**W5 V2 Efficiency**

0:09  
So if we want to use surplus to be able to compare allocations and talk about which one is better or not, we first need to define what better or not means.

0:18  
And then we need to be flexible about thinking how about how surplus changes in different types of transactions.

0:26  
We have our traditional transactions which happen in a market and we have a clearly defined consumer and producer where other types of transactions happen all the time.

0:34  
If you think about buying and selling between friends, if you think about transactions that happen online, you want to sell something you posted on Kijiji.

0:42  
Our job as economist is to be able to measure transactions from any particular trade that happens.

0:48  
So let's think about a situation where we have two people meeting, One has a good, the other one's the good, and they decide to trade.

0:55  
In our first example, they're gonna trade voluntarily.

0:58  
So let's just keep that at the back of our head.

1:00  
So how do we move this back into our previous framework where we've got consumers and producers?

1:04  
Well, the consumer here would be the buyer.

1:08  
Whoever's buying the good, whoever's getting the good, whoever's getting the the recipient of the transaction and the producer here would be the seller.

1:16  
Now, what we needed in the previous video when we talked about consumer surplus is the difference between what you're willing to pay and what you actually have to pay.

1:24  
So one thing we would need from the person who's buying this is their willingness to pay for this good.

1:31  
Now, if it's multiple goods, I need the marginal willingness to pay for each unit.

1:35  
If it's one good, Sometimes we just say willingness to pay because it's just one, zero or one.

1:42  
But for the producer now this becomes complicated, right?

1:44  
Because we're so used to thinking about producers producing goods, of the cost of inputs of resources used.

1:49  
What does it mean to say I have AT shirt that I'm selling in the second hand market to somebody else?

1:54  
I'm not really producing it.

1:55  
So what's my cost of production?

1:57  
Sometimes students will confuse, you know, my marginal cost as what I paid for the T-shirt or sweater or whatever you're thinking about selling.

2:07  
That's not the case here, OK, price is paid.

2:10  
It's gone.

2:11  
Now when I'm thinking about selling it to somebody else, what I'm thinking about from the sellers perspective it what is there marginal if there's more than one unit willingness to sell?

2:25  
OK, so let me write that down.

2:27  
It's sometimes phrased as the marginal willingness to sell, right?

2:33  
Or the marginal willingness to accept.

2:39  
OK, I have this order.

2:41  
I really like this order.

2:42  
It has a bunch of memories for me.

2:44  
I may have paid $5 for it, but I really value it and I'm not willing to accept anything less than $50.00 for it, right?

2:50  
That is what's the important thing for us in here.

2:54  
OK.

2:54  
You can also sometimes phrase it as well.

2:57  
Fine, We'll do that in a different example.

2:58  
So we'll hold up on this, right.

2:59  
So the thing here is price paid is not relevant because that's gone, that's finished, right.

3:08  
That happened with a different transaction.

3:09  
But this transaction we're looking at was the minimum you're willing to except for it was the minimum you're willing to get in order to sell it, your minimum willingness to sell.

3:19  
Now if they trade voluntarily, then we have to find a deal because otherwise the trade is not going to happen.

3:26  
So when will trade happen voluntarily?

3:28  
Trade will happen voluntarily only if this is true, right?

3:37  
There's some gap between what the sellers willing minimum the seller price is willing to accept and the maximum that the buyer is willing to pay.

3:43  
If there's a gap, then great, fantastic.

3:46  
There is potential for trade, may or may not happen, but there's potential for a trade.

3:50  
OK, and that's important if it's voluntary.

3:52  
If it's not voluntary, then you know this may not be true.

3:54  
But if it's gonna happen, that has to be true.

3:57  
Now what's the price?

3:58  
In a perfectly competitive market, we have this flashing red sign that tells us what the price is.

4:02  
On Kijiji, there is no flashing red sign, right?

4:04  
You have to negotiate.

4:05  
You have to come up with the price.

4:07  
We don't know where it is, but we can ask people.

4:09  
But what we do know is a prediction, or we can make a prediction is that it lies somewhere between the marginal willingness to pay off the consumer and the minimum the seller is willing to accept.

