

EEP100 Lecture (Oct 13, 2009)

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Let's get started. This is the last lecture before the midterm. Anyone? Hello? Hi.

Unfortunately the audio picks up you guys, so I have to yell, otherwise you have to shut up, so sorry. If you have a question though, I will listen.

Sorry about the rain; I did not plan on that. I was trying to get a drought so my job security would be good, but unfortunately we have winter arriving.

Midterm. Let me talk about the midterm. It's probably on the top of some of your minds. We have made the midterm up. The format is as follows. There will be...you have the entire class period. 120 minutes. Start on time, end on time. There will be 10 true/false questions and 5 long answer questions. Long answer questions will resemble questions that you see on the homeworks, or they will not...but they will be more familiar than the true/false. True/False: you will not get full credit if you just say true and write nothing. So it's true/false and explain. The reason that I'm trying telling you this... all of you right now...is I want you have the expectation of coming in, looking at a question, deciding if it's true or false, and giving a really short, sweet explanation of why it's true or false, okay? And I will not be here, but Fei and Diana will be here. Hopefully the midterm will be clear enough that you will not have any problems understanding the questions. You'll have a great time doing the midterm.

At the end of class, we'll hand back your homework assignments (homework 2). The key is posted, yes? Yes. And your grades are posted. Crackerjack work by the GSIs. Diana's not here, but I don't know if you saw the review thing they put up for you. I was amazed. That's great. Really, really good job. So take advantage of this hard work they're doing for you guys. All of that stuff is posted on Bspace. My office hours today: 12:30 (right after class) and at 4:00 because I have to go...I'm sorry you guys all decided on 4:30, but I didn't know I had to go to something at 5 o'clock. Obviously I survived the surgery so that's good news/bad news. And we will have the entire rest of the semester to go.

The blogposts have been going up. They are really good. And I strongly encourage... everytime I put them up now, I warn the students whose posts are going up, "Hey, your posts are going up."

There have been some very, very good responses from readers on the blog. I encourage the authors of the blogpost to get involved into that dialogue if you feel like it. I encourage you to get involved with other peoples' dialogues. I know you don't have 52 hours a day to work on writing blogposts and opinions and comments, but do take advantage of that ongoing discussion. If you have written a blogpost, be prepared to revise that blogpost as a class assignment later in the semester. And be prepared to take into account the comments that have been put up by other people including, "Your economic analysis sucks." Okay? If someone said that, and you're going to hand in a briefing (this is probably going to be briefing #2) and it's a cut and paste, you're probably going to be getting a zero on that assignment. So now is the time to start paying attention

to feedback on your blogposts. But on the other hand, it's a pretty good start. I'm very excited. And congratulations to everybody for putting in the effort.

They will keep going up till roughly mid-November. It's like there's so many people that I've got to put them up a couple a day. Any questions? Open questions?

Do we need a blue book for the midterm?

No. Do not bring a blue book. You will be provided writing space, that'll be it. It'll be single sided if you want more space. Try and limit yourself. Don't write long essays. It doesn't help anybody. It's easier to stop at this point.

Do you need a calculator?

No, you don't need a calculator. Should be fairly basic. If there's calculus, it'll be basic calculus. Graphic calculators are prohibited. It's the same thing as everything. All your crap on the floor, don't look at your neighbors...you know just like the typical midterm stuff. Any other questions?

Nobel Prizes. I sent you guys an e-mail about Lynn Ostrom and Ollie Williamson (as I don't call him). He's up at the economics department. It was a very, very big deal for people as far as natural resources are concerned. Lynn Ostrom...I'll be talking later about property right...Lynn Ostrom has been talking about property...the first woman to win a Nobel Prize, and I don't know if that matters because she's so good (but whatever...she's a woman...).

An economist?

An economist, yeah. There's all these scientists and stuff like that. The political economy of the Nobel Prize is interesting. I don't know how many of you saw that Barack Obama won the peace prize...that was a bit of a shocker. And the science prizes are for...so first of all there's a science prize, which are physics and chemistry, for enduring contributions. The physics prize was a guy who...one guy did fiberoptics (kind of important). The other guy did the CCD, which is what...I think the thing you use to take photos? Really amazing stuff, but that was like literally 40 years ago. Obama won the prize for...you know...hope.

Where we're going is the wrong direction—world destruction, so I kind of agree with that, but it was a bit strange...but on the economics front, Oliver Williamson is the guru of transaction cost economics. Remember I was talking about theory of the firm? It was kind of like I was predicting the Nobel Prize by bringing it up in this class. And he's like this Chesire cat. He kind of just sits there and smiles all the time, you know? And apparently no one can read his papers. I've never read his papers, but he's a really cool guy. And Lynn Ostrom has worked...she's a political scientist. So she actually did her dissertation work at UCLA on groundwater management, so it's really strange because I've known about her for a long time because my dissertation is about water in Southern California. But her work is really important because she talks about how communities solve problems.

And she's kind of outside the economic framework, which would predict that we would have a tragedy of the commons example. You guys remember the fishing game? Lynn Ostrom is the kind of person who would say...how do the fishermen not have a fishing game disaster. So she has had a major impact in terms of like bringing reality into the academy in terms of economics. She calls herself a political economist. I think that's a very appropriate term. And if you read anything that she rights, you will be enlightened. She's just really a very...is that a drip?

So Lynn Ostrom, awesome. Ollie Williamson, awesome. Although he does get the Nobel Prize winning parking place I hear. I'll get more into property rights as we go down.

Oh, pop quiz. So this is not for a grade in the course. This is just merely for pride. I have a colleague in Norway, and he was upset that I was not clearly labeling my axes. Who here thinks...there's a choice here. You get a choice of P or Q. Who here thinks that P goes up here on this axis? Raise your hand. Who here thinks Q goes on this axis?

Supply and demand, what is that? P and D. Supply and Demand. Extra points. Who thinks that the price goes up there? And Q?

Okay, you hear that? Alright. Shut up. They understand.

Okay I sent out an e-mail...I guess as part of my...you all pass. I can't write. That was like one of those subtle hints, you know? It's P!

