

## EEP 100 Lecture 12 (Oct 6, 2009)

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We're back again...this is lecture 12. Blogging! If you have...you might have noticed...some of you might have had your posts put up (I recognize your face). I'm putting up little pictures of peoples' faces. Ew! Sorry people are going to see you in life.

Go complain to the university about your profile photos. For people that are like "photo not available"...I'm going to put interesting stuff. I'm looking forward to that.

So there's been some very good feedback from other readers on the blog. I encourage you guys to give feedback on each other, because most of my readers don't talk about opportunity cost and marginal cost everyday. You guys *should* know more about that.

There's 10 of them posted so far; I'm going to do two every day until I run out. So that's some cool stuff. Office hours. Normal hours today. Not on Thursday at all. I'm going to be out for a medical thing, and hopefully I will not die, and I will see you guys next Tuesday. And on next Tuesday, I'll have double time office hours probably from...I usually start at 12:30. Does anybody have any idea besides 12:30 till 2:30? Does anybody have any preference for a different hour?

No? The midterm will be next week on Thursday.

*After four?*

After four? Anybody else for after four? Hold on let's do a vote.

Let's do 1:30-2:30 versus 4:30

This is Tuesday, and Tuesday only. These are my office hours. The GSIs do their own office hours.

4:30 to 5:30? Is this the nomination for the afternoon? Okay. Afternoon? Wow. Maybe I should just cut this first hour and put it all in the afternoon?

No, okay. This one here? This extra hour here? Nobody cares. Okay, I'll do one at 12:30, and I'll have another office hour at 4:30, yeah?

Okay great. In terms of a review session, I don't have any problem with that.

Okay so your homework is due on Thursday (your homework 2). I looked up in case there was like...joy or rapture on anyone's face.

Any questions on homework 2?

*Three?*

Three? What's 3c say?

*You have to do the marginal...*

You have to do marginal stuff? Eww...is that using the labels for the areas of both graphs? Where am I looking? Oh, this one here. Oh that's awesome. That's so easy I'm not going to even help you with that. Help each other.

Okay, any other questions about other stuff that's not related to the homework?

*Are you going to give us a study guide for the midterm?*

No. What we talked about. I have thought of some very devious ways of making sure I ask you questions about everything you are supposed to have read. The Hayek, those guest lecturers.

And those of you who are asking about YouTube lectures being posted? I don't have very much control in terms of when they show up on YouTube. I have done my job, my side of things, in terms of getting them to ETS. So the video lectures are up to...I think last week is not posted. Does anybody know? Does anybody care?

The audio is always posted, as far as I'm concerned. Because I post those.

Any other stuff?

*Will we go over the readings in class or [inaudible]*

Most of the readings are on your own. If I ask you something, it should be a pretty bloody huge theme.

*I didn't mean in terms of the midterm, I mean as a general interest discussion.*

Hayek is obviously coming up (off and on) the information paper. And when we do... I don't even know if I...what did I assign?

*Coase...*

Coase, Hardin, and Gordon—we will talk about those. I will talk about those in lecture. And if the GSIs decide to do it in their discussions that will be fine. The Gordon...in fact all three of those pieces (Gordon, Coase, and Hardin) are pieces that address the issue that you guys learned about when you did the experiment with the fishery. With the candy? Remember that...wiping out the fishery example? All these three guys talk about the theory of overcoming those kinds of tragedies of the commons.

And of course *The Logic of Collective Action* (the book that you will be finishing after the midterm, as in starting after the midterm...by mid-November, by Thanksgiving), that book addresses the same topic. So we're going to have a lot of time on group dynamics and things like that and that kind of game theory.

Is that a good answer? Other question? Yeah?

*So we need to know the paper...what about the novels? Are they going to be on the test?*

Yup. In a sense of...you should've read them. And the question that I ask will be so big that if you read it, you won't have a problem. If you didn't read it you'll be like woah...what's this economics stuff?

*Is the midterm going to be more like homework, or more like lecture?*

They'll be more like...well like the lecture is chaos. No...there will be some problems that will look a lot like the homework, and there'll be some problems that don't.

But it will not be essays, because it's impossible to grade essays very quickly. I'm just...indifference to my GSIs life expectancy. I'm not going to do that.

*How many questions do you think it will be?*

I'd take...maybe an hour and 20 minutes worth of questions. Any other questions? No? Okay. You can never...you just show up, you take it, it's done, right? It's just like everything else.

Right, so I listened to Claire's talk in order to create devious questions for you, and what are the two things that she said are necessary for markets? What'd she say?

*Property rights?*

Okay, that's a good one. Somebody had a question in the audience that was like...you have to have a legal system, which is...you have to protect the property rights. But definitely property rights. And?

*Difference in value?*

Difference in value, okay great. And then what's the thing that can inhibit or destroy a market from showing up?

*Transaction costs?*

Transaction costs, right? Yeah. It's too hard. I was actually moving this weekend. If I stumble a lot it's because I haven't been sleeping very much. But the guy that was helping me move...I said, "Oh I have these three extra cardboard boxes."

"Oh, put them on Craigslist, for free."

I was like no...I'll just put them on the curb. I mean the transaction cost of me putting it on Craigslist to get a phone call from somebody who's going to come up to my place and get three empty cardboard boxes...it's unbelievable, right?

Forget my time. Oh, it's a photo of a cardboard box you can get for free. So I just put them on the curb. So that is where I didn't have a market transaction. Or even

worse...I could've tried to sell them for a dollar, and then someone's trying to find me to spend a dollar, right?

So transaction costs...in kind of a vague sense...there's a big category...like utility. You can put a whole bunch of stuff into transaction costs. But that can inhibit the formation of a market. Now she mentioned something about market failure or government failure.

Did she mention government failure or did she mention market failure?

Does anybody remember what she mentioned? If you don't remember...what is market failure. Somebody tell me what market failure is. It's very popular in the political classes to talk about market failure. What does it mean when a market fails?

You know? You don't know? The market never fails for you? What does it mean when a market fails?

