**W3 V5 Changes in Supply**

0:10  
In this video, we're going to do the same thing for supply as we did for demand in that we're going to differentiate between movements of the curve, movements along the curve, and think more carefully about understanding the economic intuition behind shifts in the supply curve.

0:24  
OK, so supply again, individual firms reacting to prices, choosing their quantity based on how many units pass the price versus marginal cost threshold in a supply curve.

0:35  
All else is held fixed.

0:37  
Now we're gonna start thinking about what happens when the all else health fixed part changes.

0:42  
So what are the all else health fixed part mean here?

0:45  
They're going to be things like the price of related goods.

0:48  
The only difference is that they're going to be the related goods that we use in production and that's what's going to be important here.

0:56  
So subsidies and complements, same kind of intuition, but here it's going to be in production, in production.

1:02  
So I'm going to talk about that a little bit.

1:04  
Technology, right price of inputs that kind of makes sense automatically from a marginal cost perspective.

1:10  
If what you need to pay the resources that you need to use for your inputs increases, you've got to pay more and that's going to change your marginal cost.

1:17  
So if we're thinking already about supplies marginal cost, we're golden in that thinking about how supply changes.

1:23  
OK.

1:24  
Same thing in here, expectations of future prices of my inputs.

1:28  
If I can buy in bulk today and store it, then maybe I will do that and that could change my supply, how many units I bring to the market or not depending on what's going to happen with the price of my inputs.

1:39  
It could also happen with the price of my output.

1:41  
If I expect that the goods that I'm producing today are going to be more expensive in the market of the price will be higher in the future, then that could affect if I can store those goods, how many units I bring to the market today.

1:55  
OK.

1:56  
So again think about the economic intuition, please don't memorize in here.

1:59  
We'll focus on the the 1st 2:00 because they're slightly trickier in here.

2:04  
And the same thing with demand market in terms of the number of sellers does affect the shape of the supply curve and the shift in the supply curve.

2:12  
But since we haven't really moved from individuals to market, we'll hold off on that until we have that in the market.

2:17  
Video.

2:18  
OK.

2:19  
So let's first start thinking about changes in technology.

2:22  
So what are technology?

2:23  
Technology is basically the way you take your inputs, you put them together using technology and you produce an output.

2:28  
So if you have a technology improvement that does a particular thing, right, technology improvement does not automatically mean that this is true.

2:36  
But if you have a technology input that allows more output to be produced using the same inputs, right, go back to your gains from trade module in there, same resources are giving me more output, right.

2:48  
Then that kind of tells you that the cost of the same unit, the same 10th unit that you produced before is lower.

3:00  
So the same unit produced lower cost.

3:03  
Why?

3:03  
Because I'm using fewer inputs.

3:05  
That's true here.

3:06  
That's true here.

3:07  
It's true everywhere.

3:08  
Well, that's going to give me is a shift down of my supply curve.

3:12  
If you're thinking about it as a change in the marginal cost.

3:16  
Why?

3:16  
Because you're going to say the same unit marginal cost everywhere is dropping and that's going to be a shift down of the supply curve.

3:23  
Alternatively, you could have said the same thing, right?

3:25  
You're going to say for the same price.

3:28  
These people used to bring 10 units, now they're bringing more units.

3:32  
Why?

3:33  
Because marginal cost is this.

3:38  
So for the same price, more units pass the price at least as high as the marginal cost threshold.

3:48  
Again, please always label your axis.

3:50  
So if you were working with it this way, you'd basically say for the same price, they are bringing more units to the market.

3:58  
So you'll say supply shifts out.

4:00  
Both of those words have the same meaning.

4:02  
We use them interchangeably depending on how we're thinking about it in our heads.

4:06  
But we can kind of say that when this particular form of technology happens, supply the entire supply curve, right?

4:14  
Careful about the jargon here.

4:16  
Supply shifts by the out if you're thinking about it for the same price, more units, or down if you're thinking about it for the same unit.

4:25  
Lower marginal cost.

4:26  
Both mean exactly the same thing.

4:28  
But the logic, fundamental logic comes from the change in the marginal cost for the same unit.

4:35  
Now let's think about the price of the related goods, substitutes or compliments.

4:38  
But now we've got substitutes of compliments in production.

4:43  
So you really want to think about producing something here.

4:46  
And then when you produce extra of another good, it means that for your good, there are fewer resources available.

4:57  
OK, An example I like to think of here is land, right?

5:00  
So I've got this farm, it's nice and beautiful.

5:02  
I've got this land, but on this land I've got cows and I've got chickens.

5:08  
OK, so this is my land.

5:10  
I fixed them on a land, right?

5:11  
I can't really immediately increase the amount of the farm that I have.

5:14  
So if I'm going to produce more cows, right, say, oh, you know what?