Corporate social responsibility. I sent along a bit of an e-mail to you guys. It wasn't spam. This is an opinion, but you can write it down. It's going to be pretty big. Corporate social responsibility means that profit maximization is not the point of a firm. Now in economics we talk about optimization, we talk about utility maximization, we talk about profit maximization...so corporate social responsibility is, "Oh, you're a corporation. You're Federal Express, you're Walmart, or whatever. You know, that price maximization is...you're really trying to pay your employees less so you can make more profits. But you're trying to buy goods for less and sell them for more. You shouldn't do that. It's just not nice.

What you should do is pay your workers more and make sure you contribute towards the government, and take care of your communities, or something like that. That's kind of a...and I agree it's a strong aversion of a corporate social responsibility...but corporate social responsibility is kind of a code word for everything that we think is a good idea. We: an activist group. I mean...even if that conflicts with profits. Now my opinion about this is that it is a huge problem. And the main...there's two explanations for this. There's neoclassical economic explanation, which is the traditional explanation. Because the job of the company is to profit maximize. That money will go to shareholders, and the shareholders would send it to charity, or to the community or whatever, right?

If the company goes around and says...oh...we're not going to do that. We're going to take care of the endangered species in the Gulf of Mexico. Or...we're going to build a children's halfway house or whatever, then the corporation kind of loses sight of what the hell it's supposed to do, okay?

In Germany it's very common, it's very famous, that they have workers on the board... it's called the board of advisers or something like that...board of stakeholders? In companies now they have worker councils that are voting on corporate policy. So what happens here is that the workers will say: Well, profit maximization means lowering our wages. We want higher wages. And so potential the wages will go up. Well this becomes good for the workers, but not necessarily good for the company. It weakens the company; especially if it's a German car company competing with, for example, a French car company, which doesn't care about their workers. So then that German company actually may go out of business. And the workers are really in trouble because they have no jobs. Much worse than that is when they say they're going to support the environment or social justice or whatever. Not that those things are not a good idea, but when the corporation goes and does that, then the CEO takes a bunch of money, goes over to the charity, delivers the donation, gets the photo, and then goes back. And who knows what that did for the company, right? Even worse, the charity might be run by the CEO's wife. Even worse, the charity might be paying him a backhand...a bribe to donate the company's money.

So the problem with corporate social responsibility is it quickly blows up into...let's do everything right for everybody, and the company loses concentration on what the hell it's supposed to do, which is to make money, okay?

If the company makes money and gives it back to shareholders in terms of dividends, then the shareholders decide how do donate that money according to their own personal desires. If I'm a shareholder in the company, and the company is supporting...let's say they're supporting the San Francisco 49ers because that's a good charity, and I'm a raiders fan, I'm not a happy shareholder. You see, there's a bit of a problem there in terms of incentives. The principle agent problem we talked about before. So this is, as far as I'm concerned, an evil idea, but if you like it, go ahead and volunteer for those guys. And that's my opinion for the day about CSR. Right. Any questions about that?

You said you had two explanations?

Well the main prospect is that you donate the money to the shareholders, and they'll do the right thing. The next explanation is more like green washing and corporate propaganda.

Like Starbucks (I looked at this one time) and fair trade coffee. They were spending...I think they were...so their whole idea of fair trade is cut out the middleman. That actually creates all kinds of problems because now all the middlemen are out of work. You cut out the middlemen, and you sell all this stuff to your customers...instead of 12 dollars a pound, which is already too expensive for coffee) you sell it for 15 dollars a pound. Of those \$3 (maybe 15 cents goes back to the farmer who's being helped. The other \$2.50 goes back to the bottom line. That goes to profit. So in a sense it's a kind of advertising.

And it gets...people are like, "Oh my god I'm saving the environment by buying \$15 a pound coffee."

And the farmers down the road might be getting more money, but then the thing that I was thinking about was when you cut out those middlemen, now they really depend on Starbucks. So if Starbucks cuts them off, now they're screwed. They don't have a marketing channel. So I think Starbucks (when I looked at it...it was a while ago)...now I think they're the biggest buyer of fair trade coffee in the world. But Starbucks only runs about...I think it's way less than 5 percent of their coffee is fair trade.

So they have all these fair trade signs in the store, but they don't have the 95% of the store advertising space dedicated to evil coffee that we buy everywhere else. So it's more of a green-washing advertising scam.

In the Germany example...I think that system works for them. Germany had the highest percent of renewable energy of all the countries in the world, and the largest percentage of that is from private companies.

But why do they have the highest percentage of renewable energy? Government subsidies.

No.

No?

It's because of government taxes.

Ah. Well government taxes or government subsidies. Take your pick.

Well it's different though [Yeah?] because...I mean I agree, it's also subsidized.

They subsidize solar, for example.

They subsidize solar.

But they tax other energy.

But I think just generally everything...there's much more incentive here...

Because of conservation, yeah. So it's not because of corporate social responsibility that they're doing renewable energy. It's because it's profit maximizing or subsidy maximizing.

What do you mean by government...

Right. That's a different question. This is an interesting thing. The whole Wall Street blow up...bribery of politicians...when I look at bribery negotiation, I've got my company here, and my...what's a symbol for a politician...my politician here.

Now the politician has market power. They're monopolists, right? The company is competing with other companies. And they're all offering bribes to politicians to get privileged access to a market or product or contract or something like that. So all of them are offering bribes to the politician. It's definitely a bilateral deal. They are making a

deal with each other, but the person that's wielding their power to crush society (in a sense), polluting the environment, is the politician.

We should not be surprised that the firms want to go around (remember I read that quote from Adam Smith) trying to bribe politicians. What we should be surprised or upset about is the politicians betraying us, right? So that's what pisses *me* off.

Is bribing a politician in line...bribery, remember, used to be tax deductible. It was a business expense. I don't know if it's still tax deductible in some countries. But bribery used to be considered a tax deduction. And that's a legitimate business expense. And those firms are all trying and competing against each other taking advantage...the person how is allowing him to bribe is the politician. The politician can say no, and then they can't do anything because the politician is a monopolist or a monopsonist in this case.

So in terms of like...mountain top renewal and stuff like that, most of that is enabled by politicians and the companies are maximizing profits given the regulatory environment. If the regulatory environment would change, they would not pollute.

So they have no responsibility?

Nope. Just their shareholders. And meeting the laws, right? But who writes the laws? Back to the politicians.

If you say that that's true, in some countries aren't the politicians...well the companies that are making profit are they...Then you wouldn't blame the company for that?