*Inefficiency?*

Inefficiency, but what kind of inefficiency?

*In supply and demand.*

Okay, keep going, is it like a monopoly kind of inefficiency?

*Not necessarily...it could be that there's no demand for your market...*

Ah, that's called a business failure. I'm not going to go with that one.

*Or a missing demand...*

Not exactly. This is kind of like missing markets and stuff like that. Let me try and...

The thing to keep in mind is this difference between private and social costs. So private and social costs...what does it mean when we have a market failure. And people who had their hands up...keep your hands up if you want to.

*Externalities exist that result in people not paying the full cost of their actions?*

Perfect. Externalities exist. Now what does that mean? "Externalities exist" essentially means that if we have our aggregate demand curve here, and we have...

Let's just say we have this supply function...let's just call this the marginal cost of gasoline.

Externalities exist because we say that the consumption of gasoline produces some byproduct that is not reflected in the cost.

So the pollution...so gas equals...let's just call it "go". You get to go. But it also produces pollution. So the consumer who's buying gas will say, "Oh look the price of

gas is \$3 a gallon." And I'm going to buy as many gallons as I want "Go". So this is actually  $Q^*$ . Now there's a cost of pollution...does that mean that the supply curve should be lower or higher in terms of the additional cost of pollution from using gasoline?

*Higher*

Higher. There's this additional cost that's on top here; let's just make it like this. I mentioned last week that someone said that the cost of a barrel of oil should be \$300 if you reflect military spending and the cost of geopolitical risk. Not geopolitical risk, sorry. Military spending. Right? \$300 versus 100 and (what's the cost of oil right now?)...80? Or 70?

So a much bigger number than the current price of 180. So if we have this additional cost, that means every unit of gasoline out there that's consumed creates some pollution.

Now if there is nothing going on (there's no regulation, there's no intervention) then the quantity produced is going to be  $Q^*$ , and there's going to be this much pollution produced. And this is going to be an inefficient quantity of consumption.

Because if we did want to...if we reflect the entire cost of consumption, we would want to have a gas price that was higher. I'm just putting in \$4; this is not actually the quantitative measurement of how high it should be. But more importantly, the quantity...I'm just going to put a little E here for efficient...would be lower. So the idea is that if you consume  $Q^*$ , you're producing pollution. If we take this pollution into account by setting an efficient price, then the quantity consumed would be lower. And that would fix the so-called market failure.

That's just kind a straightforward explanation of about what market failure means. Does that make sense to you guys?

*What does the word failure refer to?*

A failure to achieve the efficient outcome. So in fact, although this might be a perfect equilibrium here, it is the inefficient equilibrium, right? And that's because it is the inefficient equilibrium. And that is because of (essentially) this social cost of consuming fuel.

Now you can have market failure in different ways. One of them is, for example, a pollution that produces a public bad, and the other one might be that...

So the public bad is an externality. And when it comes down to the externality falling on a particular individual or identify a group of individuals...the cost is being born by those individuals. So it's not necessarily a public bad.

I have to talk about property rights so that we can draw this diagram.

But say it's a private bad that occurs to one individual, then there's actually the possibility of not having a market failure, but having a, in a sense, market failure in a bilateral way in a sense that...

So say that...this is an overview concept that I'm giving you. We're going to be going over that that concept a million times.

Let me give you two examples. So one example...you've got your donut shop. And they're producing pollution. And this is a public bad.

So we want to tax their consumption of frying oil, or something like that, right?

This requires some form of governance, or some form of social intervention. Coordinated intervention by a government body. Because a public bad is accruing to every member of the public. It's to everybody.

And this scale...we're talking about this scale that is essentially a transactions cost respective to...it's too hard to find every person that's being harmed. Too expensive. So you could have a public bad in Berkeley, and there's tens of thousands of residents there that are all suffering from this donut pollution. Or it could be on scale of California. Scale of the United States. Scale worldwide. What is the biggest public bad going on right now?

*Greenhouses gasses.*

Greenhouse gasses. Thank you. So greenhouse gasses, and as a result of that... climate change. Everybody's pointing a finger at everybody else. This is a market failure, and now we're trying to solve it with a government intervention. Maybe we're experiencing a government failure, but that's what this debate is all about.

*Could you have a consumer driven market failure...like...bottled waters and carbon oxides. So that could be like...[inaudible]*

Yes, that's essentially a voluntary tax that the bottled water company is engaging in to offset the harm of buying their product. Which is kind of like the bullet manufacturer giving you an insurance policy for when you shoot your friend.

Fiji water does that. In fact, I think Fiji water is so green that they double offset their carbon footprint. Which is of course water that's coming across the Pacific Ocean.

I call that marketing. If it actually works as advertised, it might be a way of overcoming that externality. I kind of hesitate because...remember this thing is about cutting consumption down, right?

So if your demand function...if you have a...let's call it a varied inelastic demand. And you raise the price by this much. Then you're not reducing the quantity by very much. And oh, I can actually just go like this. A totally inelastic demand, right?

And a totally inelastic demand is called "I don't care about that price."

If you don't care about that price differential, then you actually don't consume any less. So that's accomplishing nothing in terms of producing consumption. It is, however, generating this block of money, which is theoretically going to do something good, which is opposed to the block of money is actually supposed to offset this amount of harm.

And if the harm is greater or less, that's not the issue. That's what they're shooting for. But I'm not a fan of what I call indulgences...the idea of...you buy your water and you pay a dollar extra so you can not feel guilty about throwing your bottle of water away. Your empty bottle or whatever. Good example. Okay so this is a...public bad from an externality. But what happens if the donut store just starts dumping oil on the neighbor's lawn?

Is that a market failure? No.

Is that an externality? Yes. Do we need a government intervention to fix this? What kind of government intervention? We've got property rights. We've got that legal system. Here's our Berkeley farmer who's upset about the donut oil that's spilled on his garden. And the government shows up and says, "We want to intervene and help you."

What kind of government intervention is going to happen? How does this get fixed? This problem? Or maybe it doesn't. Maybe you just get oil on the lawn. Anyone else? Who hasn't talked yet?

