Overview
This chapter deals with demand and supply, two of the most fundamental concepts in economics. We will analyse the factors that determine the behaviour of individuals with regard to demand for goods and services, the respective behaviour of business firms with regard to the supply of goods and services, as well as show what happens in the market place when demand and supply forces interact to determine the quantities of goods and services produced and the prices at which each one is sold at each moment in time.

As we mentioned in Chapter 1, in every market, it is the price mechanism (like an “invisible hand,” according to Adam Smith) which guides and facilitates a society of individuals in choosing what, how and for whom to produce.

The Demand Schedule
Demand: This refers to the quantities that would be purchased at every possible price. It represents and reflects the behaviour of people. The set of alternative quantities and prices is referred to as the demand schedule. In order to isolate the specific impact that price changes have on quantities demanded, economists assume that ‘all other things are held (or being) constant or equal’ (or ceteris paribus, to use the Latin phrase).

Quantity Demanded: This refers to the quantity that is demanded at a given, specific price.

Assume that we conduct a market survey at Cyprus College asking 300 students how many pitas of souvlaki they will be willing to consume at different prices. For the answers to be valid, each student “voting” must not only be “willing” to buy the souvlaki, but must also be “able” to purchase it/them, that is must afford to pay! When we tabulate the various answers we get from the students into a demand schedule, we will be able to see what happens (in terms of the number of pitas of souvlaki students will buy) when the price of souvlaki falls.

Let’s assume that the answers we get from the survey are the following:

<table>
<thead>
<tr>
<th>Price (£ per pita of souvlaki)</th>
<th>Demand (no. of pita of souvlaki)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.50</td>
<td>250</td>
</tr>
<tr>
<td>1.00</td>
<td>200</td>
</tr>
<tr>
<td>1.25</td>
<td>150</td>
</tr>
<tr>
<td>1.50</td>
<td>100</td>
</tr>
<tr>
<td>2.00</td>
<td>75</td>
</tr>
<tr>
<td>2.50</td>
<td>50</td>
</tr>
<tr>
<td>3.00</td>
<td>5</td>
</tr>
</tbody>
</table>
Notice that even at very low prices some students would not buy a pita of souvlaki. These may be vegetarians, don’t like souvlaki, may be snobs who don’t like to be seen eating fast food, or for a number of other reasons. At the other extreme, some students may be willing to buy a pita of souvlaki even at very high prices!

**Drawing the Demand Curve**

When we plot the above data on a graph paper we will construct the demand curve. Note that the demand “curve” does not necessarily have to have a “curvature” (!). It may well be a straight line.

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**The Law of Demand**

The law of demand states that there is an inverse relationship between the price of a good and the quantity of the good demanded per time period.

- A decrease in the price of a good, all other things held constant, will cause an increase in the quantity demanded of the good.
- An increase in the price of a good, all other things held constant, will cause a decrease in the quantity demanded of the good.

There are two reasons/effects why the relationship between prices and quantities demanded is inverse:

- Substitution Effect (If $P_A$ increases relative to $P_B$, then $D_A$ falls)
- Income Effect (If $P_A$ falls, $D_A$ increases as the purchasing power of individual’s incomes increases).

**Non-Price Determinants of Demand**

Let’s examine further this concept of ‘other things being equal’. Using the example of the pita of souvlaki, we can ask the students in our survey sample what would make them buy more pitas of souvlaki without the price changing, that is, at a constant price. The possible answers we would get are: The income level of students; the price and number of substitutes (say of hamburger, or...
pizza, etc); the price of complimentary goods (say the price of Coke, of beer, or of French fries!); the tastes and preferences of students (whether they are health conscious, vegetarians, or plain fast food lovers, as most young people are these days!). What about the students’ expectations about future price changes of souvlaki?

In the table below, we summarize the various situations where changes in any of the non-price determinants would make the demand for souvlaki to change (either to decrease or to increase). Recall that by change in demand we mean that the behavior of individuals changes over the whole range of prices, not only for a specific price. Therefore, the assumption is that we keep prices constant in order to examine the various cases below.

<table>
<thead>
<tr>
<th>CHANGES IN DEMAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>The demand for souvlaki will:</td>
</tr>
<tr>
<td><strong>Increase if:</strong></td>
</tr>
<tr>
<td>Consumers’ (in this case students’) income rises. (Assuming souvlaki is a normal good).</td>
</tr>
<tr>
<td>The price of substitutes (like hamburger or pizza) rises</td>
</tr>
<tr>
<td>The number of substitutes decreases. Twenty years ago pizzas and hamburgers were hardly available in Cyprus. Now they are all over the place.</td>
</tr>
<tr>
<td>The price of a complement (such as beer, or coke, or the vegetables that go into the pita of souvlaki) falls</td>
</tr>
<tr>
<td>Consumers expect that the price of souvlaki will increase in the future</td>
</tr>
<tr>
<td>Consumers’ tastes change in favor of souvlaki and away from fast food items (such as hamburgers, pizza) because of television advertisements, so that young people need to feel “in”, etc.</td>
</tr>
<tr>
<td>The size of the market (population) increases. Also, the age composition of the population will impact on demand.</td>
</tr>
</tbody>
</table>

**Two Ways in which Demand may Increase**

A change in any of the above factors (variables) will shift the demand curve (through a change in something other than price). Again we need to distinguish between a change in the quantity demanded (brought about by a change in the price of hamburgers and represented by a movement up or down the demand curve, in the graph above), and a change in demand (brought about by a change in any of the non-price determinants mentioned above, and shown by a leftward or rightward shift of the demand curve, in the graph below).
**Change in Demand**

A change in any of the non-price determinants of demand (the "other things") will affect the position of demand.

