Economic Environment and Business Strategy
Prof. Sukumar Vellakkal
Department of Economic Sciences
Indian Institute of Technology Kanpur
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Government Interventions in the Market System

Welcome back, everyone. Today, we will delve into a crucial question in economics and business strategy. If markets are highly efficient, then why do governments intervene in them? Generally, we understand that free markets are often efficient. They are praised for effectively allocating scarce resources. Especially when supply and demand interact freely in a market, it maximizes social welfare by increasing both producer surplus and consumer surplus. However, it is worth noting that, although we often say markets are efficient in this manner, this is not always the case.

There are key exceptions. Markets can often fail when actions impose costs on others, such as pollution. There can also be shortages of essentials due to the unregulated nature of market forces—such as shortages of vital medicines, housing, and other necessities. These issues raise questions about fairness and equity.

These examples illustrate externalities and equity failures in a free market, highlighting the need for government intervention. In this session, we will examine policy tools like price controls, taxes, and subsidies, the reasoning behind these interventions, and their intended and unintended effects. Understanding this is crucial not only for policy but also for understanding the business environment and developing strategies. Firms must adapt… to environments shaped by government actions. Let's start with a key question.

When do markets fail? How can the government respond effectively? That is the main question we aim to answer. Let’s examine the free market scenario here. As shown in the diagram, the demand curve slopes downward from left to right, and the supply curve is also illustrated. You can see that the equilibrium point occurs where demand intersects with supply, and the quantity demanded and supplied at this point is OQ. This represents the total quantity demanded and supplied.

The current price is too high; it is overpriced. P represents the price. Right. So, this is a competitive market. When a competitive market is called efficient, it maximizes both consumer and producer surplus.

Then, they produce the optimal output of Q here. When producers and consumers are in equilibrium, the marginal cost (from the supply curve) equals the marginal benefit (from the demand curve). There are no conflicts, and consumer surplus and producer surplus

are maximized. I've just introduced the concepts of consumer surplus and producer surplus. Let's understand what these concepts mean.

Let's begin by defining this concept, then proceed to measure consumer surplus and producer surplus using the demand and supply frameworks. Here, I illustrate the market equilibrium. The supply curve is shown here, and the demand curve is shown here. When the price reaches point B, that is the equilibrium price level. The total consumer expenditure is found by multiplying the price by the total quantity. You can see... This rectangle represents the total consumer expenditure.

Now, where does consumer surplus come from? The triangle just above this rectangle is the consumer surplus. To understand why we refer to that triangular area as consumer surplus, let me show you another diagram. Here, I am only displaying the demand curve. Just look at some specific points. For example, when the price is five, the market quantity demanded is one unit—you can multiply it by a million or a billion if you want. When the price is 4.5 (point B), they are willing to buy two units. When the price drops further to point C, they are willing to buy three units. You can keep adding points here—D, E, F—and so on.

You can add many individual points here. Instead of marking all these points, I kept the diagram simple. It's not necessary for the distance between A and B to be exactly this much—the price can change in very small steps, and you can imagine many tiny points in between. This means that as the price continues to decrease—starting from this point—you can expect the quantity demanded to gradually increase. When demand and supply forces interact, this is the supply curve, and finally, we see that the market price is 2.5. However, the key point is that when the price was higher, some consumers were still willing to make a purchase. For example, when the price was 5, they were willing to buy one unit. However, right now, they are paying only 2.5, even though earlier they were willing to pay 5 for that first unit. However, due to market equilibrium, the price is now $2.50. At this price, they demand seven units. This means that those who bought the first unit were initially willing to pay $ 5 but needed to pay only $2.50 here. So, the remaining amount—the difference—is 2.5, which they save. Similarly, for those buying two units, look at the market demand. When the price is $4.50, they would have been willing to pay $4.50 for the first unit and $4.50 for the second unit. However, in the market, they are purchasing each unit at $2.50.