*You pay a fine.*

A fine. Where does the money go from the fine? Does it go to this guy? It goes to Sacramento and gets wasted.

*Can you sue?*

Can you sue? Who's suing?

This guy, right?

He can sue. This is what the Coase paper is about. This is the problem of social cost. Coase basically says...in the absence of transaction costs...an amazing significant caveat...people involved in pollution can make agreements (side agreements) based on property rights to mitigate the cost of an externality, all right? If you read the paper, he says it probably a lot better.

But the idea basically is...who has the property rights here? What's natural? Who's stolen the property rights? The donut polluter or the farmer pollutee? The farmer. The right not to be polluted on. Or someone not to dump crap on your road...or your land.

So the rights belong to the farmer, here comes this oil, the farmer has the right to say what (about the oil)?

So the oil guy...does he have the right not to be polluted, or does the donut guy have the right to pollute him?

Not be polluted right? It's fairly common sense, and there's lot's of different ways to structure this.

But it's fairly common sense that you have the right to not be polluted. Right? You bought your land...it did not involve an easement for donut, oil, clothes. So if this guys got the rights then he can basically say, "You shut down."

Now this guy...he's going to do what? What's he going to do? Is he going to shut down his business? No. What are his options? What can he do?

*Go open a store somewhere else?*

Right. Put it right here. What else?

*Raise prices and figure out a way to get rid of the oil...*

Right, no dumping. Change technology. That's a delta for cange. And change of technology implies there's a higher cost method, right?

Because if there was a lower cost method that did not involve pollution, they would've done it already, right? So costs will go up.

*Pay the farmer to cover the costs of the oil.*

Essentially a side payment, right? That's what Coase said.

Other hands?

*Pay somebody else to clean it up.*

Pay to pollute. That's actually the word that shows up in the newspapers all the time. Or I'm going to put cleanup as a...that's the same idea. Cleanup as in change technology. That actually is going to raise costs. Other hands? That's pretty much it.

This is the one that Coase talked about. This happens a lot. Developed so-called no-pollution havens. Pollution dumping.

This is what ends up happening if this is too expensive, right? If three costs more than two, usually, in a law-abiding society, this isn't going to happen. But two or three ends up being the kind of result.

Somebody wakes up in the morning and says, "Oh my god there's all this oil here." Or "Oh my god there's all this carbon in the atmosphere. Oh my god there's smog"

Let's fix this problem. And either you go to paying people to pollute or paying people to do that kind of activity or changing the technology.



And there's a business tradeoff between which one you decide to do. We're getting into this a lot because it's a big topic in environmental economics. But I wanted to bring it up in terms of what got tingled on in Claire's talk.

*So is it the truth that that is all [inaudible]...everything will be inefficient after they pay for the farmer's land to get cleaned up.*

Everything will be inefficient if these two go into a negotiation to sufficiently lower transaction costs. That's what Coase said.

*But then in that case, let's say he agrees on...we'll only pay 300 dollars. The costs don't have to go up. Then people are happier because now they get cheap donuts. And it's not just with donuts, it's for example with cars. So then can't you say that it's also inefficient because...*

No, it has nothing to do with inefficient. The price is the price. The price affects cost. So some of the costs before were not reflected in the price of those donuts.

*Isn't there a social cost of unhappiness of people who now can't go from place A to place B?*

Yes, but everybody can complain about that. I'm unhappy I don't have a one-dollar Mercedes. I'm very unhappy.

*So that wouldn't count then?*

No. So what we do when we do supply and demand is we say, "Hey, this is the surplus here." But we want to make sure that supply and demand are accurate ways of representing what's going on. So this is the sense that the supply curve should've been shifted up again.

Other questions?

*I have a related question after the...[inaudible]..what is the goal of the group that the government wants to impose the tax on? Do they look at the elasticity and think, okay do we want to impose a tax so the quantity goes down...and tax collected is equal to the amount of damage done...what is the goal?*

Well that's the theory. Let me just take an aside. I'm going to talk about this later, but now's the time. Let me talk about taxes versus regulations.

Okay so you've got your...let's call it a benevolent citizen group. And they're interested in ending...such and such source of pollution. So let's just take our demand curve and here's the supply curve, and here's supply efficient and here's supply market failure. Let's just call it that. So here's the theory. The theory is that they want to impose a tax that will be identical to the cost so that the market transactions are efficient. That's the goal.

So this amount here is a tax. So this is all tax revenue and the tax revenue...you could either take it as the area under the sloping curve or out of the whole box here, right?

Either way. But the revenue was meant to offset the cost of the pollution. So in the example of climate change, we will tax carbon, and we will use the tax revenue to reforest areas or do carbon sequestration or whatever.

So that's a very important thing...what happens to the money after it goes. There's an interesting controversy in US politics about taxing the cap and trade regime. And this is different cap and trade by the way. But the idea is that if there's some revenue it should be used to fund green programs to increase energy efficiency. What they call a double play, right? You tax to reduce the activity, then you subsidize the actual virtuous activity.

*So then don't you have to place a value on the virtuous activity?*

Oh, absolutely. That's determined by the tax. Calculating that is the alchemy right? It is very hard to calculate those things.

*Isn't that a flawed idea?*

It's a flawed idea...well the idea, the theory is sound. You should make it cost more. How much more? What if this is...okay let me just throw out this idea again. If this is the market supply curve and our price here...and one our geniuses calculates this number here...and that's the tax...but really it should be bigger, right? If it really should be bigger you have an inefficiently high level of pollution.

If it should be smaller, than you have an inefficiently high level of taxes. So pinpointing that exact tax is actually impossible. But that doesn't mean they're not going to try. And more importantly, I think the idea is that you want to...I mean I'm a big believer in terms of feedback loops on taxes, so if you have a targeted level of emissions or pollutions or water quality, air quality, or whatever, if the activity is still producing too much of that bad, you just raise the tax. So your tax will go up and down depending on how much bad is going on. And then you don't have to be so precise about your calculations on the first go. That's called Bayesian updating for the statistical geeks in the room.

