**W12 V4 Coase Theorem**

0:10  
OK, establishing property rights over noise.

0:15  
You've got to figure out what's not being valued correctly from a society perspective and then say if what's not being valued correctly is noise or music, establish a property right over noise.

0:28  
Here's an example of different property rights over the same noise.

0:32  
If we say your roommate has property rights, then they have the right to play music at 6:00 AM, however loud they want and for however long they want.

0:43  
If you want them to be quiet, they have the property rights, They are allowed to play music.

0:49  
You can get them to play to produce less music, but you've got to pay them.

0:54  
They have the property rights, so you have to pay them.

0:58  
If you have the property rights, you have the the right to silence at 6:00 AM, right?

1:02  
There's a noise ordinance.

1:04  
Whatever it is, there's something that says there's a rule book that you can go to clearly defined.

1:08  
Everybody sees it and it is enforceable because you call the city and the city comes there and it's taken care of at 6:00 AM, OK.

1:15  
If you have the property rights, then you have the right to quiet, no noise.

1:19  
And if the roommate wants to practice, a deal can be reached.

1:22  
But payments are involved.

1:24  
Establishing property rights creates a market.

1:27  
It creates a market for noise, and it creates a payment, a pricing mechanism that's going to help us reach the efficient outcome.

1:35  
OK, Why does it increase efficiency?

1:38  
That's kind of a weird thing.

1:39  
You could say, oh, market always increase efficiency, but what is exactly the mechanism here?

1:43  
Let's talk about that in here.

1:45  
OK.

1:46  
So let's start off with two different property rights.

1:49  
Let's start off with you have the property rights, OK?

1:51  
If you have the property rights, that means you have the right to silence.

1:56  
And if your roommate wants to play every minute of practice, they've got to pay you, OK?

2:01  
You've got to find a price, right?

2:03  
Pricing mechanism is how this stuff works in economics.

2:06  
So you got to figure out what's the maximum price you can expect.

2:11  
What is the maximum price the roommate is willing to pay?

2:14  
Again, concept, Willingness to pay.

2:16  
What is the roommate's marginal willingness to pay for an extra unit of practice?

2:22  
Well, ideally this would just be their marginal benefit from practice, right?

2:28  
They really want to practice because practice is giving them some benefit, right?

2:31  
Or whatever their reason those benefits are to them.

2:33  
That's their marginal willingness to pay.

2:35  
That's a maximum.

2:35  
You can't go anything further.

2:36  
No trade.

2:37  
What is the lowest price you are willing to accept?

2:40  
The lowest price hopefully you're willing to accept is the cost imposed on you, right?

2:45  
And the cost imposed on you is the marginal external cost of practice of noise, right?

2:53  
Music.

2:54  
Whatever you want to call it.

2:56  
Social benefits, social cost, private benefit, private cost.

3:00  
Does the trade happen?

3:01  
The trade will happen if they are willing to pay you something that's at least as high as your cost at the margin, your private cost at the margin of you know, the the noise, extra minute of noise.

3:18  
So if that's true, trade will happen.

3:22  
Does it mean it's efficient?

3:23  
It's efficient.

3:24  
If the marginal social benefit of practice of noise is at least as high as the marginal social cost of noise, what is the marginal social benefit?

3:34  
Well, here, the only person benefiting from practice is your roommate.

3:37  
That's their marginal willingness to pay.

3:39  
Private and social are the same.

3:41  
OK, social cost here is the cost imposed on you, right?

3:46  
Marginal External cost.

3:48  
From practice, this is also your private cost.

3:53  
The least amount.

3:54  
Here's not cost of producing noise, It's the willingness to accept.

3:59  
It's the lowest price you're willing to accept.

4:01  
Nothing below this trade will happen.

4:04  
It will.

4:06  
If we have a price that allows this trade to happen, we will reach the efficient number of trades.

4:11  
All trades for which the benefit of society is at least as high as the cost of society will happen.

4:16  
Anything more than that not happening in there, If the cost of noise to you, which is also the social cost, much higher than the benefit of practicing that trade, will not happen, you cannot find a price.

4:28  
Establishing property rights will happen.

4:30  
You're very happy with this, right?

4:32  
Because you get paid.

4:33  
Not only do you have to suffer less noise, you're also getting payment for that noise, right?

4:38  
So you're very happy we're reaching efficient and the problem due to externality is solved.

4:47  
What about the other one?

4:49  
OK, who should get the property rights?

4:54  
That's the last part about the course theorem, which is kind of interesting in here.

4:57  
I just gave you an whole example where it was like you had the property rights, you were happy, and also magically we got the efficient outcome.

5:04  
What happens if there's no noise ordinance and there's no one knocking on the door to make sure that your roommate doesn't practice at 6:00 AM?

5:10  
What if your roommates get the property rights?

5:13  
In that case, if you want them to be quiet at 6:00 AM, you have to pay the roommate for every unit of practice reduced.

5:22  
OK, now if they're going to reduce pollution, now pollution.

5:27  
Noise, right, Noise pollution in here.

5:29  
Notice again that flexibility between pollution reduction, noise reduction, just taking the same concepts but reframing them, that flexibility in your head becomes really useful in here.

5:41  
If your roommate is going to say I want to reduce practice, I need, you're going to pay me.

5:47  
And so I'm fine.

5:48  
I'm willing to not practice anymore.