4:24  
And that kind of makes sense, right?

4:25  
So I don't know exactly, but you tell me what it is and whatever this price is, I will accept it.

4:31  
And then we can figure out consumer surplus, producer surplus, the difference between those two things in here.

4:38  
Without this price, I cannot tell you consumer surplus and producer surplus again, price will determine allocation of surplus.

4:46  
So for example, suppose your willingness to pay was $15, your willingness to accept was $5.

4:56  
There's a whole bunch of gap in between here where trades can happen.

5:01  
If I have a price of $10, OK, then I'm going to get consumer surplus here of $5, consumers producer surplus here of $5.

5:14  
It doesn't have to be $10, right?

5:15  
I could have equivalently had a price of $14.00.

5:21  
Same transaction will happen.

5:22  
But now I'm gonna get consumer surplus of justice $1.00 and the producer surplus is gonna be much, much higher, right?

5:32  
So are these exactly the same transaction?

5:36  
Yes, same transaction, same total surplus, right?

5:39  
The total surplus here would be this difference from that one transaction, but the consumer surplus and the producer surplus.

5:50  
The allocation of surpluses between consumers and producers depends on the price that happens.

5:55  
Some transact some transactions with a high price, for example in 14 that would make consumers worse off, producers better off for price of 10.

6:05  
They're kind of getting the same amount of surplus.

6:08  
Depends on who's the better negotiator in this example.

6:10  
But notice again, if I didn't have price, I could still calculate total surplus under the assumption that nobody else is benefiting or being affected by this transaction.

6:22  
OK, good.

6:23  
Here's another type of trade.

6:25  
The difference is I'm now taking a good right, I'm forcing you to make this transaction.

6:32  
You're like, oh, this has never happened.

6:33  
So why should we do it?

6:34  
Well, we do it as a thought exercise because sometimes when we're doing policy, we want to take stuff away and give it to someone else and see what happens in the economy, right.

6:43  
Sometimes governments need to do it.

6:44  
So we need to be able to be flexible enough to think about that.

6:48  
So suppose A has the good and BA is getting the good.

6:51  
Well, in this case, B is getting the good.

6:53  
So B is the consumer, the buyer, and then A is the producer or the person giving it up.

7:00  
OK, price when it's not voluntarily, we don't even need to worry about the price in here because you know, we're forcing you.

7:06  
We don't have to worry about a transaction.

7:08  
And that's important in here because when this happens, your willingness to pay for this need not be higher than what this person's willingness to accept is, right.

7:22  
I could be a really value, this is good, but we're forcing him to give it up and give it to to be OK.

7:29  
Total surplus would still be the same because I don't need a price to.

7:37  
So here this is marginal willingness to accept just being flexible with a different use of terms, right Not needed price is not needed.

7:50  
So I cannot tell you consumer surplus, producer surplus, I cannot tell you anything.

7:54  
But I can tell you the total surplus.

7:56  
And look, it could be negative, right?

8:02  
The change in surplus could decrease with this forced reallocation.

8:12  
It's not necessary that it's going to increase.

8:14  
So there's something to kind of keep in mind when we do this now, how do we take this to a larger context?

8:20  
So the first lesson we want to take away from here is that we can calculate total surplus from a trade or surplus from a unit without price.

8:28  
That's really important for you to remember.

8:31  
The other thing that we really important insight is that prices only serve to allocate surplus.

8:36  
You can change price, but as long as the transaction happens, the only thing prices will do is determine how much consumers get and how much producers get from that total surplus.

8:47  
So we have effectively tied these 3 broad questions as economists.

8:53  
One is, once the good is produced, who should get it?

8:57  
So I've got this good here.

8:58  
Who should I give it to?

9:00  
The other thing is, if this good has to be produced, who should produce it?

9:05  
OK.

9:05  
And then the last one is, should this good be produced at all?

9:09  
Right.

9:09  
So we first pretend as if the good is produced, right?

9:11  
And then we figure out allocation.

