

Principle of Economics

Supply, demand & government policies

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In chapter 4, we introduced the basic supply and demand model and we discussed individual parts of the model how market supply and market demand curves are derived.

And we looked at the properties of equilibrium in a free market with this supply and demand model.

In chapter 5, we looked at particular shapes of market curves and how it affected changes and quantities and prices in the market.

In chapter 6, we will introduce a government intervention in the market and we will see how that affects the market equilibrium.

And in the next few chapters, we will study different forms of government intervention in the market.

And we will see the differences in market quantities, market prices and different measures of performance in the market depending on which government policy is used.

So in chapter 6, we start by studying command and control policies by the government when the government controls the level of prices or quantities in the market.

In general, we can distinguish two kinds of government interventions, the command and control policies where the government sets very rigid levels on equilibrium prices or quantities that will be achieved in the market.

And market based policies where the government introduces particular regulatory instrument and lets the market adjust to that instrument.

So we would say that there is difference between the cases when the government choose this particular equilibrium prices or equilibrium quantities, and the case when the market itself adjust and select the appropriate equilibrium bundle itself.

We will study price controls in chapter 6, and we will look at quantity controls a little bit in chapter 10 when we discuss environmental externalities.

A little side note on quantity controls is that they will achieve the same results in the market as price controls.

Affectively, it is intuitive that when the government chooses what price will be set in the market, it also implicitly chooses as the quantity that will result.

So the government could set market quantity and implicitly market price would be determined.

So let's look at the affects of price controls.

In this chapter, we are not considering the reasons for regulation.

So, we are assuming there are some reason why the government feels it needs to regulate the market, but we are not discussing whether it is for some efficiency reasons, such as there is a market failure that needs to be controlled or whether the government controls the market because of equity or welfare reasons such as the government feels that producers get too much benefit in the market but consumers too little, and that is why the government intervenes we are just assuming that the government has some reason to regulate the market and either the government wants to set a maximum price that can be charged in the market or a minimum price.

So, let us start by looking at price ceilings.

Price ceilings are the maximum price level that can be charged in the market, and we would say that price ceiling is binding if it is set below, the equilibrium level of price will be achieved in the free market.

An example of price ceiling is land controls established in many cities around the world.

The government regulates the rents that landlord they can charge on apartments perhaps because it feels that landlords abuse renters.

And to redistribute welfare in this market, the government decides to impose a limit on prices.

We can see that if a binding price ceiling is imposed, prices cannot arise all the way to the equilibrium level, and prices will be continually rising until the level of the ceiling and they will stop at that level.

And at this price level, there is a shortage of the commodity such as shortage of apartments because at this price level, more apartments are demanded than other thing supplied.

So, we would say that when there is a binding, price ceiling in place, there is

shortage.

Examples of shortages are, a famous example of gasoline and oil shortage in the 1970s when the government imposed a price ceiling, and as a result, long lines of drivers lined up in front of gasoline stations, unable to buy gas at the regulated prices.

Another example is the blood market and market in body organs where many governments around the world implicitly set a price of zero, governments prohibit suppliers from charging any price for blood and body organs, and as a result, there are too few providers of these commodities and there is excess demand.

So, shortage of commodity results in non-price rationing, there are long lines in front of stores, there might be discrimination by providers, providers might set up a lottery choosing which of the consumers will get to buy the product, a black market can be organized.

Or consumers might choose to bribe producers to sell them the commodity at the regulated price, and you should think that black markets and bribery are instruments through which markets try to cheat the regulation.

So in the black markets, prices would be set at the equilibrium level, the level of the bribe would be the difference between the regulated price and the equilibrium price in the market, and through these instruments, market would effectively achieve the price at the equilibrium level.

Another example is another effect could be quality deterioration.

One example of price ceiling from the rental market is, in the New York city, the government regulates prices of unfurnished apartments at a certain level, and price of furnished apartments at higher level.

So one way that landlords owning unfurnished apartment, to cheat the system, was to put some cheap piece of furniture in the apartment such as putting an old chair in the furniture and renting the effectively unfurnished apartment for a price of furnished one.

So, we could see providers lowering the quality of the product so that the cost of providing that commodity can adjust to the regulated price.

And we should think that depending on the exact slopes of market supply and market demand curves.

The problem in the market could have a different size if market curves are relatively inelastic, shortage is fairly small.

On the other hand, if market curves are fairly elastic such as in a longer term situation this problem could be increased.

Okay~! And final note about price ceiling is that we distinguish binding price

ceilings and non-binding price ceilings.

You may wonder why would government be so stupid as to set non-binding price ceiling.

And here it's important to realize that in the real world there is a lot of uncertainty.

Uncertainty about the shape of the market tomorrow about the exact location of the equilibrium about tomorrow when the government sets some piece of regulation it has to predict what prices and quantities will be achieved in the next time period.

So if the government expected a very high price in the future it might set a very high price ceiling and if the true realized price level is below that price ceiling.

We might end up with non-binding price ceiling just by accident.

So really when we see non-binding price ceiling or Price Floors in the market place.

