it, is the road to higher profitability. Will greater competition force firms to reduce complicity? No, in fact the derivatives -- it goes the opposite way. The more competition you face, the more profitable it becomes to raise your sigma to raise the confusion in the marketplace.

So this is the comodification effect. Firms do not have an incentive to reveal the fact that they are selling products that are kind of like other products that other firms are selling because through comodification we increase competition which reduces profitability and forces firms to exit which is obviously costly to them.

So the solution here, if I believed in regulation, it would be regulated transparency. Again I'm very skeptical that I know how to do it in practice, easy to write it down in theory.

Now, once consumers make mistakes, and I'll show you just

three more slides and then I'll stop. So in a paper with Sumit

Agarwal, Driscoll, Xavier Gabaix and Laibson, we're finding that

there's a very interesting life cycle dynamic. Young consumers

make mistakes. Middle age consumers make fewer mistakes, and

older adults again make more mistakes than the middle age.

There's a U-shaped pattern to mistakes, wherever we looked.

We looked across ten different markets. In every marked we

studied we find this U-shaped pattern. The middle aged tend to

get it right, more so than the young and the old, so there's a

story here not just about mistakes in general, but we're

beginning to identify the particular agents who are the most

prone to fall into traps, and by the way we control for every

single imaginable measure of risk, default risk, FICO scores, et

cetera, in these analyses so I want have time to tell you all

that, but controlling for everything you can imagine controlling

we find these U-shaped patterns.

Open questions, last slide. We need more empirical field

work. We need to be able to predict and measure the degree of

consumer confusion. We don't know a lot about it right now. We

guess that it exists out there. We have lots of ways of kind of

indirectly seeing it, but we would like to be able to really

measure it before we engage in a very aggressive regulatory

process.

We need to understand whether the markets for advice work. I think Colin's point here was very apropos: Does financial advice help or do the people that give financial advice have an incentive to not educate consumers because when you have a not educated consumer you have a profitable client. It's not at all clear whether the advice is the solution or part of the problem.

Finally I think the big open question and I concur with many of the people who have spoken today is it's one thing to describe and model these problems. It's quite another to know how to fix them, and I certainly don't.

(Applause.)

Ms. HOLT: Next for the discussion is Alan Schwartz.

Mr. SCHWARTZ: Terrific. I can't give you a blank screen anyway. So I'm only going to discuss the first of the two papers that David presented, but I think there's a terrific result in this second paper. It is really nice to know that at age 53 you can peak at something.

I'm not going to use slides. Actually this talk is sort of a shrouded attribute talk. There are sophisticated people out there who know exactly what I'm going to say. The rest of you don't know what I'm going to say. Tomorrow you'll know what I'm going to say but it won't be -- it will be too late for you then, so it's that kind of talk. So I'm going to just go on a little

bit.

I like the shrouded attributes word. I like David's work in general, so this is going to be more in the line of suggestions for research or some questions that it raised for me, so first I want to set out the very simplest version of this story. By the way, it's a real credit to them that there can be a simple version of this story, and the simple version is you have some zero profit equilibrium, and in period one a firm is selling some base good, and in period two, a firm is selling add-ons, and the base good is priced at either cost or less than cost, and the add-on is prices monopolistically.

So the firm loses many on the sophisticated consumers because they're aware of the high add-on price they anticipated, and at some positive cost they substitute away so they take precautions, so they will bring peanuts to the hotel room or something like that.

My other consumers, they don't incur any substitution costs because they don't know there's going to be a high add-on, and then this second period they find it out and pay a monopoly price for the add-on. The inefficiency of this version of the story, and I think it's the main one, is that the firm could sell add-ons to everybody in the formal model at zero cost so the inefficiency is by the sophisticates because they substitute away

from the add-on, and that's a positive transaction cost that need
not be incurred.

David also talks about continuous demand, and there it may
be that even the sophisticates will reduce their quantity of add-
on purchased, and that will be inefficient because at zero cost,
everybody should buy it, so then maybe because this is kind of a
search equilibrium story, it may be there's an inefficiency in
these stores because you have too many firms. You have too many
people enter to compete for miles, so you might end up with a
zero equilibrium in too many times. David doesn't talk about
that but that might happen.

So in terms of questions or empirical research, there's a
very simple inequality in the paper which points out, and I'm
going to stress it should be obvious that if you have a lot of
sophisticates, then the bad story won't work. Also if there's
high substitution costs, the story might not work because if
there's high substitution costs, the sophisticates won't easily
switch away and so it might be worth competing, educating them
and then competing for their business.

And a variable that's also quite important is the
willingness to pay for the add-on because if that willingness is
relatively low, then there may not be enough surplus obtained
from exploiting them on the price of the base goods, so it seems

to me that as an empirical matter one might want to know things like: How many sophisticates do we have and what are substitution costs for certain kinds of goods and so on and so forth.