But what outcome are you talking about? The polluted environment? So say that America has strict regulations on pollution. And the firm goes to Mexico and they pollute there.

So do I blame the American government for having strict regulations on pollution? Or do I blame the company for going to Mexico and polluting under the laws of Mexico? Or the corruption of Mexico? I would blame the Mexican government because they can't get their act together.

Inaudible

If I had to place blame, who would I place it on first? I would place it on the government first, company second. How do you fix that problem? Let's say that the government in Mexico is not corrupt. Is the government going to pollute? No. that's how you fix the problem.

So what do you think about if an American politician said...well you can only sell your product in America if it was produced in America under our regulations. You cannot go to Mexico.

This is a notion of exporting social justice, which is debated back and forth, and that makes more sense in the same context of regulating pollution in a country. So the idea of polluting earth discussion is the whole problem of fear that if we have clean food...I read the other day that some huge number...some 76 million Americans a year are stricken by

food poisoning? As a percentage of the population, this is like...200 times the rate in France. And you know French cheese is good, but this is some serious difference.

So that has a lot to do with the failure to regulate food safety in this country, and the complication of our market, which is a big market. I was an ag-econ at Davis, right? I swear I heard...it was like...we feed plastic sponges to cows, the cows eat them, they shit them out again (because they can't digest them...they're plastic sponges) but it helps them gain weight, right? We do that.

And I was like...I'm not sure if I want to eat that cow. It's a good reason to be a vegetarian in this country. Or mad cow disease. Let's just feed diseased animals to other animals. So I'm not saying there's not problems in all these different countries, but...so anyway back to the...

You raise the standard, and you say that US beef shall not have sponge-fed beef. And we will not allow sponge-fed beef to come from...Paraguay (which is of course grass fed beef). That would make sense in terms of the alignment of the regulation. That would make sense, and even if the...you know...inspectors the board or of this country are willing to be bribed to let in the black market beef then okay, we get back to that problem right? That's back to the corruption and regulation. So I'm looking...what I talk about when I talk about government failure and market failure, they are both important problems, right? And in the case of corruption and bribery and all kinds of law breaking, you have to look at who is enforcing the laws. Not who's breaking the laws. I mean...murder's illegal; people still do it. So it doesn't necessarily fix everything.

Other questions on this? I realize that it's a hot topic, and I will talk more about it, and I think it's important. But I think it's important to think about the way to fix the problem, right? Asking companies to do the right thing is wonderful, but you have to ask what environment they're in. What rules and norms and laws they're behaving under. What incentives they face.

I would be very happy to shoot the CEOs of firms that, you know, kill people. They go to jail and stuff like that, but it's not a problem. Especially when they're breaking the law.

Pop quiz, CSR...price discrimination. Next topic. So this is...

Price discrimination is the idea of taking advantage of some characteristic in your customers in order to charge them more money to attract more profit. It's a very popular idea for the company side of things. Let's say that we have a demand curve. And let's just say the firm has a supply curve like this. That's why I label these axes; I always label them wrong.

So in this circumstance, let's say the monopolist, we're going to set price here, and we're going to get this revenue. This extra profit is monopolistic profit for the firm. Now the firm is happy to make more money that charging marginal cost equals price, but the firm is not happy about losing triangles A and B in terms of revenue or money, right?

So what's called first-degree price discrimination essentially is charging every...because this is an aggregate demand curve. Many, many consumers, okay?

So there's somebody up here that's willing to pay this much. But they're only paying this much. This person is getting the surplus. The surplus is the entire difference between what they're willing to pay and what they have to pay. That's just the basic definition. You guys understand that part? Yeah? Okay.

So what the firm wants to do is they want to charge this guy, let's call this guy Mr. X. Wants to charge P_x to Mr. X. And there's going to be a P_y , P_z , P_a , and a...the firm wants to charge different prices for different customers so that the entire area is collected as revenue. That's called first-degree price discrimination. This is a definition that you need to know.

What does the first degree cover?

There's a first, then there's a second, then there's a third. It's like...let's call it this way... the most advanced form of price discrimination. In fact if you're doing marketing or health, and you say, "I'm going to give you the most advanced form of price discrimination" all the executives will pay attention, right? Because this would be what they want to do. Because the consumers who face that price would be literally indifferent between having a product and not having a product.

So in economics we say...oh we're indifferent...we charge epsilon less. We charge a little bit less. This is where this Greek letter epsilon pops up. We charge just a little bit less, so if that product is worth 10 dollars to you, we'll charge you \$9.99. You get one penny of utility, one penny of surplus. The other \$9.99 goes to the firm and they use that...it goes to their bottom line.

Now what's the problem with 1st degree price discrimination? Realistically.

So figuring out who that first...so it's actually tying the price to the consumer. That's the first problem—how do you tie that price...so you, I know your value. You're 9.99, and you're going to pay me this much.

What's the other one?

Making them actually pay that price?

Making them...so making them pay that price...what happens when this consumer over here decides to sell to this consumer over here, take the profit, and go home? So there's a possibility of...those consumers can trade among themselves. That's a problem as well. What's another problem?

Cash left on the table...like another company could jump in.

Could be, yeah. It's a monopoly right now, so let's leave that one alone.

How do you limit that price to only these consumers without discouraging other consumers?

So that some consumers might see one price and be upset that the other person is getting a different price?

Yeah, sort of.

So...just the whole equity issue. Like I'm paying one price...why am I paying one price and you another price.

Actually that's a good example because a couple years ago Amazon started trying to do differential pricing for books on their website. Did you ever hear about this? They know your profile...your zip code. Your zip code says what tax bracket you're in, almost, because you can link it to census data. And one person would have a price of \$12 and another person's would be \$15. Because they have a willingness to pay, right? Income elasticity, normal good, willing to pay more, why not charge more?

They just got caught trying to maximize profits, but it goes against the norm that we have that everybody pays the same price. That's one thing. Except that they don't because we're facing price discrimination a lot.

Is that illegal or not?

It is legal to charge different prices to different people. Go down to the farmer's market and negotiate tomatoes.

Yeah, I know but that just got a lot of heat to them.

They got heat, yeah. In some ways people didn't expect it. It's like...I know you're going to cheat against me, but then I get to cheat against you. That's the thing; you think it's the same price.