I have no idea how to use it, but I just know it's called that. So now the alternative is that there's a regulation. The regulation looks at the same example and says, "Well, forget that tax stuff, let's just make these people use less." We'll have a limited number of permits or rights to use that item. We can call this anything. It could be called tax, it could be called carbon, it could be called housing developments, parking licenses...any of those things.

This is the worst diagram ever. I hope you're not just copying it down. Make good notes though, about this diagram. The idea is that you regulate what? Quantity. You

regulate on quantity, and over here you're regulating on price. That's actually the big difference between these two ideas.

Now there's this other type of regulation called...you're not allowed to sell leaded gas, you have to sell unleaded gas. But you have to...the idea is essentially similar.

*If you regulate the quantity, then do you still have to sell it for the old price?*

You regulate the quantity, and then you watch whatever happens to the price. Because in market equilibrium, you can set price, and quantity will be an outcome. Or you can set quantity, and price will be an outcome. But you can't set both.

This is actually extremely important because very few people, besides economists, and by that I mean you guys, understand that you can't set price and quantity at the exact same time.

I did my dissertation on the Metropolitan Water District. And they try to set price and quantity a year ahead of the market. And then they hope that this happens. They hope. They don't actually know what supply or demand look like, but they try and set price and quantity. So that's kind of...you know...it's good employment for economists; they're doing assessments for them, but they're wrong almost all the time by definition. So in regulation, you're either messing with Q or messing with P. Taxes.

*Is there a deadweight loss associated with regulation? Because taxes is actually a revenue that goes with the government. Whereas regulation just doesn't happen.*

Right, regulation is...That's a very important and correct observation. The taxes produce revenue. This box here...okay, so this tax...there's P and there's tax. This tax...does this have any impact on social welfare? That tax?

Who thinks yes? Who thinks no? Well all the "yes" people are wrong.

This has no impact on social welfare. The deadweight loss triangle...yes, that has impact. This is merely a transfer. It's a transfer of surplus from producers (it's from their surplus triangle) and consumers (their surplus triangle) to the government, which will then do something very wise with that money.

And it may not go back to these producers or consumers. It's meant to go back to those who are harmed by pollution. If it goes into the congressional junk it to Bermuda fund, then it may not all be wasted, but some of it will be wasted in terms of social outcomes.

*Sometimes isn't a tax better than regulations because [inaudible]*

In one sense taxes are better than regulations because the money is quantified. The deadweight loss is the same in both circumstances. But in this circumstance, you're just inhibiting activity. But more interesting is that taxes are more transparent.

When you see the tax, you see the tax. With regulations, you're not quite sure what's the extra cost.

That, ironically, is why cap-and-trade is much more popular with politicians, because they don't want taxes to be visible and regulations...the cost of regulations...there was an assemblyman of California who I quoted in my blog. And he said, "California" (they have a cap and trade rule in California called AB42) "yes, we know it's going to cost a hundred times more than the carbon tax, but at least people won't see any of these costs."

That was a quote from a politician. Now that's even...the benevolent side of the politician. Because if you're doing a tax, you realize that every unit is going to have a revenue associated with it.

When you do a regulation, you can write those regulations lots of different ways. Exempting ranches that are greater than a hundred thousand miles located in Montana (Ted Turner, campaign donor). So regulations have a lot more area for negotiation among politically active groups that do not include you (citizens) right? That's for special interest groups, the lobbyists. The 60 thousand DC lobbyists.

*The carbon tax is not an effect on social welfare because the value...you wouldn't get the deadweight loss...*

Oh, they absolutely do have an effect on social welfare. I was going with this triangle here. That was a trick question. This is the deadweight loss. That's true. This is nominally not a deadweight loss if it is spent efficiently to offset the actual cost. It goes into the black hole of corruption, and it's also deadweight loss in a sense. That's why some people say, "Don't even have taxes, I'll still have government." Right?

*So regulations, producers just lose the money...*

It just increases the cost. And in that sense...they will...they're producing a higher supply function and...so there's the deadweight loss, and they're having...

So their surplus was...let's do this bigger, because I do want to figure out what the producers are losing. So there's our original cost curve, there's demand function. we essentially...let's just do the tax this way...

*But for regulations, don't you...wouldn't the price...I mean for regulations why would the cost go up? Would they just say that you can only sell that much? They don't tax it, so the cost stays the same. It's just that now everybody who is in that market actually likes it because it's a monopoly. They make the same stuff but they can sell it for higher prices because there's less supply, and they're not allowed to make more.*

Right, but there's different ways of doing it. So the scenario you're talking about... you've got demand and supply, and the government just says you can't sell more than that. Okay. So now we have this supply function; it kind of goes like this. And you could have the price jump up just like you said. And they lose A, they gain B.

Consumers lose C and B in terms of their surplus. That's if you just cut it off. The problem is at that price, you've got all these guys who want to be producing for the market. So you have, somehow...not just to choke it down from Q, you have to choke down supply. Not just from Q star to Qe. You've got to choke out all these guys too in some wise and benevolent way...decide who gets to produce for that market. That's what comes into what I was mentioning about cap and trade. that's where you get the lobbyists showing up saying, "Oh, give me the production license because we print stuff on recycled paper. So we need the million dollars worth of subsidy."

Well it's not a subsidy; it's market access. So this is very much a dynamic for market regulation. What I was doing here is just kind of benevolently assuming this was going to happen. And there was no lobbying going on. So treating the regulation essentially like a cost. But this is...use this for the deadweight loss of the regulation. And the taxes are what I have left.

*So the deadweight loss is B and A right?*

This is a C...but yes...C and A.

*And what does it look like when consumer surplus decreased?*

Consumer surplus decreased. In this example? Yeah. Consumer surplus used to be C plus B plus D.

*[student comment]*

No, above the price. Consumer surplus. Is that the question you're asking?

*Oh, so producer is on the bottom.*

Producer is on the bottom.