![Diagram showing demand curve with shifts](image)

An increase (decrease) in demand refers to a rightward (leftward) shift in the market demand curve.

**Supply and Supply Curve**

Let's consider now the case of supply. As with demand, supply is all the quantities which would be produced at every possible price. It represents how suppliers respond to price changes, that is, how they behave. As we did with demand, if we ask the sellers of souvlaki how many they would be willing to offer at alternative prices, we would construct the supply schedule. Assume that the answers we get are the ones below:

<table>
<thead>
<tr>
<th>Price (£ per pita of souvlaki)</th>
<th>Supply (no. of pitas of souvlaki)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.50</td>
<td>0</td>
</tr>
<tr>
<td>1.00</td>
<td>10</td>
</tr>
<tr>
<td>1.25</td>
<td>50</td>
</tr>
<tr>
<td>1.50</td>
<td>100</td>
</tr>
<tr>
<td>2.00</td>
<td>150</td>
</tr>
<tr>
<td>2.50</td>
<td>200</td>
</tr>
<tr>
<td>3.00</td>
<td>250</td>
</tr>
</tbody>
</table>

Using the above data we can construct the supply curve by plotting them on a graph paper. As shown below the supply curve slopes upward. It shows the relationship between price and quantity supplied holding other things constant.
The Law of Supply

The law of supply states that at higher prices, suppliers will be willing to offer more quantities in the market, since in this way they make more revenue, and ultimately more profits. Thus, contrary to the law of demand, the law of supply shows that there is a positive relationship between prices and quantities supplied.

- A decrease in the price of a good, all other things held constant, will cause a decrease in the quantity supplied of the good.

- An increase in the price of a good, all other things held constant, will cause an increase in the quantity supplied of the good.

Quantity Supplied: The amount offered for in the market at a particular price at a given time.

Non-Price Determinants of Supply

In the same way that we asked the consumers (the students in our case) what factor(s) would make them buy more souvlaki even without lowering the price, we can ask the sellers of souvlaki a similar question. Put yourself in the place of the owner of a souvlaki restaurant. What factors would make you (as seller!) supply more souvlaki at the same selling price?

Changes in Supply

What are these “other things” for Supply?

NON-PRICE DETERMINANTS OF SUPPLY

- Change in Production Technology
- Change in Input Prices
- Change in the Number of Sellers
- Taxes/subsidies and legal restrictions
- Future Price Expectations of Sellers
- Weather & other “exogenous” factors

A change in any of these “other things” will affect the position of the Supply Curve (but NOT its slope)

Better technology would certainly allow the sellers to produce more souvlaki with the same effort (resources). Similarly, a lowering of costs (of inputs, labour, etc) would produce the same result. Higher corporate taxes or stricter government regulations (health or safety regulations), on the other hand, would cause producers to reduce their output, thus shifting the S-curve to the left.

In the table below, we summarize the various situations where changes in any of the non-price determinants would make the supply of souvlaki to change (either to decrease or to increase).
Recall that by *change in supply* we mean that the behavior of individuals changes over the whole range of prices, not only for a specific price. Therefore, the assumption is that we keep prices constant in order to examine the various cases below.

| **Changes in Supply** |  
|----------------------|---
| **The supply of souvlaki will:** |  
| **Increase if:** | **Decrease if:** |
| The price of the inputs (the factors of production, raw materials, etc) needed for the production of souvlaki decreases. | The price of the inputs increases |
| New, more productive (efficient) methods of making, cooking, delivering, or serving souvlaki are found and applied. |  |
| The number of (sellers) restaurants serving souvlaki increases. As people demand more souvlaki, and the operation is profitable, more souvlaki makers would enter the market, attracted by the profit potential. | The number of sellers decreases |
| The government decides to subsidize the production of souvlaki by either reducing the income tax for souvlaki makers, or introducing (or increasing) a subsidy to them. | The government increase income or sales taxes for souvlaki making / selling, or cuts back on subsidies. |
| The government withdraws any health and hygienic regulations, which used to require souvlaki makers/sellers to install very modern and expensive health and safety equipment. | In the context of EU membership, the government of Cyprus introduces very strict health and hygienic regulations, requiring souvlaki makers/sellers to install very modern and expensive health and safety equipment. |
| Makers of souvlaki expect that the price of a pita of souvlaki will fall in the future. | Makers of souvlaki expect that the price of a pita of souvlaki will rise in the future. |
| **Good weather increases** the production of pork and vegetables (the key inputs to souvlaki) | **Bad weather decreases** the production of pork and vegetables (the key inputs to souvlaki) |

All of the situations in the left panel of the table above would shift the supply curve to the right, whereas, all the cases in the right side would shift it to the left. These cases are portrayed in the following graph, where at each price, the supply curve shifts to the right or to the left.
An increase (decrease) in supply refers to a rightward (leftward) shift in the market supply curve.