Again, for this consumer, they save 2 rupees on the additional unit. …in that way, for each point, if you keep changing the price along the demand curve, you can see that all this area represents the extra amount consumers are willing to pay. However, the actual price they pay is only $2.50, and they are receiving 7 units. For every unit up to 7, consumers are willing to pay more than 2.5, but they end up paying only 2.5 because of market equilibrium. So, when the market clears—where quantity demanded is 7 and

quantity supplied is also 7—all this area, this entire triangular area, represents the consumer surplus.

Some consumers were willing to pay more for each unit—especially the earlier ones—but since the market price is lower, they pay only 2.5. This triangle shows the consumer surplus. How is this possible? Because when the price was 5, someone was willing to pay that amount. However, due to the interaction between demand and supply, the market now determines the price at $2.50.

Exactly, so everyone pays the same market price of 2.5 since we're discussing a homogeneous product. This way, the difference between the maximum amount a person is willing to pay, and the current market price is called consumer surplus. I hope this makes sense. The blue-shaded triangle shows the total consumer surplus.

To calculate it, you look at the quantity here, the market price, and the maximum willingness to pay. Then, you simply find the area of the triangle. I'll provide a small example and some estimates to help you easily perform this calculation. Suppose the maximum willingness to pay is $4.50, the market price is $2.50, and the quantities demanded and supplied are 7. To find the area of the triangle, multiply half of the base by the height. Here, the height is the difference between the maximum willingness to pay and the market price, which is 2. The base is the quantity, which is 7. So finally, you can calculate the consumer surplus as $0.5 \times 2 \times 7 = 7$.

That is about consumer surplus. Now, let's move on to a related concept called producer surplus. The producer surplus can be defined using the same framework. Here, it is the difference between the amount a producer receives and the minimum amount they are willing to accept for a good.

When the price reaches this level, they are willing to supply this amount. At price P_0, they are willing to supply a specific quantity. At price P_{00}, they are willing to supply a different amount. This indicates that all the area below the market price and above their minimum willingness to accept represents the producer surplus. Their minimum willingness to accept is P□, the lowest price at which they are willing to supply.

As the price rises, producers are willing to supply more and more. This is how we define the law of supply: when the price goes up, producers are willing to supply additional quantities. Therefore, the area above the supply curve but below the market price represents the actual gains that producers make. They are willing to supply at the lower prices shown by the supply curve, but because of demand and supply equilibrium, the market price is P_1, and the quantity sold is Q_0.

They are receiving the price P1. Even for Q_{00}, they are getting P1, although they are willing to supply the product at a lower price. They are willing to accept a lower price for

both Q_0 and Q_{00}. Similarly, more points can be added along the curve, and the same logic applies. Ultimately, we see that due to the free play of demand and supply, the market price is set at P1, and the quantities demanded and supplied are Q1. Here, this entire area represents the producer surplus.

Producer surplus is also created in this scenario. Due to the free interaction of market forces, producers also reap benefits. Producer surplus is the difference between the market price and the minimum amount the producer is willing to accept for the good. I'll provide some examples to show how to calculate consumer surplus and producer surplus. Suppose the... The demand equation is $QD = 600 - 50P$.

Calculate the consumer surplus when the market price is $4. Therefore, we find the consumer surplus to be $1,600. How do we do that? First, recall the definition. The definition is the difference between consumers' willingness to pay and the actual price they pay. There are different steps involved because the equation we have been given is the demand equation.

You need to calculate the willingness to pay from here. To find the maximum willingness to pay, convert the demand function into an inverse demand equation because that shows price P as a function of quantity demanded QD. When you do this, the demand function becomes: 0.02 times the quantity demanded. This means that when you graph it, it looks like this: the maximum willingness to pay is 12, and the market price, as we already saw, is 4.