5:50  
You got to pay me at least my marginal benefit of practice.

5:58  
Otherwise I will practice, I will play my music because I'm going to get some benefit from it If you don't give me at least as much as that, not going to give you that.

6:06  
So that's the minimum price they're willing to accept.

6:14  
OK, what's the maximum price you're willing to pay for this?

6:17  
You're saying, look, this is the cost imposed on me with this noise, with this pollution, with this practice, OK, that's the maximum price I am willing to accept.

6:33  
Trade will happen as long as that is true.

6:37  
Does this mean this is efficient here?

6:38  
I want you to go back to that example we did with pollution reduction.

6:42  
When we did pollution reduction, what did we say in there?

6:45  
We said there's some cost of reducing noise.

6:52  
There's some cost of giving up practice.

6:54  
If you force the roommate to give up practice, they're not choosing the most valuable units to give up.

7:00  
They're going to find the least as extra practices minutes.

7:03  
They're not going to add too much low marginal benefit, right?

7:06  
So this is the marginal benefit of practice good.

7:09  
What is your cost that you're willing to give up?

7:21  
It is going to be the benefit to you of reduced pollution.

7:27  
This is your benefit from reduced pollution.

7:29  
This is effectively going to be the marginal benefit, marginal cost thing that we've done before but just relabeled because you're phrasing it as reduced minutes.

7:38  
Practice that case.

7:40  
You're gonna come up with a compromise.

7:42  
You're gonna be the roommate is gonna be say, OK, I will practice these many fewer units.

7:46  
I'll cut my practice short by, let's say 30 minutes, but not anymore.

7:51  
And you're gonna pay me for those 30 minutes that I'm no longer practicing.

7:57  
You're gonna come up with the price.

7:58  
And guess what?

8:00  
If you choose the price in the right way, you're gonna come up with the efficient outcome.

8:06  
You will reduce all of the units for which the marginal benefit to Society of reduced pollution, the marginal social benefit of reduced pollution, or noise pollution in this case, which is the marginal external cost imposed on you.

8:29  
Noise is equal to the marginal social cost of pollution reduction, which is the benefit to your roommate of practice minutes that they must give up.

8:44  
That's the cost to your roommate.

8:47  
Social benefits social cost at the margin equal.

8:50  
We have now reached the efficient outcome.

8:52  
So under both scenarios you have reached the efficient outcome.

8:56  
So from an efficiency perspective, economists will step away and say fantastic, it doesn't matter who gets the property rights.

9:02  
We have reached the efficient amount of practice minutes.

9:07  
Both things have changed.

9:08  
Incentives.

9:08  
They internalized the externalities.

9:10  
But if you have to pay your roommate, you're not gonna be happy about it.

9:14  
Your roommate's gonna be happy.

9:15  
You're not gonna be happy.

9:17  
Right.

9:18  
And that's the central insight about all that property rights does, in a certain sense.

9:24  
OK, let's revisit the course theorem.

9:27  
If we establish clear property rights, OK, we figured out what the problem is.

9:34  
The problem is noise.

9:35  
So let's establish clear, enforceable property rights over noise.

9:39  
Then we allow people to bargain.

9:43  
They're going to reach the efficient outcome.

9:45  
It doesn't matter who gets the property rights.

9:47  
The only thing that matters is who's happy about it, who's surplus is going to be affected.

9:56  
Efficiency is not changed, but it affects the allocation of surplus.

10:00  
This goes back to an insight we've already seen right Fix the quantity.

10:04  
Prices determine allocation of surplus.

10:07  
That's showing up again in terms of the course theorem.

10:09  
Establish property rights, create a market for noise, let people trade, OK.

10:15  
And you're going to get the same outcome.

10:17  
Prices will just determine allocation of surplus.

10:20  
That's kind of a really nice way to think about problem causing externalities, right?

10:25  
Simple Act.

10:26  
All the government has to do is set up a noise ordinance.

10:29  
Then the government goes ahead and allows people to bargain.

10:33  
So they're still going to get some noise, the roommate is still going to practice, but they're going to practice the efficient amount.

10:40  
They're going to use the payments to internalize the externalities and nothing else is needed will reach the efficient outcome.

10:47  
OK, now you're not going to be happy about it because the payment and the establishing who gets the property rights is going to affect allocation of surplus.

10:56  
But also course theorem works in very few cases.

11:00  
It works when you've got just a few individuals, your roommate, maximum 3 roommates, 4 roommates, right?

11:07  
As you start to think about more and more people, if you think about climate change, it's the whole world being impacted by one firm's decision to produce pollution into the air.

11:15  
That's course theorem is going to be really hard to do.

11:17  
OK?

11:18  
It requires low bargaining costs.

11:20  
If me and my roommate we meet every day in the house, we can figure out quickly and we can bargain at low cost.

11:24  
If you think about countries that have to sit together to think about bargaining, it's very, very costly, right?

11:31  
And each one has to have a big incentive to want to negotiate, right?

11:35  
I really want to practice.

11:36  
You really hate the noise?

11:39  
Then we have a huge incentive to come to the table and negotiate.

11:41  
And if your pollution is going to affect everybody in the world, but by a teeny tiny bit, because you're just one form in the larger atmosphere, not everyone's going to want to show up at the bargaining table, right?

11:53  
So the course theorem is 1 tool, but it requires a whole bunch of assumptions in order for us to solve the problem due to externalities.