Just like when you go shopping on these airline aggregator things. You start looking at rates and go to this rate, and this rate, and this rate, and the prices are changing every 20 minutes and it's because the airlines are trying to discriminate against you all the time. But you know they are.

Wait so for progressive tax—do you think that's a form of price discrimination?

No...off topic. Okay the one thing I think you guys are taking for granted, but it's really important, is that a firm really doesn't even know what this demand function looks like, right? That's a huge problem.

And this is something...I just sit there and I just draw the demand and supply and here we are...equilibrium. But remember there's almost no firm in the world that knows what the demand function looks like. They have entire divisions of marketing people trying to figure out what demand is for various goods. Especially new goods. Also even old goods.

So that's the biggest problem. Number one: we don't even know what the demand function looks like. Number two: if we could do it we have to figure out how to get that price to that consumer without that consumer buying it from someone else. And third, or fourth, or fifth, or whatever: we would have a problem with the consumers getting upset...so just equity. Just being charged a different price.

Okay, so that's just first-degree price discrimination. Can I erase this?

Second-degree price discrimination is something that you're all familiar with. It's basically called the quantity discount. So this is quantity discount. The first thing is kind of...it's called walking the consumer...walking down the demand curve. That's the idea here. You're walking the consumers down the demand curve. You can call it that. It's a good way to think about it.

Okay? So second degree is a quantity discrimination. Here's a simpler example. So what the firm does is they set...basically what happens is if you only want to buy one unit you have to pay \$4. Okay? But if you buy three units, it's two dollars each. It's like buy 2 get 1 free. It's not buy one get one free. I'm buying one already. That's kind of dumb. Why not get one free? But if you have buy two get one free, or if I buy a big chunk of minutes on my phone plan, or if I buy a big bag of rice versus a little pound of rice. That kind of thing. These are different versions of quantity discrimination. The thing that's important about that is that you don't need to know anything about the consumers. That's really helpful, right? You just set the price...consumers walk in, and they say...oh wow I'm going to buy a lot, and I'll pay a low price. And I'll pay that big price. And that's...someone will buy that package, and the person will say that I only want unit...I don't care about...see I can pay four and get one unit...I only want one unit. I know that I could pay two more but I don't want three units.

You see how people will sort themselves out into kind of two different categories? Does that make sense?

The company has an easier time doing it, and that's why in some ways first-degree price discrimination is theoretical because it's very, very rare to see it. But this is very, very common because this is an easy thing to do. My favorite example of kind of quantity discrimination is the so-called two-part tariff.

And this is...imagine that you go down to a bar. What's the big bar on Telegraph that has cover charges? Is there a bar on telegraph that has cover charges?

Blake's.

Blake's? Okay so Blake's on Telegraph has ladies' night. Have you ever heard of guys' night? Now think about this for a second. So what's going on is they actually charge the price equal to marginal cost for beer. And then a guy will come in. And the guy has a bigger demand curve because they like beer more. I'm doing some stereotypes. Okay so lately, there's chug-a-lug girls...just stay with me for a second. Chug-a-lug girls love ladies night at Blake's, right? I get in for free, I drink as much as I want at marginal cost.

But the ladies' kind of have a lower demand curve, and then what happens is you charge price is equal to marginal cost for beer, but then you charge the guys a cover charge. And the cover charge is the area of the surplus that the guys are getting from the beer. And the ladies, right? If there's no ladies then everything collapses, right? That's one of these interesting things as well. Unless it's Blake's on Castro. I bet they do have...I don't even know what they have. It'll be some form of price discrimination. But what they do is they're basically saying...yeah come on in, drink as much cheap beer as you want, but

you're paying \$10 at the door, and there are all these girls in there, but they got in for free. The girls probably only had one beer, and they only spend like \$2. And I'm in here for free. And the bar is making all the money off the guys.

That's the classic form of a two-part tariff. Two parts: one price for the beer, one price for the cover charge. The company is getting all the surplus money (for this hypothetical). They're getting all the surplus for the guys; they're leaving this on the table for the girls. Could be a discount or whatever. They leave it on the table where they just make it smaller. And there was this...there was that interaction of...not enough girls and guys come in...just take it into account that that matters.

Or maybe you could do it...you could do it like this, and just do a cover charge for the guys. They're like \$10, but there's no girls, what are you talking about? That's part of the reason why it's ladies' night also. It's a combination of factors. Actually the ladies' night thing is more like a third price discrimination. And I'll get to that in a second. So this is combining two. So third degree discrimination is based on some observable characteristics. That was observable—guy, girl, guy, girl. Another typical one: student discount—show me your id. Senior discount—show me you're old. Movies on Friday night versus Saturday night.

So what you got there is you've got your two different demand curves, and you've got your yuppy here. You know...middle-aged, but high income. You've got your senior here: older, low income. You want to get both of them in for the movie. And you look at the senior and say: "You're old." You get in for what...it's *only* \$7.50 now. And the yuppy has to pay \$10 or \$9.50 or whatever the price is, right? That's third degree price discrimination. It's based on an observable characteristic.

So the bar example is actually a combination of second and third degree, right? This is a very pure third degree; this is a pure second degree. Just so you don't get confused.

What happens if your yuppy is a student?

Oh, good idea to keep you're fake id. You slip under the screen, basically because you just do that. That'll happen. It's kind of hard in a sense. Not common. Other question?

Inaudible

For the yuppy you can just do a pure monopolistic pricing mechanism. You just set a high price and a low price. Does that make sense? Yeah?

So do price discriminations only work in monopolies?

No. So in perfect competition everybody goes down towards marginal cost in terms of their pricing. So with perfect competition, the movie theaters would compete away that price discrimination so there would not be price discrimination. But you literally could have one theater, and another theater a couple blocks away, and now they're not perfectly competing because they're like...apart. Or they're too far apart, right?

Or it's...our movie starts at 8:30, your movie starts at 8:45. It's really easy to get away from perfect competition. And as soon as you start to move away, you start to see these price discrimination things pop up. Sometimes you'll see this industry norm. Everybody in the industry is going to be like yeah...we'll charge seniors less. Because they understand this. But also it's kind of like hey...if you do it, I'll do it. Right?