The questions that I have, basically two, and then I'm going to stop. I was told I had five minutes. I may do six, one minute for jokes and five minute for talk. So the key -- in the second period in this model, the firm charges monopolistic price for the add-on, but one question that I have is where does this monopoly power come from, so the thought that I have in mind as I'm walking into a store, and I say, I need another printer cartridge and they say, what kind of printer do you have, and I say, Hewlett Packard. They say fine, I'll sell you a cartridge for $2,400,000.

I then say do you have any other cartridges, right, so the idea is if there are perfect substitutes for the add-on product and zero search costs, it would seem as if this bad equilibrium would go away because people would search in the second period.

So I think it may be that in future work you might want to have some search equilibrium story in the add-on market if in fact there really are good substitutes because then people would buy generics.

A second possibility for where monopoly power comes from is it could be that the add-on is an imperfect substitute. That is,

you would be a lot better off buying an HP cartridge then you would be buying some other kind of cartridge, and then the firm would have some monopoly power but this raises two questions: That is, one is as to the domain of the model, that is how important is this case where there really are imperfect substitutes in the aftermarket.

The second question that I have concerns the magnitude of the inefficiency because if the sophisticates say, Well, I can substitute away from a high add-on price, but if substitutes are imperfect, they won't substitute away so much, that will bound, and if they're -- you should do something for that, by the way -- if they're not doing to substitute away very much because the add-ons are in perfect substitutes, that seems to bound the transaction cost loss so that may make this a story where there is an efficiency, but it isn't a very big one.

So my main question is: Where does -- just what is the source of the monopoly power in the second period and in what way should we worry about it? And I have -- finally, I just have one more question and this concerns learning and this is just a suggested possibility. The learning story in the paper is: Well, if you go to the hotel and you find out that they're charging you $5,000 for a candy bar, you may then pick up the next time and know that there are these add-ons, so the stories

in the paper is quite open and honest is that a particular method of exploitation will slowly fade away as people pick up on it, but we still want to worry about this problem because there's always new methods of exploitation is the kind of story, but the question that I have is whether learning can be a little more general than that.

Say so suppose I buy a Hewlett Packard printer, and I find out that in the aftermarket they're charging me some exorbitant price for the add-on. Would this make me generally cautious when I go in to buy a product and I know I'm going to have to make purchases in the aftermarket? The question that I have is whether it's possible for learning to take place across context rather than within a context because if that's the case, then once again this will bound to some extent the bad effects of this practice.

So in conclusion, this is really exiting and interesting work, and I know that David and Xavier are going to keep going with it, so I'm going to look forward to more versions.

(Applause.)

MS. HOLT: We're going to have some time for questions here, and we'll catch up on the schedule later. Over there.

MR. ZYWICKI: Todd Zywicki from George Mason Law School. I have a question for both panelists. I'll try to keep it short.

I found myself very frustrated listening to these papers.

The first one with respect to the Kaplan paper, the second paper at least addresses the zero profit equilibrium. I didn't see that in the first paper so I would ask to address that, which is to say: So in period 2 everybody puts a picture and the edge disappears, right?

So it may be one of these questions like Alan is proposing that, how big an effect are we talking about if everybody puts a picture on their solicitation and then everybody goes back to competing on price.

In the second paper I guess there's new empirical data that we haven't seen. If you take the banking example, for example, it's purely a hidden fee with no risk associated or something like that. Two other examples is hotels, which is often given phone calls, wireless access, that sort of thing. It seems that what goes on in hotels is elasticity pricing, not shrouded fees.

I pay a lot less shrouded fees when I stay at Motel Six than I do when I stay at Ritz Carlton meaning that at Ritz Carlton both the higher half upfront and the higher back end fee are correlated rather than substitutes.

So another example is so-called supposedly shrouded fees in the credit card market and substitution towards late fees and that sort of thing. It seems quite clear that what's going on

there is risk based pricing, and if I might ask what is the zero

have -- we've seen a rapid substitution of that market but the

zero profit equilibrium is held profits, the profits are the same

now as they were back when risk fees were lower, and that's

because interest rates have fallen accordingly.

So there's no indication of a welfare loss or permanent

rents in that market, so those are sort of just general

observations if the authors want to respond.

MR. HOLT: Go ahead.

MR. LAIBSON: So I certainly agree that demand elasticities

are part of the picture, but you're going to see a paper this

afternoon that will provide the empirical evidence for the story

that we're telling. Let me just anticipate the key stylized

facts on that paper.

It's credit card data, and what you find is not that people

select into different styles of payment, some pay fees, some

don't pay fees just because some people have a lower time value

or a higher time value. What you find instead is people begin

relationships with a credit card company paying lots and lots of

fees because they're naive. They are confused. They stumble

into the fees, but over time controlling for the fixed effects of

those same people, their payments drop by 75 percent.

That's precisely this kind of story of a consumer that

begins naively or myopically stumbling into fees and then
learning what's up and eventually improving their choices.

Now, in terms of the zero profit issue, just to be perfectly
clear, we are modeling settings in which firms might have market
power or might not have market power so my personal belief is
that most markets are basically perfectly competitive. This is
not a story about firms making excess profits. It has never been
such a story.