That comes from uncertainty about future conditions in the market.

Okay~! Price Floors...a... the examples of Price Floors maybe there more common in the real world.

We see price floors in the agriculture sector the government often wants to protect the farmers from bumper crops from losing revenue we discussed that previously in the chapter 4.

And in that case the government would set a minimum price that can be charged in the market for let's equal.

Another example is from labor market where the government sets a minimum wage on an hour of work, okay?.

And already from looking at the diagram we can see that quantity supply at the regulated prices is greater than quantity demanded and we have surplus of the commodity in the market place, okay?.

A binding price floor then causes a surplus because we have an excess supply in the market place.

And the effects of this surplus are similar to the effects of shortage.

There might be non-price rationing..hm... discrimination of producers by consumers.

Lottery system we could have black markets get organized or we could have bribery where producers try to bribe the consumers to purchase their commodity and again we could have inefficiently high quality level in the market place.

So, an example of that is from the airline industry in the 1960s or 1970s in the US.

The government regulated prices of airplane tickets at a level that was higher than the equilibrium price level.

And in effects airlines couldn't compete with each other in prices.

So, when they try to attract customers they couldn't lower their price so they tried to attract customers through a better service.

So in the 1960s or 1970s every consumer had a seat which was two large a lot of legroom, free alcoholic drinks, personal in aircraft wear beautiful and smart people and you can think that this levels of quality are inefficiently high compare to what a free market would provide.

So now, let's talk a little bit about a market based regulation instead of regulating the exact prices that can be charged in the market place.

The government can simply impose a tax on the market and let the market adjust itself so that in the equilibrium quantity demanded would match quantity supplied and we wouldn't have the distortion due to shortages and surpluses.

One basic idea in this discussion will be that regardless whether a tax or subsidy is imposed on buyers or sellers.

Both sizes of market will share the burden from those that regulation.

So, we've seen the effects of taxes before in the chapter 4.

We settled that if a tax is imposed on consumers, consumers adjust their willingness to pay by lowering it because a consumer realizes that now in addition to the price paid to producers they have to pay a tax to the government and they're willing to pay less to the producer.

So the demand curve shifts downward by the amount of the tax.

We can think that now there is a wedge between the original supply curve and demand curve equal to the amount of the tax.

Similarly, if the tax is imposed on producers, supply curve shifts upward by the amount of the tax because now in addition to having to cover the cost of the production producers have to cover the amount of tax they have to pay to the government.

So, they have to collect more from consumers and more by the amount of the tax, okay?.

A little digression here does always have to be the case that the equilibrium price would be higher equilibrium quantity would be lower than without the tax.

And we can come up with taxes where there is no distortion at the margin.

So, here we should understand that the changes in the market that happen because of the tax happen because there is distortion at the margin.

The tax imposed by the government affects consumers or producers decision-making at the margin.

We could come up with taxes where let's say producers have to pay a tax even before the production process starts or they have to pay a tax on first unit of output produced.

But after that, there is no tax.

So in this example, suppose that producers have to pay a tax of this amount on the first unit of output produced.

But on all of the following units, they don't have to pay any tax.

Because of that, the supply curve shift for this unit because the effective cost of the production means...meaning the technical cost of the production plus the amount of the tax are increased for that one unit but the cost of production for all of the following units are the same as without a tax.

And you can see that with this tax rate in place, there is no distortion at the market.

Market quantity and market price are the same as in the free market, okay?

Finally we can discuss this tax burden faced by producers and consumers.

As a function of the shape of market curves, so, we will realize that if market demand is relatively less elastic than market supply.

Consumer's prices will increase more than producer's prices.

So, we will realize that again to summarize a tax imposed by the government effectively places a wedge between the supply curve and demand curve, equal to the size of the tax.

If the demand curve is steeper, that means that the price that consumers have to pay gets increased by more than the price that producers have to pay.

Similarly, if the supply curve is steeper than the demand curve, then producer's price changes by more.

And we may ask now does it make sense in terms of efficiency? Does it make sense for the less elastic side of the market to pay to face greater burden of the tax? And we can think that that makes sense in terms of efficiency.

The side of the market that has more options so the more elastic side of the market if we want it to impose greater burden of tax on that side of the market.

This market participants would maybe exit the market entirely.

So we have to impose more of the burden of the tax on the less sensitive part of the market.

Do we think that this solution is fair? Maybe not.

Suppose that the consumers are... demand curve is less elastic than the supply curve.

That means that consumers are more... consumer's response to price change is less than producer's response.

We may think that consumers are vulnerable they cannot substitute away from consuming the commodity.

There're stock with paying higher prices and they have to buy similar amount of quantities.

So, we may sympathize with consumers in that case.

So we may think that normatively this kind of mechanism is unfair to market participants.

Finally, I want you to think of what would happen to tax incidence if we had perfectly elastic or perfectly inelastic market curves.

In that case, we would find that only one part, only one side of market pays the entire burden of the tax.

And regardless whether the tax is imposed on the buyers or sellers we would get the same solution.