

**Horizontal Summation of Supply and Demand Curves**

**Market Demand**

Thus far, we have mostly discussed individual's demand curve. While this is fine, we may be interested in the total demand curve for all individuals, often called the market demand curve. To add up individual's demand curves, we use a process called horizontal summation.

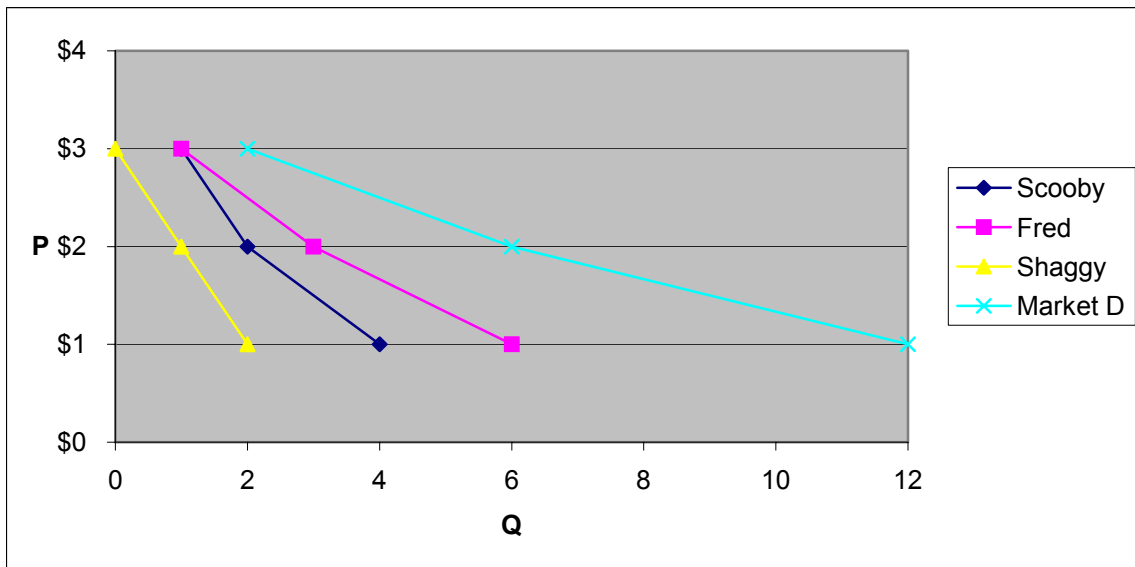
To horizontally sum a demand curve: pick a price, add up each individual's quantity demanded at the price, and this quantity will give you the quantity demanded for the market demand curve.

Thus, suppose at  $P = \$7$ , individual 1's quantity demanded is 4 units, individual 2's quantity demanded is 2 units, and individual 3's quantity demanded is 6 units. Thus, at  $P = \$7$ , the market quantity demanded will be  $4 + 2 + 6 = 12$  units.

Now, pick  $P = \$6$  and repeat the process. Now  $P = 5$ , etc...

**Example**

Price	Scooby's $Q_D$	Fred's $Q_D$	Shaggy's $Q_D$	Market $Q_D$
\$3	1	1	0	$2 = 1 + 1 + 0$
\$2	2	3	1	$6 = 2 + 3 + 1$
\$1	4	6	2	$12 = 4 + 6 + 2$



Notice that we have to add in the quantity demanded of all potential customers. If we had looked at the market at a price  $=\$3$ , Shaggy wouldn't be buying any of the good. But if the price gets low enough, Shaggy begins buying the good. As another example, I imagine most of you are not going to buy a yacht this week, but if the price of a yacht fell to  $\$0.37$ , you would. You still get added into the market demand curve for yachts.

Also, notice that even though we have some kinked individual demand curves, the market demand curve is smoother (yet still kinked). It's not big deal if the market demand curve is kinked, but it will tend to get smoother as we add more and more consumers in. Thus, we will usually draw it as a straight line (but it doesn't have to be). This keeps our pictures nice.

One more thing to notice. As we add more customers in, the demand curve gets flatter. This will come in handy later, especially when we talk about supply.