9:12  
And then we take a step back and say, OK, who should get this good?

9:15  
So we'll follow the thought process using the similar example.

9:18  
All of these are ultimately getting to this idea of what do economists mean by good?

9:23  
OK, so let's think about goods that are already produced.

9:27  
So this ticket for a concert ticket is already there.

9:30  
It's already there, and it's just one unit.

9:33  
So to make our thinking easier, mono has got this ticket right.

9:37  
She paid $50.00 for it.

9:39  
She values this concept, this concert, at $70.00.

9:43  
So you can think about this as her marginal willingness to accept, to sell, to pay, whatever it is.

9:53  
It needs to be some notion of opportunity cost.

9:57  
OK, now I'm using marginal willingness to pay here because I've got two people.

10:04  
I'm not thinking about trades.

10:06  
I'm thinking about moving the ticket from one person to the other because I'm asking the question who should get the ticket.

10:13  
OK, so two people.

10:16  
Mana was willing to pay 70, she only had to pay 50.

10:19  
She gets $20.00 of surplus from that transaction.

10:22  
But that transaction has happened.

10:23  
It's gone.

10:26  
Doesn't matter anymore.

10:28  
OK, now she values this ticket at $70.00.

10:32  
I do not have a ticket and I value this at 1:50.

10:36  
So this is my marginal willingness to pay.

10:44  
OK, who should get the good?

10:46  
Mano has the good.

10:47  
Should she keep the ticket?

10:49  
Or should we force a reallocation to me?

10:52  
Or should we allow mano and me to make a trade?

10:55  
All of those.

10:55  
How we are located comes secondary when we figure out who should get the ticket.

10:59  
So if I'm looking from a social perspective, from a society perspective, right, my willingness to pay is 150.

11:09  
Her willingness to pay for this ticket that she bought only at $50 was 70.

11:16  
So she has the ticket.

11:18  
If we move the ticket from her to me, we get extra surplus.

11:29  
That same extra ticket increases surplus.

11:44  
Alright, so ticket is the same.

11:47  
Good is the same.

11:48  
Just by reallocating it to a different person with a higher willingness to pay increases surplus, right.

11:55  
So sometimes we'll try and change allocations by just reallocating people around them.

11:59  
We do the same thing for producers.

12:01  
OK, one hour of tutoring is the producer.

12:05  
I'm choosing something that has an opportunity cost to remind you that it's not just the cost of producing goods, it's also always the opportunity cost.

12:12  
And right now you have a student there who's willing to pay $80.00 an hour, right?

12:17  
And you have two tutors who are willing to work.

12:20  
Both of them have a lower opportunity cost than what the student is willing to pay.

12:25  
So both of them want to produce the good, right?

12:28  
It's not that one of them is saying I don't want to produce as good, as the price is not enough of an incentive.

12:33  
Both of these want to produce the good.

12:35  
But if I have only one hour of tutoring that must be produced.

12:39  
Who should produce it?

12:41  
Who should be the tutor?

12:42  
Well, we've got a marginal willingness to sell.

12:47  
We've got an opportunity cost.

12:49  
How A marginal willingness to accept?

12:51  
However, you want to phrase it right.

12:55  
One person is $30.00, the other person $50.

13:08  
If I move the hour of tutoring from Gasha to Jenina lowered the cost of producing that unit of good from a marginal perspective, right?

13:18  
So lowering costs increase surplus, right?

13:22  
So having Gaucher tutor instead of Janina increases surplus, right?

13:42  
We call these reallocations, right?

13:45  
Moving goods from someone with a lower marginal willingness to pay to a higher marginal willingness to pay increases surplus.

13:52  
Moving production from a high marginal cost producer to a low marginal cost producer increases surplus.

13:59  
Now it's only possible if all of these people want these things right and they don't have it right.

14:05  
So an example with production, both of them were willing to do it, but there's only one hour needed and so then we got to find the lowest cost producer.

14:13  
Both of them want the ticket.

14:14  
There's only 1 ticket and then the highest willingness to pay person should get it right.

14:20  
They may or may not like this right, depending on how this reallocation is done.