To find the market price, the supply curve would intersect this point. The slope here is 0.02. Then, if you plug in these values, when the market price is 4, the quantity demanded is 400, because you substitute the price into the demand equation and get $QD = 400$. Therefore, the consumer surplus is the triangular area: $0.5 \times$ (the difference between the maximum willingness to pay and the market price) $\times$ (the quantity demanded). …$0.5 \times 8 \times 400$. Here, the vertical distance is 8, and the horizontal distance is 400, and for a triangle, you multiply by 0.5. Similarly, you can estimate the producer surplus as well. I have listed out all the steps—you can follow them using the same equation—and you will get a producer surplus of 800. This is what we established just now: if we allow free market forces to operate freely, they maximize consumer surplus and producer surplus.

These are the two agents here, the two stakeholders in this framework. There is currently no government intervention. However, some concerns arise if you leave everything to the free market… In one way, we can say that it is efficient because it produces the optimum output. Consumer surplus is maximized, producer surplus is maximized, and in general, we say that both producers and consumers are happy.

They are in equilibrium. In the real world, if markets are left unregulated, the prices of certain goods—such as essential medicines—can sometimes become too high. Similarly, housing costs for low-income people can also be excessively high. Some individuals cannot afford it. In such cases, the government needs to intervene in the market. Instead of relying solely on demand and supply, the government might have to set prices.

Using the demand and supply framework and applying the concepts of consumer surplus and producer surplus once again, we will examine what happens to the market equilibrium when the government intervenes. We will introduce two concepts. One is called a price ceiling, and the other is a price floor. Let's discuss them one by one. Starting with the price ceiling, the graphical representation appears as follows: A price ceiling refers to the maximum price that sellers can charge for a good, typically established by the government.

The market will establish a price, but afterward, the government steps in and sets a maximum price that sellers can charge for a good. Why? To protect consumers in cases where they cannot afford essential goods. Common examples include housing and essential medicines. Suppose, based on this diagram, that if we leave everything to the free market—demand and supply—the price will be 1.5. The optimal output is at this point; let's refer to it as Q0. Now, if this is the housing market and the price is 1.5 (which you can multiply by a million, for instance, 1.5 million rupees), then many low-income individuals cannot afford to pay $1.5 million for a house. In this case, the government may decide that, although the market price is $1.50, it will set the maximum price at, for example, $ 0.57 million. Therefore, instead of 1.5, the government intervenes and caps the price at 0.57 million. What the government is stating here is that sellers cannot charge above this price.

They cannot charge $0.58 million or $1.5 million; they can only charge $0.57 million or less. This is the maximum price sellers are permitted to ask for. Now, consider the demand and supply at this controlled price. When the price is $0.57, which is below the market price, suppliers are only willing to supply this amount.

But consumers, when the price is $0.57 million, are now willing to demand that much. ...that means there is a deficiency or excess demand equal to this gap. This entire horizontal distance represents excess demand. However, since the government has imposed a maximum ceiling of $0.57 million, only this quantity will be produced and transacted, as suppliers need to receive a higher price to supply more. Since the price is $0.57 million, suppliers will only supply this quantity. They will not supply more because supplying beyond this level would require them to receive a higher price. However, at this controlled price, low-income households can afford housing for $0.57 million. In this case, there is excess demand, which is the unintended consequence. However, the intended welfare effect is that because the actual price is now $0.57 million instead of

$1.5 million (the market-determined price), many more people can afford the good. However, the concern is that at this price, people are willing to buy a large quantity, yet suppliers are unwilling to supply that much. This amount represents excess demand or unproduced output. This much they are not willing to produce or supply in the market.

That is one of the unintended negative effects. Another concept closely related to the price ceiling—yet completely opposite—is the price floor. For example, consider the minimum wage. Suppose the market-determined wage is 500, but the government mandates that the actual wage must be 600. Similarly, consider the minimum support price for agricultural products. Suppose that for one quintal of wheat, the market price is 500, but the government requires buyers to pay 600.

The producer should receive 600, not the 500 determined by demand and supply. And I think you are familiar with this concept. The minimum wage is set by each state government for different occupational categories, and similarly, the central government sets the minimum support price. Usually, they set the minimum support price above the market price.

Here, you can see that the market-determined price is 500, but the price floor set by the government is 600. This means no transactions are allowed below 600. For example, when the minimum wage is $600, employers must pay $600 instead of the market-determined $ 500. Now, let's examine what happens in the diagram.