It's kind of a gentleman's agreement. So theaters are giving it to the consumers in a way. It's because the theaters are...when you find out that as soon as...whenever information service pops up and makes comparison easier, it starts to erode price discrimination. The internet has been huge for that. You can go on the internet and type in the name of the model of any digital camera, and you can see all over the United States who's selling that digital camera. Whereas in the old days, you have to go down to the corner camera shop. Oh I'm going to New York to buy a camera there because it's cheaper there. That didn't happen anymore. You just look on the Internet. So as soon as information flow is faster, price discrimination tends to decay.

So would an alternative be a price in between those two, or would it just be another price?

The firm was aggregated to demand curves so it would be...that's kind of a messy drawing...but let me try and draw it here. It would start off as a yuppy, and as soon as this guy came in, it kind of changed, right? And you get a much more complicated revenue curve, but the firm would try and discriminate against the entire aggregate demand curve...what it thinks that is. That's the other problem.

But you know how for movies that are sold out, and people have to wait in line for like 2 hours for? Why doesn't the firm or the movie theater charge higher prices?

That's an ongoing debate in economics. I told you about Bruce Springsteen's (The Boss) concert tickets...he's selling them for \$60. He sold out in 20 seconds. And they were selling on the black market for \$600. So why is that going on?

So Bruce Springsteen is leaving a lot of money on the table in terms of money he can charge. A whole bunch of money is going to transfer, essentially, to scalpers, or people who actually just resell the tickets, so it turns out a lot of those tickets are actually being held by Bruce Springsteen and his family. Like the entire floor of the stadium was owned by him. That was even more crazy. So why are they doing that?

The most common explanation of like...economic analysis...oops we messed up. Or we want to do the right thing, which is another idea. Sometimes...because the poor people can afford to wait in line for 24 hours...that's one way to get them a ticket compared to a rich person that can just buy it on the black market. But the poor people will wait in line for 24 hours and then sell that ticket to a rich person for \$600. So I don't know...maybe that's helping the poor person. Either they go to the concert or keep the money. The other reasons that lines are good is because lines make the place look popular.

What's that Sushi place on Shattuck? You know the one that always has a line outside? Giralla? I went there for the first time in my life. It was okay. Why do they always, always have a line outside? I mean...they should be raising prices. Maybe it's because...

oh there's a line out there. I should go there some time. So it's kind of a marketing...free in a way. Unless it's raining. Other question?

Inaudible

Quantity based discrimination? You're right. It's not. So...quantity discount. They're saying it's the same price for the marginal discount of the beer. So everybody's facing the same price. Given that what you said there...here's the way it could be...a secondary price discrimination. Say that everybody pays the same cover charge. What you're going to do is you're going to end up with a Blake's full of guys. Because the cover charge might be \$5. The average guy's surplus is \$10, so he's making it. But the average girl surplus might be \$4. So she's like...forget it I'm not even going. So that would be a form of...two-part tariff is a type of quantity discrimination that way. Without the gender thing. Any other questions on this?

Let's get into some jargon. The word shadow value. This is a clarification. I might have mentioned this before, but I want to make sure you guys understand this.

Shadow value happens when you don't have a price. So the other day I mentioned what happens when you set a price ceiling (forget the supply curve, sorry about that)...you set a price ceiling...no I do want a supply curve, sorry. So you set a price ceiling...here's the market clearing price, and you set a price ceiling here. And the demand is greater than the supply. So there has to be some way of rationing that good. I think what I did was I said that this is P_1 , and this is P_t , and P_t equals P_1 plus P_2 . So P_2 is that difference here. I have been screwing up this diagram too many times. Do you guys remember that? When I wrote that up? No? Well we'll do it again. So the government sets the price ceiling. That's P_1 . That's cash.

Now there will be a shortage of goods at that price because the supply is less than the demand. And the market will clear because consumers will essentially spend this distance or this area here. They'll spend that in terms of time or transactions cost trying to acquire those goods at P_1 . So they will pay a total price (P_c) equal to the cash price (P_1) plus this differential called time. So that's the example of the cheap tickets to the concert or the cheap tickets to the movie. Oh, the ticket only cost me \$6, but I waited in line for four hours. So P_t equals \$6 plus four hours. Now this is usually called a time cost. I don't want to get my jargon wrong. And I very easily get that wrong. The price is based on the cash paid plus the additional resources expended.

It's the cash plus the additional resources used to acquire that good. Or the additional price. It reflects both costs. Shadow value essentially is...it means a nonmarket value. And in that example, the nonmarket aspect is time. You've got money, which is the market exchange. Yeah I went to the front of the line and paid \$6, but my time is this kind of weird thing. I paid it because it was valuable to me.

So what about the person who get's in line, stands there for 3 hours, and after 3 hours he decides it's not worth it anymore. Is three hours a deadweight loss?

That would be...in a sense it's kind of a transactions cost. So it's the same idea of...I've got a house for sale. And say that the market value is 200 thousand. And I sell it for a

hundred thousand. A whole bunch of people are competing for that house. All those people are putting effort in to get that house, right? But only one of them is every going to get it. So it's a whole bunch of wasted effort. And that falls under that whole transaction cost category.

So the cost of selling that house was not the 100 thousand dollars spent. It wasn't even the 100 thousand plus the difference that the winner paid. But it was the...what everybody else paid trying to get to that good. So in a sense it is a welfare loss, and a deadweight loss would be right. I would use that word.

So the transaction costs would be deadweight loss...

No, they're not the same idea. They're similar ideas. Both of them are decreasing social welfare, right? And sometimes the transaction costs might be so great, that you should never even have gone down the road of transaction in the first place. It's a social negative welfare. It's kind of like if I went down to the quad and I threw a hundred dollar bill down in Sproul and there's this riot and somebody ended up in the hospital. And somebody got the \$100, but there's like \$1500 of medical damage, and all these people got bruises. It's like...I can destroy social welfare...actually war is a good example of social welfare destruction.

So the shadow value is the amount that's not your price paid...it's your nonmonetary value...

Yeah, I'll give you a better idea of shadow in a second, but it has to do with not price cost. So if you think price/not price, that's a good place to start. But it's kind of a vague concept in terms of these diagrams.

So if you labeled that graph, where would the deadweight loss be for the price ceiling? Is it the same for when you have the shadow cost?