**Price and Output Determination: Market Equilibrium**

Once we understand the laws of demand and supply, and the behaviour of consumers and suppliers, respectively, which lie behind these laws, we can proceed to talk about the concept of an equilibrium and draw the supply and demand curves on the same graph. Always keep in mind the difference between quantity demanded and demand, and quantity supplied and supply. This distinction is important.

When demand and supply are combined together in a market there will be one price at which quantity demanded equals quantity supplied. This is the *equilibrium* price. The quantity bought and sold at this price is the *equilibrium* quantity. *Equilibrium* is defined as a position of balance, from which there is no tendency or force to move away.

As shown in the graph above for the demand and supply of souvlaki, if the equilibrium price for souvlaki is £1.50, the market is cleared at this price – all pitas of souvlaki offered for sale are sold. At any price below £1.50 the quantity demanded exceeds the quantity supplied. This results in *excess demand*. Conversely, at any price above £1.50, suppliers will be willing to supply more souvlaki than consumers are willing (and able) to pay. This results in *excess supply*. When the market is in disequilibrium the price mechanism acts to help bring it back to equilibrium.
Market equilibrium and disequilibrium

If price were below $P_0$, there would be excess demand. Consumers wish to purchase more than producers wish to supply.

If price were above $P_0$, there would be excess supply. Producers wish to supply more than consumers wish to purchase.

Changes in Equilibrium Positions

What happens now if demand increases (perhaps increased demand for souvlaki among young people so as to feel that they are “in”, or because of decreased prices of McDonald’s Big Mac or Burger King’s Whopper driving people away from souvlaki consumption, or because of a health problem with pork meat, people don’t eat souvlaki any more thus preferring hamburgers, or pizza, or for a number of other factors). When this happens, eventually the prices of souvlaki will be bid down and the market will move to a different equilibrium, as shown in the graph below.

More generally, what happens if demand for something decreases (perhaps as it has gone out of fashion, or for health reasons)? The result is that prices are lowered in order to clear the market. Recall what happens during the clearance (or sale) season. Shop owners reduce the prices of items in order to sell off their “excess supply.” You can relate these concepts to your own personal experience and possible behaviour when you face these circumstances.

A shift in demand

If the price of a substitute good decreases ...
... less will be demanded at each price.

The demand curve shifts from $D_0D_0$ to $D_1D_1$.

If price stayed at $P_0$, there would be excess supply. So, the market moves to a new equilibrium at $E_1$. 

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The graph below shows a case where the demand curve shifts to the right due to increased demand for oil resulting from the expectation that prices may increase (due to war, terrorism, etc).

**Shift in Demand**

Assume consumers expect the price of oil to increase (due to the possibility of a war, say the war in Iraq. This will tend to increase their current demand.

An increase in demand will cause the market equilibrium price and quantity to increase.

So, the market moves to a new equilibrium point at E₁.

Changes in equilibrium positions may also originate from the supply side. We have already examined the various factors that may impact on supply (such as technical innovation, changes in input prices, price expectations, etc).

**Shift in Supply**

Suppose safety at work regulations (due to EU) are tightened, leading to increasing producers’ costs.

The supply curve shifts to S₁, S₁.

If price stayed at P₀, there would be excess demand.

So the market moves to a new equilibrium at E₂.

Other factors leading to the same result: Oils shortage, winter freeze, drought.
Free Markets versus Controlled Markets

We have examined above the functioning of a free enterprise system where the price mechanism is able to send the right signals to buyers and sellers in order to "clear" the market, that is bring it to equilibrium. We have also seen that in the event that "exogenous" factors force the market out of equilibrium, again free enterprise market forces would come into play to bring the market back to equilibrium.

But what happens if for a number of reasons prices of goods and services are controlled? This may be the situation is socialistic economies, or in capitalistic economies where the government believes that it is socially desirable to keep prices of goods and services at certain prices (irrespective of demand and supply conditions), such as for instance the minimum wage laws or the rent control laws.

In the European Union, a lot of agricultural and farm products are supported by governments and prices for farmers are kept at levels above their equilibrium levels. What is the result of that? We can see the result in the graph below, that is, surpluses are created. The reason is that at these prices, buyers are not willing to buy all the products that farmers bring to the market. These farm price supports in the EU create what has been called "mountains of butter and lakes of wine" implying the phenomenon of excess supplies (or surpluses) of agricultural and farm products.

![Price Supports Diagram](Image)

The graph below shows the impact on the market when the prices are kept above the market-clearing equilibrium price (e.g., farm support prices, minimum wages, etc)

If on the other hand, governments try to interfere in the market to set prices below the equilibrium level, the result, which has been observed for many consumer products in the socialist (or controlled) economies (ex Soviet Union, China, etc), is that shortages develop as sellers do not find these artificially low prices attractive enough to supply goods to the market.
References for further reading:


