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Economics 201

## **Shifts in Demand and Supply**

The whole point with the Demand and Supply model is that we would like to use the model to explain or predict changes in the price and quantity exchanged of a good or service in its respective market. This handout addresses the idea of shifts in these curves and builds upon the earlier demand and supply model handout, where we introduce these two curves and discuss the concept of equilibrium within this model.

When we introduced demand and supply curves in the first handout, we noted that there are things that affect the number of units one may purchase from a market, but which are not part of our model. I.e., there are variables that help determine the quantity demanded or quantity supplied at each possible price other than  $P$  and  $Q$ . Let's consider those variables, first looking at the Demand curve and then the Supply curve.

### **Market Demand**

When making a purchasing decision, demanders consider how much income they have available to spend, how a particular good's price compares with the prices of available substitutes, and so forth. These are all events (variables) which directly affect the demand-related decision of someone. Events like production cost changes, productivity changes, and the like may impact this decision as well, but not directly. I.e., events that are more directly related to suppliers will affect them, which in turn may impact how many units a demander may buy, but this is more of an indirect effect. There are a number of potential (related) events or variables which directly affect the purchasing decision of demanders, and here's a list:

- Income of demanders in this market
- Price of Substitute Goods
- Price of Complement Goods
- Number of Demanders in this market
- Tastes/preferences of demanders toward this good
- Expectations of demanders (which are formulated around things like future price)
- Commodity taxes placed on the demanders of a good

Let's consider the market discussed in our previous demand and supply handout, the Louisville market for street vendor popsicles. As you may recall, we defined demanders in this market as any individual who expect to be visiting Louisville during the Summer (when popsicles are most likely to be sold) and would be willing to buy a popsicle from a street vendor.

Once the market was defined, we talked about creating a market demand curve for street vendor popsicles by conducting a survey, asking everyone how many units they'd buy at each price.

Here is that table:

**Market Demand for Street Vendor Popsicles**

	A	B	C	D	E	F	G	H
Price	\$1.40	\$1.20	\$1	80¢	60¢	40¢	20¢	0¢
Quantity demanded	0	5	10	15	20	25	30	35

Now, let's consider how a couple different events would affect this demand curve.

**Event 1: increase in consumer income**

If consumer income increases, then the likelihood is that people would be willing to buy more popsicles from street vendors during the Summer, because those consumers now have some extra money. This change would obviously have little to no effect if consumers chose to spend more time indoors (which means they'd never be near a street vendor) or were not really interested in popsicles in the first place, except to buy maybe 1-2 of them throughout the entire Summer. If this change does have an effect, however, then it would be to increase the quantity demanded, no matter what price arises in this market. This is demonstrated in the (revised) table below.

**Market Demand for Street Vendor Popsicles**

	A	B	C	D	E	F	G	H
Price	\$1.40	\$1.20	\$1	80¢	60¢	40¢	20¢	0¢
Original Qd	0	5	10	15	20	25	30	35
New Qd	10	15	20	25	30	35	40	45

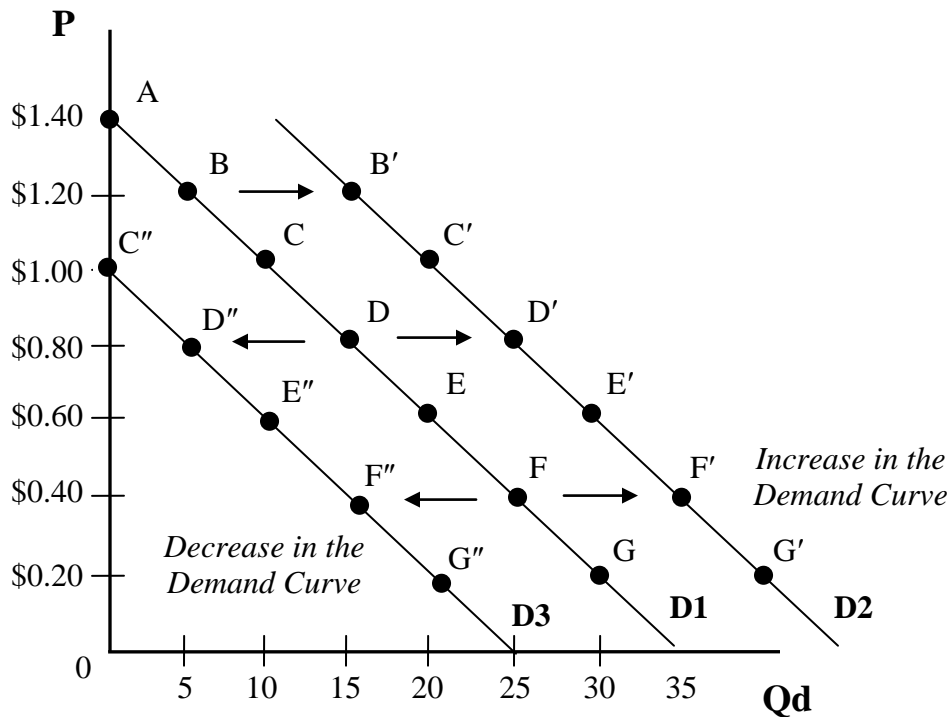
**Event 2: decrease in the price of store-bought popsicles**