5:18  
This land was for cows, this land was for chicken, but now I want to have more cows, but I'm going to do that.

5:24  
Then there's going to be less land for chickens, right?

5:27  
Fewer resources for chickens.

5:28  
So this is going to be cows.

5:31  
It means that there's less land for chickens on there.

5:33  
And that's going to be a problem, right?

5:34  
Because there's substitutes in production on the same land, same resource.

5:38  
I'm producing 2 goods.

5:40  
More resources to one good means less fewer resources for the other one and that's going to be what we call a production substitute.

5:46  
A production complement on the other hand is saying that when I produce more of one good, automatically I as a side product I kind of get more of the other good, right?

5:57  
So for here the example would be chickens.

5:59  
If I start producing more chicken, then eggs happen naturally when I have this farm with chickens in here.

6:09  
And so automatically, without even trying, I'm going to get more egg production out of there, right.

6:13  
So these will be what we call compliments in production.

6:16  
Production of one goes up and the production of the other one goes up at the same time.

6:20  
OK, Now let's think about what that means for the price of the related goods.

6:26  
OK.

6:26  
So I'm going to think about this as chicken.

6:29  
This is all a chicken market, right?

6:31  
So this is chicken.

6:33  
Quantity of chicken, OK, but the related good is going to be different depending on what I'm looking production substitutes or compliments.

6:45  
If I'm looking at a production substitute here, I'm thinking about the price of the related Good here will be the price of beef, right?

6:51  
Cows give me beef.

6:52  
Price of beef goes up.

6:54  
OK, in here, the price of eggs goes up.

6:59  
If you were, you know, a firm that's behaving rationally, what happens when the price of beef goes up?

7:04  
You're going to be like, oh, you know what?

7:05  
It's really profitable now to have cows, which means that you're going to want to produce small cows.

7:13  
If you want to produce small cows, what's happening to your chicken?

7:16  
Well, you're going to have less land for chicken.

7:21  
And if you're going to have less land for chicken, it's going to make it really costly to produce chickens, right?

7:26  
You've got all of this chicken stuff in the less land.

7:28  
Gonna be really expensive something.

7:29  
I'm gonna die, They're gonna get disease.

7:31  
It's gonna be really expensive.

7:32  
And so marginal cost of producing chickens is going to rise because we're thinking about this as a marginal cost curve, right?

7:42  
Again, everything comes back to thinking, being flexible enough in your brain to be interchangeable between supply and marginal cost.

7:48  
Another way to think about this, right?

7:51  
More beef means that now the opportunity cost of producing chicken has increased.

8:03  
Why?

8:03  
Because you're giving up the chance to produce beef which was now more profitable than before, right?

8:08  
So either way, you can think about it this way, you can think about it directly as opportunity cost.

8:12  
The marginal cost of producing the extra chicken is higher.

8:15  
The same chicken is now more expensive to produce.

8:17  
It's going to be true everywhere.

8:19  
And that's going to shift my supply curve either up or in, depending on how you want to phrase it, right?

8:26  
For the same price of chicken, I'm going to bring fewer chickens to the market because I'm producing more beef than before.

8:33  
Price of beef has gone up.

8:35  
What about if we're going to do this for eggs?

8:38  
OK, I want more eggs.

8:39  
Why?

8:40  
Because the price of eggs has gone up.

8:41  
Great.

8:42  
Produce more eggs.

8:43  
Produce more eggs.

8:44  
What do I got to do to produce more eggs?

8:45  
I got to, you know, produce more chicken, right.

8:48  
So in that sense, if I'm going to produce more eggs, right, I get more chicken at the same time.

9:04  
So for the same price of chicken, the price of chicken is not changed, but I'm just bringing more chicken because I just have more chicken happened to be there because I'm producing more eggs, right.

9:14  
So for the same price, I'm going to be bringing more chicken than I was before.

9:19  
So when the price of a compliment in production goes up, my supply curve, it's going to shift out.

9:26  
If you want to call it or you want to say it shifts down.

9:30  
OK.

9:31  
So again, this is how I want you to think about it.

9:33  
Please don't memorize it.

9:34  
The only key here to remember these are compliments and substitutes in production.

9:38  
If you don't make that, you're going to start thinking about these as buying from a demand side and that's going to be a problem.

9:44  
So supply curve.

9:46  
One point in the supply curve tells me for a price that I react to what quantity I bring to the market.

9:51  
If something in the all else changes, then I'm going to think about for the same price, bringing more or less to the market depending on how my marginal cost changes.

10:02  
Please use the marginal cost thinking the best way to not have to memorize, but also to becoming a better economist.

10:11  
And just like with demand, we can either make predictions if we know they're substitutes or compliments in production or if we notice supply shifting in or out, we can back out whether these goods are compliments or substitutes in production.