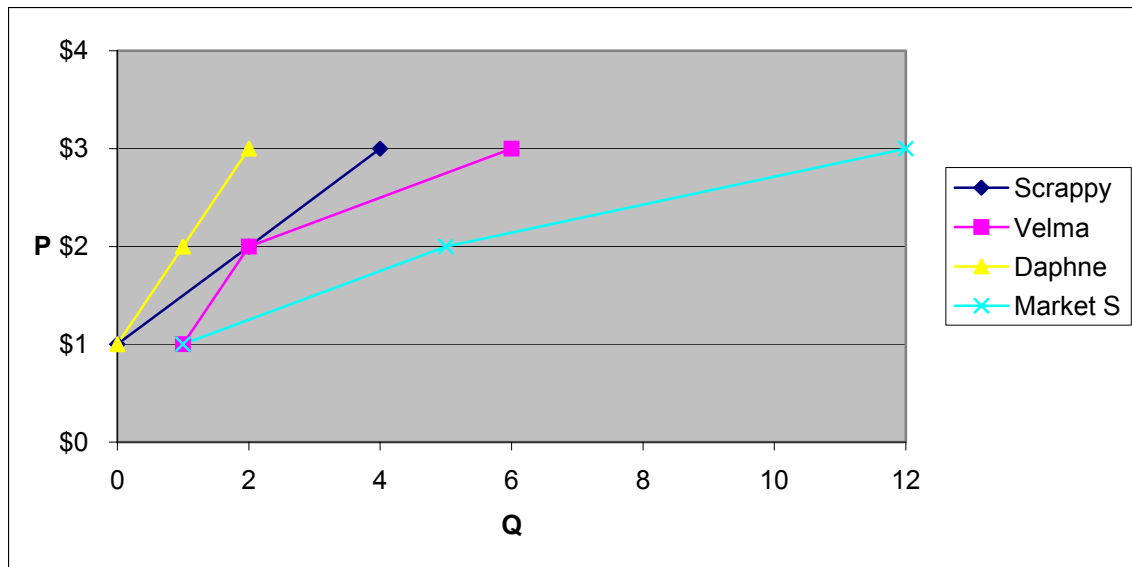
**Market Supply curves**

It is the same process. Now, at each price, we add up the each individual's quantity supplied.

**Example**

Price	Scrappy $Q_s$	Velma's $Q_s$	Daphne's $Q_s$	Market $Q_s$
\$1	0	1	0	$1 = 0 + 1 + 0$
\$2	2	2	1	$5 = 2 + 2 + 1$
\$3	4	6	2	$12 = 4 + 6 + 2$

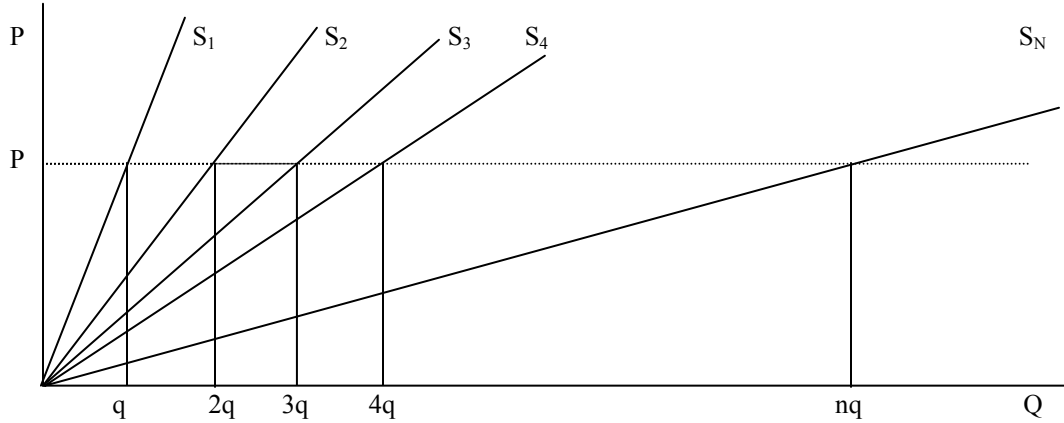
Again, we have some kinks in our individual's supply curves, and they smooth out. Again the supply curve gets flatter (see below for more on this).



One last thing worth doing is to examine what happens to a market supply curve as we add in lots of individual suppliers. The answer is it gets flatter. To make the point more explicit, let's assume that all suppliers are identical. (This means that everyone has the same MC of producing the good). If we do this, we can see that the market supply curve becomes flatter as we add more individual suppliers. It becomes very flat as we add lots of suppliers.

So, at a price of P, our first supplier produces q. If we add a second supplier, at P, each of the individuals produces q, resulting in  $q + q = 2q$ . If we add a third, we get  $3q$ . If we add n suppliers, we get  $n * q$ . Sometimes we will use little q's to represent individual's quantities, and uppercase Q's to represent market quantities. In any event, the important point here is that the market supply curve gets very flat. We will need this later.

In the picture below,  $S_2$ , for instance, shows the market supply curve if there are two identical suppliers.



**Terminology**

Okay. Now that we know how to add up curves, individual demand curves and individual supply curves are pretty boring. Thus, when we draw a supply and demand curve diagram, we will be talking about the market demand and the market supply. (Implicitly, we really have already been doing this). Thus, when we talk about “the supply curve” and “the demand curve” we are talking about the market demand curve and the market supply curve.

**What should I be reading?**

O’ Sullivan and Sheffrin

Chapter 4, p. 66 - 67 and p. 70 – 71. You may have read this already.