*So why does it say producer surplus? Why doesn't it increase?*

It did increase. Because essentially the government...I mean this is a different way of doing regulations. In this case we're just cutting back on quantity. Just like a monopolist would want to. This is why a lot of industries ask for regulations. Please regulate us. Remember the please don't throw us in the briar patch?

Anybody seen that? What's that movie? Please don't throw me in the...please don't regulate me! Oh don't regulate me! And then...oh those regulations are wonderful because usually it'll keep out an entry. It'll keep out competition. Okay so the producer surplus increases by the quantity B and falls by the quantity A. And B, let's assume, is greater than A.

*So why doesn't it fall by C as well?*

This is consumer surplus, just lost by the production and quantity.

Now...the...this segues perfectly into what I want to talk about with profits. Because in the short run...short run profits. Are they greater than zero, equal to zero, or less than zero. Who thinks they're greater than zero? Equal to zero? Less than zero?

Less than zero. Yay.

In some ways they can be any of these. But the one that we talk about most often is that short run profits are positive. They can be equal to zero just because. Because we're adjusting, right? If you're a firm and you're adjusting your enterprise, and you're like, "Oh my god, we're selling below costs; we better raise our prices." That's just a fact of running a business. And they might be less than zero because you, again, miscalibrate. But in economics, we almost always assume this. Right? We assume that short run profits are greater than zero. Because of what phenomenon? Typically?

Come on business people. Why would short run profits be greater than zero? What happens in the long run?

*Well if you have your firm just starting out, and if you're very popular then a lot of people will...but...a lot of people will want to enter your market as well...*

Entry, right? For entry. So long run profits equal zero. We assume in economics they equal zero because of entry. If there is not entry, the long run profit of the post office, the 200 plus year monopoly, is greater than zero although they continue to lose money. Now how they're using...so their financial profits might be negative but their rent...their happiness...they're sitting around drinking coffee, losing your mail. Those are greater than zero, okay? Because there is no entry against the postal service in some segments. Obviously we've seen...they've lost packages, they've lost most first class mail (in terms of e-mail) and a lot of business posts, right? But for a competitive business, long-run profits are equal to zero because of entry. Because firms come into the market and will innovate to take away that profit from Apple or the...Cinnabuns or whatever. These... "Oh my god, I can't I'm eating a cube of butter." That kind of stuff.

So until somebody come in and copies their business model, then that will be positive, right? And it's important to keep in mind that there's two types...

There are a lot of things that are affecting short run profits that like being positive. Let me get to this one first, and then I'll go to the other things on the list. One reason is that there's some form of regulation, in terms of law, protecting your market share. You have got a temporary monopoly for a taxi driver in Berkeley. There's only whatever...120 Medallions in Berkeley? And you can't start...there's no startups for taxi drivers.

So you could have a form of a regulation that's protecting your short run profitability, being greater than zero.

It doesn't mean that...there could be competition among the taxi drivers, but that still will stop after awhile. And it will keep profits positive. The other one is essentially an out of equilibrium path. No one knows what's really going on, so profits are being made, technology is hard to catch up with...a local monopoly is quite important.

A local monopoly is going to be when you have one donut shop here and one donut shop here, and essentially the market...

If you're standing here and you're thinking, gee I want a donut. Maybe the transaction costs are going over here. Well, let's just say it's greater than zero, right?

If the transaction cost is greater than zero, can this guy charge you a higher price? Yeah, right? The profit is greater than zero. And likewise, over here, when people are crossing this way. This is essentially a form of a local monopoly. Now if the transaction costs fall, so that you can instantly go from donut shop to donut shop, and there's price comparison, then that monopoly profit will fall.

I'm going to the airport today, and I'm going to experience the Starbucks coffee monopoly, right? You go there, you go through security, and it's not like you're walking out to get coffee for a dollar less; you've got to deal with their prices. And I routinely know prices of Starbucks coffee cost a dollar more a cup after security, or when there is not another concession near inside there.

In fact my first and only successful business in high school was selling candy. And there was a monopoly on campus selling candy bars for 50 cents. And the Dean of Students and I...we conspired to defeat the monopoly. And I had my only candy machine that wasn't supposed to exist. Guess what my price was?

49?

49...except that we don't do pennies, right? 45 cents. And I didn't exist. It was perfect because they didn't know...they were setting prices at a higher level in order to reap in the monopoly profits. They didn't realize that they had actually set a floor below which I could go and take advantage of all the student demand. I bought a car with that candy machine. Great deal.

*Wouldn't it be easier though for the people that have two quarters and the...*

I had change though in the machine. Except it was shocking people. There was a little bit of a problem with that machine...but it was 45 cents and maybe a shock.

Okay so profits...I had...this is not exactly how I had my profits protected, but I was... there was kind of like we were a duopoly, right? It was me and this other guy. The other guy didn't even know I was there, so I was cutting his prices and taking some share of market potential. But students would still buy...I was selling Twix bars... they would still buy the 50 cent Twix bar when? When would they buy it?

*More convenient.*

Convenient, right? It was more convenient because, you know, I only had one machine. This guy had about 12 of them. Candy, candy everywhere. So, if I don't want to walk more than 20 feet to get my candy bar then they wouldn't get the nickel.

It was on the student union. Any other questions?

*You were talking about how the short run is affected when you're out of equilibrium path? What does that mean?*

Out of equilibrium path means that...in an economic sense it would that you obviously haven't gotten to equilibrium. And why haven't you gotten to equilibrium? Potentially because not all the firms have entered the market yet. Potentially because the consumers haven't found the best bargain, for example. So there's a lot of reasons you'll be out of equilibrium, and, as I mentioned a lecture or two ago, the world is out of equilibrium, right? Economists are the only people that really assume equilibrium because it makes the math easier. So that's a statement you should walk out of here with in general.

*[inaudible]*

I don't know, you should go ask him? Accounting profits versus economic profits. Have any yogurt shops gone out of business in the last year? Yes or no?

*Well they've all had to convert to Yogurtland style. There's no more...like the Pinkberry? They don't sell it by...*

*Yogurt used to be sold by cups, like a cup for \$3, now it's 30 cents an ounce.*

So it's all by weight.