When the price (wage) is higher, you know that supply will also be higher. This represents the supply at a wage of 600. If workers are the suppliers of labor, then when the market wage is 600, they are willing to supply that amount. This is the market supply. ...but the demand comes from employers. Since they now need to pay 600 instead of the market-determined 500, they are willing to demand only this much.

This is their demand. So, you can see that there is an excess supply in the labor market, which means a surplus of labor. The quantity demanded is only this much—for example, 800 workers—while the quantity supplied is, say, 1,200 workers. This gap of 400 represents excess supply. In terms of the labor market, this excess supply is essentially unemployment. The benefit here is that employed workers are now earning higher wages.

But the unintended negative impact is that some people become unemployed. At this higher wage, more people are willing to work and are willing to work overtime, but the market demand is only 800, while… The market supply is 1,200, resulting in an excess supply of 400 units. This creates unemployment. The unintended consequence is that the demand for labor decreases, leading to unemployment among workers. I’m just showing you a case study example: Does raising the minimum wage lead to increased unemployment? This is a 2011 study by William Even and David McPherson, which examined a large dataset of observations from 1994 to 2010. But basic economic

theory—the framework we just used—says that if the minimum wage is higher than the equilibrium wage, there will be a surplus of labor.

And we commonly call this unemployment. So, in theory, if the government sets a minimum wage above the equilibrium wage, it results in unemployment. They found that unemployment does not affect all groups equally. A 10% increase in the minimum wage decreased employment by 2.5% for white males, 1.2% for Hispanic males, and 6.5% for Black males. This suggests that, although government intervention may be justified, it may be for reasons different from those initially intended. The goal was to boost workers' income, and indeed, those who remain employed do earn higher wages. However, it also causes many people to become unemployed, mainly from vulnerable social and economic groups. The benefit, as I mentioned, is that the wages of those who stay employed increase.

For them, wages have increased, and their ability to pay has improved. Because their income has gone up, their purchasing power has also risen. Now they can afford to buy more goods and services, including more nutritious food, which enhances their standard of living. They can also afford more goods and services for those who are employed. However, at the same time, we must acknowledge that this policy has led to many people becoming unemployed, which is a serious concern. In that context, the government may need to consider an alternative policy, such as unemployment benefits.

For example, the government can provide unemployment benefits or other social security measures for those who lose their jobs. Overall, there are various development approaches and justifications for different levels of government intervention. One approach focuses on improving the standard of living. If we fully rely on market forces, many people may not be able to afford certain goods or services because market prices could be too high. …in this case, the development approaches used are linked to the growth strategy a country adopts.

For example, if you follow a trickle-down approach, which is a supply-side economic strategy, it generally favors wealthy individuals and large corporations. It argues that tax breaks and benefits for corporations and the wealthy will eventually benefit everyone because the gains at the top are expected to “trickle down” to the rest of the population. …so that means if the economy is growing, it will generate more employment opportunities for everyone. Many people will get employed. The idea is that if you give more benefits to corporations and wealthy individuals, they will invest more, expand the production of goods and services, and create more employment opportunities.

Eventually, this will benefit the broader population as well, trickling down from the wealthy to those who are less fortunate. That is one approach. The second is the redistribution strategy, a bottom-up method. This involves imposing higher taxes on the

wealthy and using that revenue to redistribute resources to lower-income groups through social welfare policies. Another option is a combination of both: on one hand, there should be growth, as outlined in the growth strategy we mentioned.

And simultaneously, there should be redistribution, creating a mix of both approaches. At the extremes, we have capitalism, which relies entirely on free-market forces, and socialism, which places everything under complete government control. The middle ground includes liberal democratic capitalism, market-oriented socialist models, and mixed economies that blend elements of both systems. All these systems follow a middle path that combines both strategies—a growth strategy and a redistribution strategy.

This approach is widely used these days.

Thank you very much for listening. See you in the next session. Thank you.