14:24  
If we allow them to trade, then they can come to some deal.

14:27  
They'll find a deal that makes them better off if we force it and they may not like it, right.

14:31  
But on the other hand, from a perspective of an economist stepping back that those trades increase surplus.

14:40  
So we've talked about these first two questions.

14:41  
Now let's attempt the larger bigger question.

14:44  
Should that extra unit be produced or not For that, well, let's talk about a difference between will it be produced and should it be produced.

14:54  
So if we've got a buyer right B Ben buyer and we've got a seller right S seller sue, the transaction will happen.

15:03  
As long as there's a gap between what the buyer is willing to pay and what it costs the seller to produce, they'll find a price for that transaction to happen, right?

15:11  
So the transaction will take place if this condition holds.

15:14  
The question for us as economists is should this transaction happen And the way we do that is we say transactions happen based on private costs and benefits.

15:26  
Should the quest that should question is answered from a social perspective so that society wide that transaction increases surplus and therefore should happen if the social benefit is higher than the social cost.

15:42  
So what's the relationship between private costs and social costs?

15:46  
Are they the same?

15:47  
If they're the same, our life is very simple.

15:49  
If it's not, then we have to worry about it.

15:52  
OK?

15:53  
They are the same if we have the strong assumption of no externalities, no externalities, no external right.

16:02  
So the keyword here is external part.

16:04  
Nobody external to the transaction is being affected.

16:08  
The buyer is the only one who gets all of the benefits.

16:10  
The seller is the only one who pays all of the costs.

16:14  
In that case, social benefits will be the same as private benefits for both buyers as well as sellers.

16:22  
In that case, our life is super easy.

16:26  
This is not the case for a lot of interesting cases.

16:28  
So for example, pollution, right?

16:30  
People produce gas, causes pollution.

16:32  
People consume gas, causes pollution when they drive their cars.

16:35  
There are other people being affected by pollution, right?

16:37  
And sometimes on a global scale when you think about global warming.

16:40  
So it's not to say that this, this, this, this assumption makes our lives easy, but it's not the case for a lot of very interesting questions.

16:49  
You need to keep that assumption at the back of your head and not just forget it because it's convenient and a lot of the examples.

16:56  
OK, for now, because we're still starting out and you're still learning economics, we're still going to be working in a perfectly competitive world.

17:04  
And hidden in one of those assumptions, if you go back to module one, was this assumption of no externalities.

17:10  
We will relax it when we are in module 12.

17:15  
But for now, we're still working within the perfectly competitive world, and we will make this assumption that allows us to interchangeably use social benefits and costs and private benefits and costs, OK, now we have enough of machinery to now talk about from a social perspective, what economists mean as good.

17:35  
We're going to use efficiency as a measure of what's considered good.

17:40  
And I really want to stress here that this is just one measure of what is considered good.

17:46  
It's what the measure that works with our tools, which is why we use it and not necessarily be a measure that you agree with, right.

17:54  
And specifically, it's not a measure that is fair, right.

17:57  
So that's usually the biggest problem that people have with our measure of good is that it's not fair.

18:02  
And to a lot of people that is important.

18:05  
So we'll discuss that in in a separate video.

18:08  
OK.

18:09  
So two ways of framing or explaining or using our term efficient allocation.

18:15  
If I'm looking at an allocation and it maximizes social surplus, fantastic that allocation is efficient, right?

18:22  
So all the trades that should have happened are happening.

18:25  
There's no more gains from trade left on the table.

18:27  
All of the goods for which the social benefit is bigger than the social cost happen.

18:32  
Another way of thinking about an allocation is good or not is taking those same goods that are produced and moving them around, reallocating it to people and asking the question, can we make at least one person better off without making anyone worse off?

18:45  
We can.

18:46  
That allocation is not efficient.

18:49  
When we reach a point where there's no way to make at least one person better off without hurting somebody, then we stop there and we say this allocation is efficient.

18:58  
OK, get comfortable using both because sometimes it's easier to use one and the other case it's easier to use the other.