So the deadweight loss from a price ceiling...this here is all...that rectangle...is all cost of queuing. That's a time cost. It's just cost. It is a deadweight loss in a sense that in a market, if they had been able to pay that price in terms of money, the money would go from the buyer to the seller. So it's just a transfer of welfare, right?

This area here is a different deadweight loss related to the price ceiling. That triangle. So there's a whole bunch of loss going on there. That's the...I guess that's one way to look at it. And this one will be related to queuing costs. This is related to reducing the number of transactions in the market.

So when you ask the classical...where's the deadweight loss for a price ceiling...it's still that triangle?

No, I would clarify that this is deadweight loss, and this is deadweight loss. That's welfare destruction. It's time being spent...if it were money, it'd be very simple. It'd be like...here's \$5. It's just a transfer from one person to another.

So let me look at a counterexample right next to that. And I'll take the other questions. This is an interesting topic. So say that a monopoly comes in, and they try to do the same thing and use price discrimination. So the price ends up... P_t is the same price. Let's say P_t is the same price. But now what's going on is that we have this deadweight loss from the monopoly. The same deadweight loss of reducing the number of transactions. But this difference here is money transferred from the consumer to the monopoly. From a social welfare perspective, that is not a loss. Because social welfare... the aggregate is the same. But this is a loss... it's just like time wasted. Resources, in a sense.

Other hands?

So for shadow value... you can say bribes is a shadow value?

No... bribes falls into a different category related to corruption and principle agent problems.

But let's say you're selling a house, and someone says I'll give you a \$100 thousand and a car, then would that car be like a bribe?

But that's a monetary...

That's a monetary bribe. A hundred thousand plus a twenty thousand dollar car. Or a 50 thousand dollar car. So that's just cash flow.

So the distinction between the shadow value of four hours waiting in line and the opportunity cost is that the opportunity costs is measured in money, in money terms? Or is there another distinction?

No, you're right. The definition of waiting in line is an opportunity cost, and it has that kind of cash value of lost something. And it's a loss. It's still a loss. It's still a deadweight loss. It's not strictly a shadow value. I'm trying to get at the idea of nonmonetary stuff. So look at it this way... you do your little Venn diagram. Here's shadow value, and here's things like queuing in line, and stuff like that. Lost time. opportunity costs. But they're all nonmonetary, right? I'll give a better example in a second. Other hands?

So with airline tickets... there's a [inaudible] ... is that price discrimination or transaction costs?

That's essentially a price discrimination product. Essentially they're selling ... they're definitely saying... you as a businessperson want that flexibility. Regardless of businessmen actually charging it to their firm. And the discount traveler is willing to give up some flexibility to get the cheaper ticket. That's second-degree price discrimination. Because anybody can get a business class ticket. You don't have to be a businessperson to get... but business people do buy it.

If we're not paying the actual cost for water (the real cost) does everybody...

That's my example... hold that thought... that's my example that I want to get to.

Inaudible

They're reducing the opportunity costs if they're multitasking. Well negative not like... oh god evil. But negative like...I would rather not do it, right?

I mean some people like hanging out in lines. I don't go to random lines and hang out with people for a while and walk away.

If you do that, then you like hanging out in lines, right? But most people don't want to hang out in lines. What people do is they minimize the costs of hanging out in line. That's why there are...the commuters that are driving from the valley into the city. They say, "oh yea, I listen to the radio on the way, I eat my breakfast, I do my makeup."

It's like yeah...wouldn't you rather not have 2 hour commute? Oh well, actually I would.

So they're trying to lower that cost of that commute. Shadow value represents the cost you are willing to pay to get what you want. But you never want to pay it. It's the same way it's like...remember the protests. I don't want to pay more money for my fees. Yeah, who wants to pay more money for their fees?

So I just want to clarify. So you say shadow value equals nonmarket, so when you are looking at the price of a perfectly competitive market, do you consider it shadow value or...

In a perfectly competitive market without externalities, and stuff like that...no shadow values, right? Everything's cool.

And there's no price in the shadow value. If the market has...

If there's a non-price type of...I mean there's not...we're talking about non-price value... opportunity cost is one word...this is...you know...I'm claiming that...so shadow values are also another word that gets thrown around. I'll get to the water example. That'll be a better example.

I'm talking about missing markets, when you're talking about the Venn Diagram...

That's the same. Missing markets.

Didn't you say that it's the lambda value in the Lagrangian?

Yes it was. It was a shadow value of an additional value of income. So how much is an additional dollar of income worth to you in terms of more goods that you might buy? And the way the word is used again. So it's kind like one of those things like utility. It gets used a lot.

Remember at the beginning of the semester I said that I'll be vague about some things, and we're going to be wandering around, and you'll kind of get it after a while...because some of these concepts are hard to nail down in terms of like a pure concept. But you should get a feel for what I'm trying to say. And don't worry, shadow value is not on the midterm.

You said that bribes don't show up on shadow value, but what if you tell politicians: "I'll vote for you." And that's your cost. Your nonmonetary cost.

I'm not going with that one...no.

What about health costs? Like you can buy some kind of food because it's like really cheap, but it's genetically [inaudible] so you're going to get cancer? Not cancer...I don't know.

In a sense, that's not reflected in the price. Shadow cost?

Like if you can buy some kind of meat that costs less, but then if you get sick after you eat it...

Right. I think that would fall...okay so if you know that it's a risk that you're taking...do you really have good information—is one question. If you don't know, and you're getting a cheaper...oh this milk is only half the price of that milk, except that it's actually yogurt inside. So if you really know what you're getting in terms of that discount, then you're buying a different good. You're buying a decayed good. Or you're risking your life. The same reason that some people take life threatening jobs in exchange for a higher wage. We'll talk about value of a statistical life.

Let's stop the tape for a second, Fei, because we're on the margin here. And I'll set up this...we're doing okay.

So the better example (and I'm sorry I started off with the worst example) is something with environment or water or something like that. So what we want to do here in terms of shadow values is we want to say...okay look. Let's just say it this way. If there were a market for clean water, we would have a supply and demand. Just like that. But there is not. So if there's no market, then what happens is you have this P^* , this shadow value. I should get my ex-girlfriend to do this presentation because she did her dissertation on shadow values.