It is only a story about how firms in a competitive market
interact with consumers that are heterogenous, some of those
consumers being naive. In equilibrium there will be no profits
for the firms. There will be distorted contracts that produce
dead weight loss, and I very much liked Alan's comments, a big
challenge is calibrating the magnitude of that dead weight loss.
Is it small, is it big? We don't know yet.

MR. KARLAN: So I think your question -- there are two
thoughts that were generated from your question. First is
there's two ways of looking at this basic question. One is about
individual decision-making, and the other is about firm response,
and the fundamental of your question is what's the firm response
to these -- to knowledge about this type of marketing, these
marketing treatments, and it's a great question, and we would
actually love to tackle it.

But I think what's important, at least our main take away from this paper is not about firm response. We don't observe that. Well, what we want to know is just on individual decision-making how sensitive to these things are people relative to price, and for that we don't need to look at period two plus one. We would love to do that. We want to know what the firm response is.

The other response to the firm response question though is I think the right question is to look backwards. If the zero profit condition were holding with respect to these types of marketing interventions and everyone was already doing this, then this should have held zero effect anyhow because everyone was already optimizing, but we went in and we did actually change their marketing approach, their average response rate overall on our interventions, even the bad stuff, was better than your typical response on a direct mail solicitation.

Why? You can argue that maybe we were able to come in and just provide effectively some free consulting services on the average, so maybe that's not cost effective for them. The search for that perfect marketing treatment was not worth it for the average take-up rate. I don't think that's right if you look at the numbers, so at some level you're asking why is there an entire industry of marketing consultants? It is a profitable

industry.

MR. MIRAVETE: Thank you. Question for David. So using this gaussian distribution you get to the conclusion that the possibility of mistakes of consumers may lead to a fast reduction in the markups. This is one way of looking at -- this is just reduced from a prediction model. The challenge for empirical people is actually to do the reverse engineering, and looking at what the data tells you and what it is, this theory, and whether it can be sustained or not.

Why to rule out the possibility of collusion or to rule out the possibility of product differentiation, or to rule out all these sorts of things when there's a study -- you believe that most industries behave competitively, but it's your belief that empirical I/O people have been looking at these issues like the gasoline market, the beer industry, which apparently they are competitive and they appear not to be for a variety of reasons.

So the question is: I think the big challenge is to be able to separate, differentiate which theoretical model, which structural model actually explained the date.

MR. LAIBSON: I love that question, and I think that's exactly the right question, and we can write down models, and now the challenge is to go and dig out the data to separate one from the other. All the mechanisms that you described are I think at

play, but these behavioral mechanisms are also at play, and we have to go out and do the analysis.

Again the paper on credit cards is a step in that direction. Just maybe one thing I said that may have been unclear. When I say competitive, I don't mean lacking distorted equilibrium contracts. I mean that there's free entry, and there may be a fixed cost for entering, so that's going to create market power for the firms who are in the industry, but at the end of the day, there's going to be -- there will be a zero profit condition.

So that's all I meant by -- my baseline model is that most -- in fact I think almost all industries in the U.S. are competitive in the sense that you can enter any industry at a modest fixed cost.

Ms. HOLT: I think we have one more question over there.

Mr. WARREN GREENBERG: I have a question for Professor Laibson.

I'll focus (inaudible) and that kind of leads me to my question. You hope that individual industries and have defined it for example as brick and mortar as we go (inaudible), but what are we talking about industries that we can did not look at it? Yes, and yes I have these shrouded costs but I also have a fidelity account which is not bricks and mortar which is coming in and I have -- I don't think they have those extra kind of

charges.

Yes, I go to the bricks and mortar of a movie theater every once in awhile or go to the bricks and mortars of a Border's and buy a CD, but I could also get that off the Internet, and in the field that I study in hospitals, yes, there are bricks and mortar hospitals, but now we see the completely different marketplace of so-called specialty hospitals rather than the general hospitals.

So I guess my overall thrust is suppose we would define the market much more broadly than in fact you were presenting in your presentation in a number of the instances we have, go beyond bricks and mortar, go to the web, go beyond into a nearby industry which maybe is not shrouding quite as much.

Mr. LAIBSON: I didn't mean to suggest that bricks and mortar were the only source of costs. I completely take your point, and I think more generally all industries have these shrouded costs whether or not they have bricks and mortar.

Mr. MULHOLLAND: Hi. We're running behind, but I think for all the right reasons so it's not a problem at all. So what we're going to do is we're going to break for lunch. Those who have ordered your lunches they'll be out there with your names on them. I think a few people have not yet had chance to pay. They've been ordered, and so if you would see somebody in the front there.

What we're going to do is we're going to open up this room here. There's tables here for you to eat, and we're going to turn Pauline's talk, which is the next one at 12:40 into a luncheon talk, so feel free, walk around and what have you. There's another projector in there as well, and so we'll still be on the same schedule and she'll be talking at 12:45.

(Whereupon, at 12:19 p.m., a lunch recess was taken.)