*Yeah, so now it's a lot cheaper across Berkeley.*

*But not all of them do that.*

*Except for Yogurt Park.*

The city of Berkeley has a yogurt price cap? Or is it now...it's competition because it's transparent what you're paying?

*Competition.*

Ahh...okay. So that's a good example of adjusting to equilibrium. So someone switched over to...they probably had pennies per whatever...per ounce. And they said, oh look at our competitors—they cut the cost 3 bucks, and all the people were like: "Holy cow look at that!" Free yogurt coupons. Any yogurt firms entering the market? Yeah? Okay so short run profits are still greater than zero, apparently. Someone still thinks it's worth starting a shop. And there's some shop in San Francisco...the cereal? Has anyone seen the cereal shop?



*We have it here too*

Yeah, we had it, right? Who would go eat cereal at a store? You watch TV and eat cereal. I don't get that. But anyway, yogurt's still a profitable business.

Okay so the good side...if profits are still greater than zero, it could be a sign of something good or a sign of something bad. It could be a sign of something good because you're witnessing creative destruction; you're witnessing competition. And that essentially is benefitting who?

*Consumers?*

Consumers. In the long run. In the short run, it benefits who?

*Producers?*

Which producers? The ones who...no, forget toxicology. Which producers are benefitting from creative destruction in the short run?

The one's that have the awesome products, right? I mean...Apple is making a killing on the iPhone. Who's losing in the short run for creative destruction?

*All other phone companies.*

The other ones. The other competition to Apple. Remember the RAZR used to be the shit, and now who cares about that. So creative destruction benefits some groups and harmful to others. So you know who's going to oppose it and who's going to favor it.

So Motorola might oppose it by saying, "We have to put a regulation saying that you can't produce a phone if your company is named after a fruit." And then they'll send some money to their congressperson right?

But on the other hand, some firms will fail to deal with creative destruction because they'd rather just not do anything. That's being the ever hopefully ostrich sticking your head in the sand, or whatever, okay? And that's also something called...what's it called...product line cannibalism or something like that? The firm doesn't want to innovate to destroy it's own product lines. This is a known problem.

IBM had an issue with...IBM came out with the...Apple came out with a PC...but IBM came out with *the* PC, right? Around 1981. Back in the day. So the PC came out, and IBM used to sell mainframe computers. And the mainframe people did not want...or many computer people did not want personal computers because that would've done what?

*Taken away market share.*

Taken away their market share, making their life harder, right? So the people that actually created the PC created it in a secret lab in Florida. IBM's from New York. And the rest of the company didn't know about it because if they had known about

it, they would've squashed them in terms of internal politics. But for the company as a whole, the PC was an amazingly good product, right? So the executive said yes, take several million dollars and go for it and make the product. So there's opposition inside a firm to innovation. I'll get back to the opposition inside a firm in a second. Oh, I just skipped ahead of this stupid thing. Alright. I'll go back to it.

*I had a question about monopolies. If you should have a product that defeats everyone else's...how is that...because you're kind of on the way to becoming a monopoly because you're beating everyone else...how is that some firms are able to do that and other firms are not...they're not like...how is that some markets are competitive and some are...*

Give me an example.

*Well like with Apple, because they have an iPod, everyone wants to buy it. And the less other...like Zune is just a lot less popular...so it's like...I feel like Apple is on the path to becoming a monopoly, sort of? But if you have another...you have a lot of companies that can sell more or less the same good...or the same purpose then.*

So it's a question of commoditization then, is what you're getting at. The idea that a product line will become a commodity out of it after awhile. The profits will disappear. What's an example of a product that became a commodity? Okay so bottled water in a sense. Back in the 70s or whatever, the only bottled water was Callistoga and Perrier. And they had a reasonable marketshare. And it's like \$2 for a bottle of water and no one cared about drinking bottled water.

And then bottled water became a healthy thing and the doctors are like...drink 8 glasses of water a day. And a couple of companies got in the bottled water business, and they're selling Evian...a big brand of distilled water. And people are like...Oh Evian, \$2 a bottle. And the water companies are like Holy Cow. I just read like...the other day...Nestle is opening a bottling plant in Sacramento. They're going to pay about like a dollar per thousand gallons of water. They're going to put in bottles and sell it for about a dollar, or two dollars a gallon. So talk about profit margin, right? And the profits get eaten up in shipping the water around in plastic bottles and things like that.

But basically, bottled water started to get like this lucrative monopoly area. Or not monopoly, but lucrative in terms of profits. And more and more firms in and said, if we just take water out of the tap and sell it to someone and make a fat profit, why don't we do that? And they did. They started bottling water everywhere. This guy in New York, actually bottles New York tap water, and sells New York tap water in a bottle for a dollar. Even though they cost like...a penny. So commodification of bottled water that followed...people go into Walmart and say...I'll pick up a couple cases of water. They don't care about Evian or Callistoga...or any of that shit. It's a commodity now.

So the profits in that business have sunk so far that the Walmart water profit per bottle is I think one penny. And we're talking about the cost per bottle might be

whatever...it might be 2 cents. So the profits have been really squeezed out to almost nothing. And that's what happens in competition, right? In competition, there will be short run profits. There will be rents. But the good kind of rents. Rents that are returns on innovation.

What's another way of getting those rents? Monopoly rents? How else do you do that besides competition and innovation?

*Using market or political power...*

Yes, I'm going to say not market power, but political power. So let's talk about the difference between short run profit greater than zero because of market power or government power. Okay?

Market power is going to be because you make a better widget. Your widget sells for more. Government power is because your government bans all your competitors. It doesn't matter if you sell crap—you're the only business in town.

*Do you put patents under government power?*

Patents are a form of government power...that's using government power. They're often explained as a way of protecting short run profits to benefit society. There's a question about whether or not that's true. There's a lot debate among economists and legal scholars about whether patents are a good idea or not. They do protect profits though.