So we should do...you'll be willing to pay P^* for clean water. But there is no market. It's just like...there's all the water out there. It could be because there's no market mechanism, there's no way of collecting money. It could be there's a commons, there's a free rider problem, whatever it is. There's just not a market. And here's where this kind of matters. Forget this for a second. What will happen is that there's no market, but people will value clean water...this quantity of clean water at that price, and they will make an effort to get it in some way. So they can't buy it explicitly. They might move to a community that has clean water.

When I moved from Davis to Berkeley, I was very happy to drink the tap water here. I couldn't pay any different price to get that price in one place or the other; I couldn't reflect that value. But I had that value, so you might change communities reflecting the shadow value of that water. You might vote for politicians to have a clean water regulation or clean water program that will reflect this value. In a sense, let's take the political stance for a second. If the total value of that clean water to society is...let's just

say P_q , then you should be able to see votes in favor of spending money. Tax and spending right? Tax and spending money to deliver that value.

So and indirect way of delivering that value to society. It's not a market good, but this is politics. Voting, right? We're on political economy now.

You can't get a market, so you try and solve this problem of how do we supply this good—clean water—and you solve it through political means. In this particular example, right? You might have to change communities. You vote with your feet. What you're trying to do is you're trying to get that item that is very valuable to you. But there's no way of getting that price.

Some communities...the example...some communities might have a traditional culture... say that there's a festival. A feast. It's not economically rational to have a feast and invite everybody over and kill pigs and stuff like that. But everybody does it because they have that cultural value that they're willing to defend.

This is where...there's an economist...one of my professors in grad school...he says, "Never say culture. Because we don't know what it means."

But culture can be valued in terms of these shadow values. In a sense that people are willing to sacrifice time or goods or money or votes to try and get those items. They're not trading in the market. And if they were trading (I mean sometimes if they culturally...they shouldn't be trading in the market). But they're valuable to people.

But if somebody who's in the...let's say a hunter in the forest who never uses money...is that all shadow value then?

In some ways, yeah. So the hunter will be sitting there going, "Let's see...I can spend an hour picking berries or an hour chasing that bird" or whatever. But the probability of catching the bird...you know it's expected income type of thing. It's based on...the values are there. That's more valuable, or that's more valuable. Cost benefit. There's no money changing hands.

But because of that value calculation, the hunter's...this a great example...the hunter's actually making a decision which is whatever's economically rational, right? And trying to decide what to do. So this is a similar example. That's a better example. Do you hear that? The hunter example? You've got your hunter trying to get the berries or get the bird. There's no money involved, but there's a valuation that they're trying to pursue and spending his time and effort. Because we're doing this...this is environmental economics and policy. The environment is the biggest shadow value in the world.

People are trying to figure out how to do stuff about the environment, right?

And there are going to be...it's not just amenity costs of dying polar bears. I personally don't have a personal impact of losing polar bears in terms of my starvation or something like that. But maybe I like polar bears. Maybe I like the environment.

So you're saying that an externality is basically shadow costs in some sense?

An externality reflects a shadow cost. An externality could be if every time I pick up this pen, she loses a quart of blood, right? Or something like that. Or she loses \$5. That could be an externality. So every time I pick this up, she loses \$5. That's an externality because it's not affecting me. It's affecting her. It's cash. But maybe it's a different thing, which is a nonmarket or noncash thing. So it's a...there's an overlap between these two concepts.

Just looking at a practical example like, you know, the polluting and they're artificially low, and they're producing a certain amount of pollution but it's not reflected in the price. That would be a shadow value to the environment.

Right, because shadow value will be where you want to set those prices.

But when you do have the externality...you tax it to make up for the externality at the same level? Because...

The tax will be set so the shadow value goes to zero. Or the shadow cost, if you want, goes to zero. Shadow cost, shadow price, all these shadows around going on.

Let me get into this thing for right now. The label is called a Pigovian tax. So remember we've drawn these diagrams. Say we've got a Pigovian thing (activity). And this is the market supply curve and it creates pollution.

You just put a tax on things so you shift up the supply curve by the distance of the tax. It's called the Pigovian tax by this guy...Pigou. Who's English.

So that's just the name attached to it. And here's the huge thing that I was going to mention with this, and then we'll get to property rights.

The problem with the Pigouvian tax or any of these ideas like...oh I want to get to the shadow thing. It's almost like CSR. Corporate Social Responsibility. How do you actually set that tax. Well we know it's bad. So the tax should be positive. It should be this much positive or this much positive. If you set it too high, now the tax is too high. You're going to have too little pollution (if such a thing can be set). People are going to be like oh my god, how do we have too little pollution. What do you mean we have too little pollution.

It's like putting the baby seat in the airplane. It costs whatever...\$2 million dollars per life saved. But you can use that money elsewhere.

So "too little pollution" in a sense of opportunity costs of having that program. You might have a little more pollution and use that money elsewhere for a different activity. That's where you have the problem of optimization happening. So in theory you want to have the Pigouvian tax; we have a carbon tax on the atmosphere for example, on greenhouse gases.

But maybe we set that tax at the wrong spot. And then we're in trouble. That's certainly not an argument against government taxes. It's tricky to set it at the right level. Scratch that definition.

Can we...any more questions about shadow value? It's a great discussion but I want to try and finish this, so we can hand your homework's back especially.

Oh good, we're not that far off actually.

I'm just going to say this as an example because we're talking about these nonmarket nettings. Let's use this here...

I'm changing the graph here. This is where the axes matter. I've got value and I've got time. And this is the concept called optimal extinction, which is another thing that makes people throw up in their mouth a little bit, but economists talk about it all the time.

So say you have an asset, and it's growing in value like this. And you have a different asset that's growing in value like this. A or B—which asset would you invest in if you were a wise, rational, self-interested investor?

B.

B, okay. Now let's say that B is coal mining. And A is clean water. Does that change your answer?

Yes

Now the value is actually including shadow values. It's including amenity values. It's including opportunity cost. This example is in some ways the United States exploited it's natural resources to become a wealthy country. This example is going to mess with education about why many developing countries...we need to develop now, and we'll worry about the environment later.

So there's an idea that...it's probably a good idea to pollute our environment. We'll pursue plan B because we want that value.

But wouldn't the two cross eventually, and A would be above B because the more you go with B, eventually that is actually what makes A more valuable in the future, right?