As we discussed when this market was first defined, store-bought popsicles are not the good being sold in the street vendor popsicles market. Store-bought popsicles would relate to our market, but as a substitute good. I.e., demanders could buy store-bought popsicles instead of street vendor popsicles. If the price of store-bought popsicles decreases, then we would expect to see more demanders buying this good, which means (given a fixed amount of income) that demanders would be replacing their purchase of street vendor popsicles with the popsicles they purchased at the store. That means the effect on the street vendor popsicle market is a decrease in the quantity demanded, no matter what price arises in the market (as illustrated in the table below, where the quantity demanded goes down).

**Market Demand for Street Vendor Popsicles**

	A	B	C	D	E	F	G	H
Price	\$1.40	\$1.20	\$1	80¢	60¢	40¢	20¢	0¢
Original Qd	0	5	10	15	20	25	30	35
New Qd	0	0	0	5	10	15	20	25

Event 1 leads to an increase in the quantity of street vendor popsicles bought, no matter what the price, and event 2 leads to a decrease in the quantity of street vendor popsicles bought by demanders, no matter the price. Event 1 is characterized as shifting the demand curve from D1 to D2, and event 2 leads to a shift in the demand curve from D1 to D3. We call the change in this demand curve, from D1 to D2, an increase in demand for street vendor popsicles. The change that leads to the demand curve shifting from D1 to D3 is called a decrease in the demand for street vendor popsicles. These shifts are indicated in the graph below.



Both of these events are identified on our list of potential (related) events or variables which directly affect the purchasing decision of demanders. What that tells us is that if another event on this list changed, we get an increase or decrease in the demand curve. As a result, it would be more appropriate to characterize our list as a list of what we'll call shift variables for the demand curve. Shift variables are something which, when this event takes place or variable changes, we observe a shift in the demand curve (either to the right, which is an increase, or to the left, which indicates a decrease).

### Market Supply

When making a selling decision, suppliers consider how their good or service is produced. E.g., how productive are the employees, how do firms combine capital and labor (i.e. technology), what is the cost of supplying each unit of this good, etc. These are all events (variables) which directly affect the supply-related decision of a firm, where now, events like a change in consumer income may impact the supply decision as well, but not directly. I.e., events that are more directly related to demanders will affect them, which in turn may impact how many units a supplier will sell, but this is more of an indirect effect. Just as with demand, there are a number

of potential (related) events or variables which directly affect the selling decision of suppliers. Here's a list:

- Productivity (associated with producing this good)
- Technology (associated with producing this good)
- Cost of supplying
- Number of Suppliers in this market
- Expectations of suppliers (formulated around future profits)
- Commodity taxes placed on the suppliers of a good

Let's assume that the table below illustrates the current supply decision for street vendors of popsicles.

**Market Supply of Street Vendor Popsicles**

	A	B	C	D	E	F	G	H
Price	\$1.40	\$1.20	\$1	80¢	60¢	40¢	20¢	0¢
Quantity supplied	26.25	22.5	18.75	15	11.25	7.5	3.75	0

As we did with demand, let's consider how a couple different events would affect this supply curve.

**Event 1: increase in productivity**

If productivity increases, then street vendors are able to supply a greater number of popsicles during the Summer. Quite obviously, although this increase in productivity means street vendors can produce more popsicles in a given period of time, it's also true that they may not have the storage capacity for these extra popsicles, at least not right away. As a result, this change would obviously have little to no effect if that were true. If this change does have an effect, however, then it would be to increase the quantity supplied, no matter what price arises in this market. The table below shows how the quantity supplied would increase, as we move from the original quantity supplied to the new quantity supplied.