*[inaudible question]*

So the question is are profits...can you raise prices and get more demand, in a sense? Did anybody hear about that iPhone app called "I am Rich"? It was all fixed costs... some dude sat in his living room and made a little gem, I guess, I didn't buy it. And it was sold on the Apple store for I think...\$1000 or \$999 dollars. And the marginal cost of production was zero, right? And the entire point of having this thing (in terms of psychology) was...I have so much money I can waste it to buy a picture of a gem (I think it was). And there was demand for this product. And the Apple store (in one of their worst moves) removed it because of a customer complaining that he didn't mean to be an asshole when he hit "buy". Or an idiot...or whatever you want to call it. But that's an example...I mean if you sold the "I am Rich" thing for \$10, probably no one would buy it. But if you're obviously so wastefully wealthy that you can pay \$1000 dollars then there's demand. But that's not necessarily irrational because in my mind...I look at this stuff as it fits into the evolutionary psychology literature, which is that we have evolved to buy these so-called positional goods... these goods that put you in a higher position relative to somebody else because of it's direct connection with reproductive success. So I wonder if any girls bought that.

It's like the guys who rev their engines going by, the guys who buy the penthouse apartment (not the floor below)...those are positional goods to show how big and bad you are. Donald Trump buys billboards for his ex-girlfriend.

*Do you think art are an example for that?*

In a sense, art is an example for that. But art also has an extremely limited market almost by definition. Every piece is unique. And also art is in the eye of the beholder. If somebody buys art just to show people how much money they have to waste, then that's exactly what's going on. If they buy art because they love 16 million dollar paintings of sunflowers, then it's aesthetics, potentially.

*Would you say that every product that's sold by the same...like people who spend \$200 on a pair of designer jeans that are made at the same shop with the same people as the Walmart pants...just for status?*

Right. It's not just status, but that's also branding and membership in the community. Pepsi and Coke are just like that. "Drink Coke. You'll be cool like all of us in the Coke commercial." Or Pepsi, which is more cool...for whatever reason, right?

So people who are buying those colas...if you sold a cola in a plain can that didn't actually say coke, or you had to drink it on your own in a room, it would lose it's kind of potency. In a sense of that price differential between Coke and a Safeway Coke. Because as far as I'm concerned, they're very similar.

*So is that something where the demand goes up? Or demand curve is upward sloping?*

It...no it's not demand is sloping up. What's going on? Demand is a relationship between price and quantity. Right? What we're doing here...are we affecting...are we moving up and down a demand curve? Or shifting it in and out? What's shifting it in and out?

*Tastes and preferences.*

Tastes and preferences...so we're actually creating a preference for this bling Cola. There's actually bling water. They have little gems and stuff attached to it. right? So it's shifting the demand curve out.

*What if the firm entering is prevented by the government. For example in the healthcare...they get a lot of competitors or...who are opposed to public doctors or...*

So this question is what if the firm is entering...this is a little bit off topic but on topic, so it's good.

But it's like...if a firm entering the market is actually the government, right? And the government is already in the healthcare market through the Veteran's Administration...or Medicare and Medicaid in some way. But the complaint is that in

a public option, then that will drive out private providers of either private insurance or medical care. That complaint holds some water. It is valid.

The number one reason that it is valid is because of the possibility of cross subsidy using tax dollars to subsidize medical service. Whereas the private business can't do that. Well it's pretty well-known right now that for every private dollar in medical costs...you know the government ...whatever. Let's just say  $\frac{3}{4}$ . The costs of public health provision might be  $\frac{3}{4}$  of the private cost of health provision. Let's just do it. Just saying. That's the argument.

Or drugs in the USA...US versus drugs (legal drugs) in Canada. Oh, lets just go buy drugs in Canada and bring it back to the United States. Now they can't do that. Well that's kind of stupid; they both come from the same factory, right?

The difference in those prices is because of the system that those drugs are in. If you start bringing back these cheaper drugs in the U.S. then you break down this system. And in this circumstance of the public and the private, what's going on is that the public provision of medical care is either implicitly subsidized through property taxes or financing discounts (you know the government borrows more cheaply than a private firm), or they explicitly subsidize in a sense that these guys...the private companies...if you have a hospital, a private patient will pay \$100 for the procedure. The public patient will pay \$50 for the procedure, and the cost is 80. There is a cross subsidy between public and private. So that is the main complaint of those folks if it's legitimate. If it's illegitimate, then we'll say, "Hey, just go." But there's a legitimate economic complaint about that. Okay that was a little side note. Where was I?

So the government power can support monopoly power that is greater than zero, and if that's so, we know that there's going to be business out there that are lobbying the government for protection. And the businesses don't always need the government to protect their profits. There's such a thing as an oligopoly or a cartel, and we'll get into that more as the course progresses, but I wanted to quote Adam Smith, the uber capitalist.

I might have said this...I'm just going to read it. It says...people of the same trade seldom meet together for merriment and for diversion, but the conversation ends in a conspiracy against the public or on some conspiracy to raise prices. Adam Smith is saying...the individual hand is awesome, but don't let those guys in the same room with each other because they will conspire against you. I mentioned this last week in terms of cartels. But that's the gospel from Adam.

So that's some stuff on profits. Now I was actually on this thing...I was trying to respond to something on Claire's talk. So she was talking about market failure versus government failure. What's government failure? That's what I was trying to get to. What does government failure mean?

*Is it like you can't trust the currency because it doesn't stay the same?*

No. That is an actual economic failure, but that's not what I'm looking for.

*Would it be incorrectly pricing the externality in that case?*

Yes. In a direct price sense...the tax sense.

*Is it something like a price floor where...*

Right, a price floor and ceiling is a little more accurate in terms of regulation, okay? You can have...remember market failure is officially...it's the inefficient quantity of a good. We're at the wrong price. Either way, you get the supply and demand crossing. So if you've got this situation going on, you could have a market failure and the price should be higher. You could have a government failure anywhere you want. You could just say...this is the price here, and the government decides...we'll we're going to put a price ceiling on there.  $P$  upper bar. On that price ceiling you have this much supply and this much demand. So that's...essentially... the government has intervened on that kind of market, and intervention is producing a higher price— $P$ ... okay so this is actually a good point. So if that intervention is restricting the quantity available in the market because the government set's it at  $P_1$  upper bar. What's  $P_t$  upper bar? What is that? Why is that price there? Why is that the actual price? What does it mean? What does that price mean?