Yeah, so the problem with optimal extinction is that once it's extinct there's no going back. So that has to with...I think in New Zealand...the big...I don't know if it was the Do Do in the museum, but the big...the Kiwi? The Kiwi's not dead yet...or not all dead.

But the idea was that...let's eat these big nice birds now, because they're a good source of meat. In some ways, humans have been very good at extinguishing things because they go after whatever is easiest and cheapest and nicest first. And once that's extinct, they go find something else, which is the next best thing.

If we want to be like all ecological, we'd be eating algae and jellyfish and stuff like that. All those high value lovely species would be around. But instead we're going after the nicest things. Especially things that we want to shoot and put on our wall. Rhinoceros and stuff like that.

So there's this problem with the way that we value things, and then going extinct. And we're going to get into this a lot after the midterm so I just wanted to mention it now in terms of something to mull over about. I suppose I call it the evils of economics.

Let me get to the value or neutrality of economics. Things that might be evil aren't necessarily.

Let me get into property rights for a second, because this is a really useful concept also. And Lynn Ostrom just won the Nobel Prize. We've got to help her out.

So the tragedy of the commons—the game you guys played—the fishing game—was...

The fish in the fishing game were known as a common pool good or resource. And this two by two...these are what's up there. This is excludable. I'll define these words for you. Nonexcludable. This is rival. Nonrival.

Excludable means I can exclude you from consuming it. I can put a fence around it... whatever.

Rival means that if I eat it, or if I have it, you can't have it.

So the most easy example of an excludable, rival good is like an apple. They're called private goods. If I eat the apple, you can't eat the apple. The apple is rival, okay? If I hold on to the apple, you can't have the apple. The apple is excludable.

The fish in the fishing game...the fish were rival. If I took the fish, you couldn't have the fish, or the candy. If I took the candy, you couldn't have the candy. They were rival, right?

But I couldn't exclude you. In the first initiation everybody was diving in. I couldn't exclude you from taking away my fish. Our fish. The fish. Right? They're all in the common pool.

A similar example...when you have an aquifer underground, and someone sticks a pipe down there, and someone else sticks a pipe down there, and they're both pumping the ground water. Lynn Ostrom started her work on this. These two people are trying to get at the same ground water.

It's a common pool good. How do you keep this guy from taking more than his fair share or whatever and destroying that resource. It turns out there's two ways to do it. One way is to move that good into a private good. You make it excludable. You give somebody a property right. You say look. You can only take half of the water in the aquifer. Don't worry about how you measure it. You can only take half of it. The other half belongs to somebody else. That's property right.

But what Lynn Ostrom did is she said...well maybe there's a different way of doing it besides this whole privatization idea. Maybe we could have kind of a cooperative environment and say...look, we live next to each other. How about I pump an hour, and you pump an hour. If I pump an hour, you can pump an hour. So kind of a sharing idea.

This kind of rules and norms. The kind of stuff that...they have these Balinese water temples.

And they had priests in the temples in Bali who would tell the farmers who could irrigate where and when. And they're all talking to the gods. And after thousands of years, the priests and the farmers and the gods...they all had this long interaction until after a while, the gods got pretty smart about how to allocate that water. Whether or not you believe in god, the Balinese temples did a good job at distributing a sustainable amount of water across the rice patties. So that all the farmers had food, nobody starved, and there was water for next year.

It's an extremely complicated thing to describe. That's why economists never go there because it's too hard to think about. But it's stuff that has worked over many, many years. It's a thing called culture. It's like many cultures, many nations...has anybody read the *Ongoer's Dilemma*? You know the plot of the *Ongoer's Dilemma*...the theme is...we Americans have a hard time figuring out what to eat because we don't have a native cuisine. We just go out there, and it's like fast food row. Wow, look at all that food, right? And we just eat a whole bunch of weird stuff where we don't know what it is, where it came from. And then we die of all kinds of crazy things.

You go to native cultures...and around the world you kind of see this rice and beans thing. Rice, rice and beans in Mexico, we've got corn and frijoles...I mean whatever... all these countries you've got this rice and beans phenomenon. In Napal they've got [*inaudible*] they have their own rice and beans. It's got to be a balanced diet.

It's actually quite cheap. Usually very sustainable, right? They didn't have the ongoer's dilemma because they just eat what their mother tells them to.

So why did we get off on that tangent there? Oh because it's kind of the rules and norms and culture that we've seen evolve over the time. Lynn Ostrom is all about the evolution of things over time. So you can resolve this overpool...this tragedy of the commons. This is tragedy of the commons right here.

You can resolve the tragedy of the commons by having property rights, which is a simple...it's an economic thing...or evolve cultural norms for managing that property.

Here we've got two other goods. Nonexcludable, nonrival. Public good. What's an example of that. What's an example of a public good?

The air?

Air. Usually air. Radiowaves, basically. Air can be rival unless we close the door here, and we all start dying. So nonexcludable, nonrival if I use it, you can use it, and I can't keep you from using it.

And over here we have a rarer one, but a fairly obvious one, a club good. You're in the club...you're either in the club or you're out of the club. If you're in the club, you're not excluded. Let's say it this way. You're excluded if you're not in the club. But if you're

in the club, you can use as much as you want, and it's not rival. That's why you get a golf club or a tennis club or theoretically, a health club. And theoretically is why...

Is somebody smoking pot?

I know you guys have a lot of midterms right now, I'm sorry about that. We're just trying to get through this.

So a club good is like a golf club. And I'll tell you a golf club that has like 16 members all trying to tee up at the same time is not going to be a popular golf club, right? So what they try and do is they try and constrain membership, so that there's always a free slot, so you can get...that's exclusivity. They have to let in enough people so that you have enough people to hang out with, but not so many people so you have a mob.

Club goods can move into rival territory. They can move into rival territory if there's congestion. If there's so many people in the club that there's just not enough space.

In some ways you guys are like a...this is a public good. Access to this classroom in this class...the 90 people ...that's a club. Right? You're in. But there's a 100 people. Then you're like oh my god, where am I going to sit, where am I going to sit?

Can the public good [Hold on, hold on, almost done.] also move into private good if there's less of it? Like I think if you breathe, then you use it.

So it's going to go to rival, but it's nonexcludable. Air can go into here.

Alright, good luck on the midterm on Thursday. Office hours right now.

Transcribed and checked for accuracy by Brynna Bunnag