19:03  
The second one is especially true when we're talking about reallocation questions, which we will be doing.

19:09  
So are markets efficient?

19:11  
If you ask people outside of economics, right, what's the one thing you hate about economists?

19:16  
They'll tell you that economists believe markets are efficient.

19:18  
If you ask an economist, do you believe markets are efficient?

19:21  
We'll say depends, right?

19:23  
It depends on the market.

19:24  
It depends on the assumptions that we're looking at.

19:27  
If we look at this perfect world, which makes ridiculous assumptions, go back to module one.

19:32  
Ridiculous assumptions, right?

19:34  
Yes, markets are efficient, right?

19:37  
But the second you start relaxing those efficient assumptions, not so much, right.

19:41  
So understand what it works like in a perfect world, so that when we get more realistic, you can kind of understand the sources of inefficiency and why they happen.

19:51  
But given that we are working in a perfect world right now, let's talk about whether markets are efficient or not.

19:56  
First one, what is the efficient quantity.

20:00  
This is the thought process we followed in a structured way.

20:03  
Identify efficient.

20:04  
Identify market, compare efficient.

20:07  
Requires social benefit, social cost.

20:11  
The simplest way to do it is to line people up from highest to lowest benefit, lowest to highest cost.

20:16  
Because remember, we always want the lowest cost producer and we always want the highest benefit person to get the good.

20:21  
Line them up this way.

20:23  
Then graphically it's really easy for us to be able to say trades here should happen and this is efficient surplus.

20:34  
OK.

20:35  
Then we compare it to market surplus.

20:39  
Markets have private costs, markets have private benefits.

20:43  
Markets will trade until we reach this quantity, OK.

20:48  
And markets will result in this market surplus for consumers and producers.

20:56  
OK.

20:56  
But I don't want to hold off on that here because it may be different depending on whether we've got externalities or not.

21:04  
So the way I'm going to write it here to prompt the thinking for you is I'm gonna say markets will result in this quantity and then you have to calculate total surplus at the market quantity.

21:28  
I'm writing it here instead of adding consumer surplus, producer surplus, as a reminder for you that sometimes we have people that are not just consumers and producers, OK, If we have no externalities, those two curves exactly overlap and then markets will produce the efficient surplus and total surplus is maximized and everything is good, right.

21:49  
So we need this really strong assumption which doesn't hold in a lot of interesting cases and only under those perfectly competitive things with no externalities being the important one here.

22:01  
Markets will be efficient.

22:04  
Here I want to take a small sidestep.

22:06  
Typically the students, we don't say it, but students will follow this up with saying, oh, if it's efficient, it must mean consumers are the happiest and producers are the happiest, which I'll say hold on a little bit, OK.

22:18  
Maximizing total surplus is not saying you're maximizing consumer surplus and producer surplus.

22:24  
Think about yourself.

22:26  
You've got to pay $10.00 for a good, right?

22:29  
And that's the market price.

22:30  
Will you be happier if you had to pay $9 instead?

22:33  
Sure, right.

22:34  
Would you be happier if you paid 87?

22:36  
What about 0?

22:37  
Right.

22:38  
The lower the price goes, the higher the consumer surplus.

22:42  
So consumer surplus requires price.

22:44  
When we're looking at efficient surplus, total surplus, we're not including price.

22:50  
So maximizing total surplus does not mean you're maximizing consumer surplus and producer surplus.

22:56  
Please don't make that leap, which I find a lot of students do.

23:01  
So here's what we've done.

23:03  
OK, we can increase efficiency by producing the extra good as long as social benefit is at least as high as social cost.

23:12  
OK.

23:12  
We can increase efficiency by reallocating goods from low cost of high high cost producers to low cost producers and low benefit consumers to high benefit consumers.

23:24  
Under those crazy competitive market assumptions, markets are efficient.

23:29  
You take away any of that, markets are no longer efficient.

23:32  
OK.

23:33  
And the biggest lesson that I really wanted to take away is price does not determine surplus only.

23:39  
It determines prices only determine the allocation of surplus between consumers and producers.