*Restricted quantity?*

It did restrict quantity. But why is  $P_t$  equal... What is  $P_2$ ?

*Is it what people are willing to pay at that price?*

Not what they're willing to pay...it's what they do pay. In order to have a balance between supply and demand you've got to be able to choke demand all the way up the demand curve, right? And you choke it. You know the price is set. What's  $P_2$  composed of? Anybody ever bought...remember...every once in a while they'd have a rush for some kind of fad toy at Christmas? Like Beanie Babies or whatever? And the Cabbage Patch dolls? And the kids are like, "If you don't give me this, I'm going to kill you."

And then the parents are like...I mean they have a movie...Arnold Schwarzenegger was trying to find some toy or something right?

What's this  $P_2$  equal to? The government has restricted quantity demanded (quantity). They've restricted quantity by setting this price cap. It is available at  $P_t$ , but what is  $P_t$  equal to? It's equal to cash plus transaction costs. What are those transaction costs? You're trying to buy a Beanie Baby, you go down to Toys R Us and what happens? Sold out. You go to Toys R Us in El Cerrito. Sold out. You get on the plane...go to China...

So what's going to happen is...you're going to spend  $P_2$  in terms of waiting around, searching around, asking around...they're all transactions costs, okay? Information problems, timing problems, and usually we just say it's time spend queuing. Standing in line. The idea is that, yeah it's only \$10 a ticket, but you have to wait in line for 4 hours.

*So is it how like the football games tickets are?*

Yes. Student rush? Free ticket! If you get in line...

*Can't government failure also be like...you thought they were regulating something, but they weren't actually regulating it?*

You, the demander, thought they were regulating it?

*I guess so...I mean..*

Example? Like...I buy gas...I think the government is fixing the problem with pollution. Like that kind of thing?

*Yeah, or like...I think it was AIG that you were talking about where you said they were like insured...*

I think that's a complication of regulation. I wouldn't necessarily call it government failure right off the bat...let's just not call it government failure. That's an important example of how a regulation can really go sideways.

*Would it be something in terms of football tickets. It's sold out and it's whatever... 400... so would P2 be the difference?*

Well, so you'll have two markets. You might have a secondary market for the tickets.

That would be a pure price market. When you're dealing with a scalper, there's no waiting in line. They're there. They want your money. It's nice and simple. But they're queuing up. Or they're buying tickets with these super computers on the 2<sup>nd</sup> day of sales. Or they know somebody that Billy Graham presents or in tickets or whatever...they buy tickets from the back door? There's a number of reasons...

But then the scalper market is a relatively efficient stub hub and all that stuff.

*I'm thinking about rent control. I'm going to say the transaction costs cost something like 3 months. But once they're in, they're...*

Yes. So once you're in...so this represents...so this is the deadweight loss...this is the producer surplus. This is the consumer surplus. And this is a transactions cost. This transactions cost represents the capitalized value or the capitalized cost of buying that thing. So for those three months of waiting, you'll get access to this price. But over the relative time period, you're paying this price. Now if you stay in the department for 20 years, then maybe you're going to make out, right? But then there's other kinds of opportunity costs. But in a sense, what we assume is that consumers are going to pay a good chunk of surplus against that profit.

And whether or not the breakeven for search costs is one month or three years or whatever...that's a good observation. Yeah? Other questions?

*Sorry, what were the boxes again?*

This is producer surplus, this is consumer surplus, and this is essentially...I'm going to call it transactions costs.

*So in that picture right here, where's the government cost? Is that  $P_b$ ?*

The government is setting the price ceiling at  $P_1$ . The total price the consumers end up paying is  $P_2$ . It's  $P_1$  plus  $P_2$ .

*And those are transaction costs?*

Right.

*So at  $P_b$ , there is no shortage?*

At  $P_t$  there is no longer shortage because the cost has been high enough to reduce that demand.

I'll say one more thing. The theory of the firm...so what we talked about last week... we talked about the donut entrepreneur, and the coffee entrepreneur. Mr. Donut and Mr. Coffee, okay? And the question was: should they merge into one firm? Now that's fine and simple and interesting, but this theory (this is not an extension, but this is another angle of looking at firms) this question about the boundaries of the firm, assumes that the firm is a monolith. It assumes that the firm acts as an individual.

Now who's worked for anybody for a wage? Okay.

Did you notice that inside of that firm, loosely construed, was everybody on the same team, with the same program, we're all there together, we're all profit maximizing...we all have one objective function? Is that true? Or were there some kinds of disputes inside the company about who's doing their job or who's working hard enough or who's the good manager, and this manager's not producing much for the firm. Does anybody notice those kinds of dynamics inside of the firm?

So that's what I kind of want to point out to you as an existing situation. So here, we blow this circle up, and we've got a bunch of individuals, and they all have...so this is a profit-maximizing firm. We assume that. But inside that, you've got a whole bunch of profit max equals a function of  $U_1$ ,  $U_2$ ,  $U_3$ , and so on for all the utility functions for people in that firm.

The profits of the firm are the result of a negotiated outcome among all of the individuals working inside that firm. All of those people have their own objective functions. Yes I want to get paid, no I don't really want to work. Yes, I want to sell that product, no I hate selling that product. Yes, I'll show up on Tuesday, but I'll never work on Wednesday. I don't like you, I like that person. And so on. All of those utility functions are interacting inside the firm. And there's this kind of mish mash. The idea essentially is that we pay you. We want you to be a good employee so you have extrinsic motivation and intrinsic motivation. And that will produce a profit. But sometimes those utility functions are in conflict. And the firm profit may



not be as high as a result of that. I want to point to that, and we'll get very heavy duty into principal agent stuff, and I'll see you on Thursday. Homework due at the start of class on Thursday. I've got office hours now.

**Transcribed and checked for accuracy by Brynna Bunnag**