**Market Supply of Street Vendor Popsicles**

	A	B	C	D	E	F	G	H
Price	\$1.40	\$1.20	\$1	80¢	60¢	40¢	20¢	0¢
Original Qs	26.25	22.5	18.75	15	11.25	7.5	3.75	0
New Qs	37.5	33.75	30	26.25	22.5	18.75	15	11.25

**Event 2: decrease in the number of suppliers**

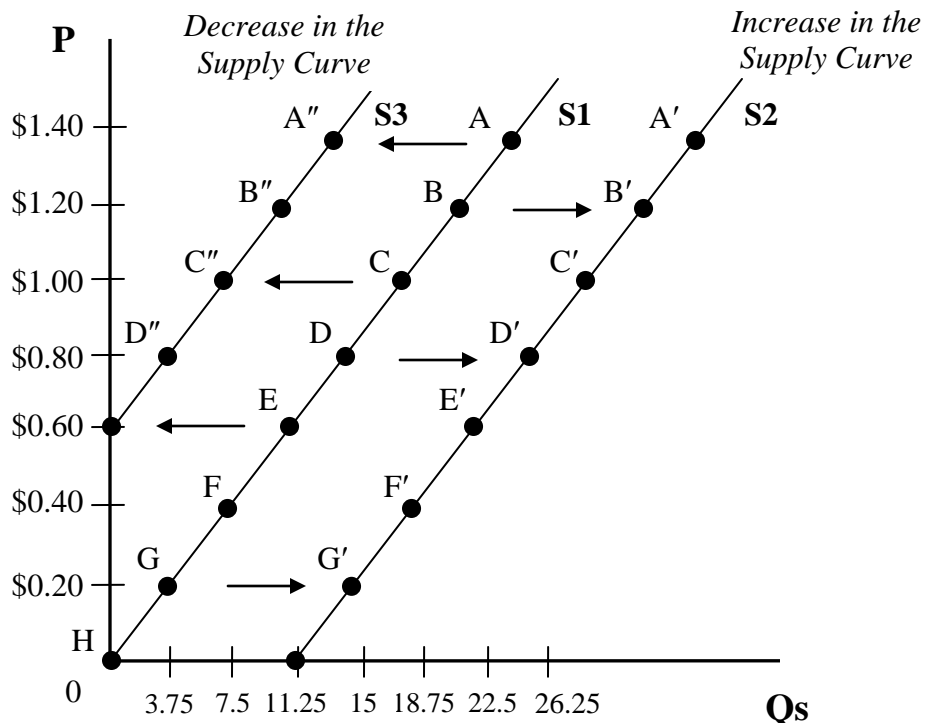
Suppose suppliers decide to leave the market. E.g., a law is passed that says suppliers must register their business with the City, and that the process of registration carries a fee that each supplier must pay. Not all suppliers would be willing to pay the fee, and so some street vendors may stop selling popsicles. That means the effect on the street vendor popsicle market is an

overall decrease in the quantity supplied (due to fewer suppliers operating in the market), no matter what price arises in the market. We see this in the table below as well.

### Market Supply of Street Vendor Popsicles

	A	B	C	D	E	F	G	H
Price	\$1.40	\$1.20	\$1	80¢	60¢	40¢	20¢	0¢
Original Qs	26.25	22.5	18.75	15	11.25	7.5	3.75	0
New Qs	15	11.25	7.5	3.75	0	0	0	0

Event 1 leads to an increase in the quantity of street vendor popsicles sold by suppliers, no matter what the price, and event 2 leads to a decrease in the quantity of street vendor popsicles sold, no matter the price. As the graph below shows us, event 1 impacts this market by shifting the supply curve from S1 to S2, and event 2 leads to a shift in the supply curve from S1 to S3. We call the change in this supply curve, from S1 to S2, an increase in the supply of street vendor popsicles. The change that leads to the supply curve shifting from S1 to S3 is called a decrease in the supply of street vendor popsicles.



Both of these events are identified on our list of potential (related) events or variables which directly affect the selling decision of suppliers. Just as we stated with the demand curve, if another event on our supply list changes, we get an increase or decrease in the supply curve. Similarly, we can call this a list of shift variables for the supply curve. When a shift variable for the supply curve changes, we observe a shift in the supply curve (rightward for an increase, or to the left for a decrease).