

Individual and Aggregate Demand
1101 Principles of Microeconomics, Summer 2004
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Aggregation

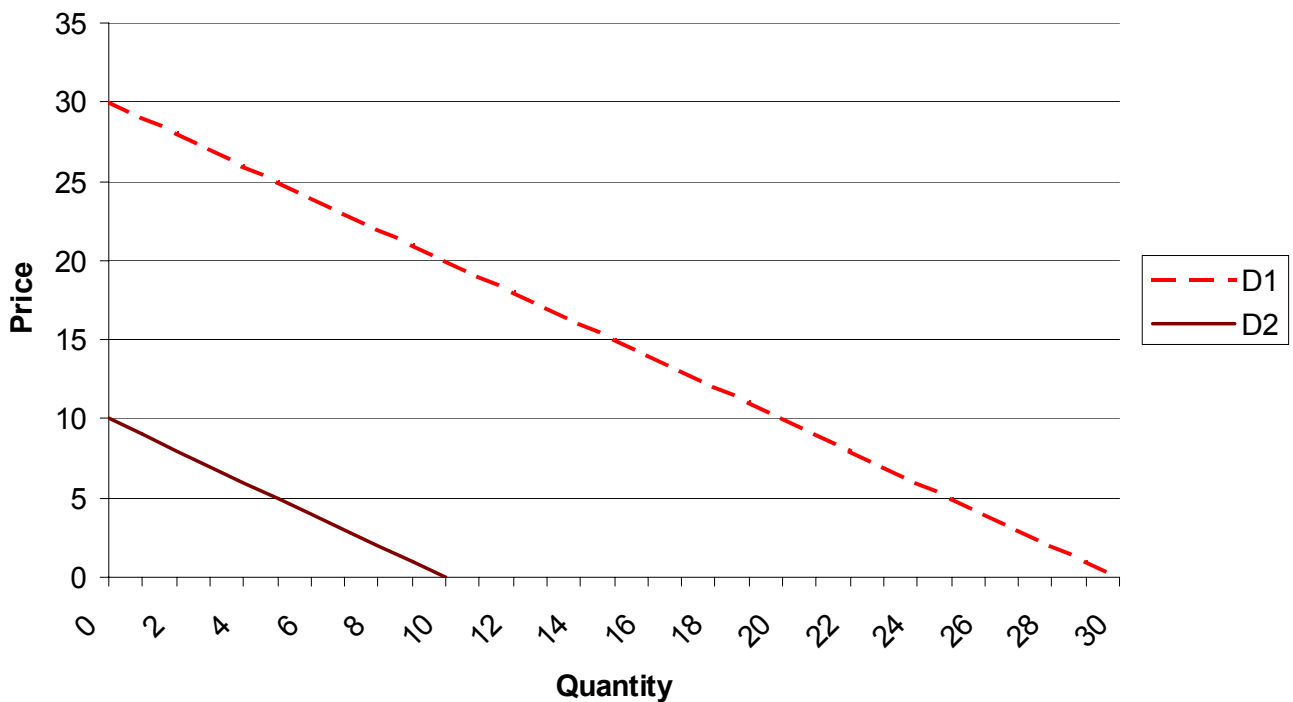
Suppose we have two consumers, 1 and 2, with individual demands given by

$$\text{Consumer 1 : } P = 30 - Q$$

$$\text{Consumer 2 : } P = 10 - Q$$

To aggregate, follow these steps:

Step 1. Graph demand for both consumers.



Step 2. Look for the vertical intercepts of individual demand curves. These will give you the intervals on which aggregate demand should be found separately.

In this case it is: $P = 10$ and $P = 30$. Therefore, our intervals are:

1. $P > 30$
2. $10 \leq P \leq 30$
3. $P < 10$

Step 3. For each of the cases from Step 2, find aggregate demand.

Case 1. $P > 30$. For these prices, none of the consumers buys anything, so aggregate demand $Q_A = 0$.

Case 2. $10 \leq P \leq 30$. For this range of prices, Consumer 2 buys nothing, Consumer 1 buys according to his demand. Therefore, aggregate demand is given by just the demand of Consumer 1: $Q_A = Q_1 = 30 - P$.

Case 3. $P < 10$. Here we get the most action. Both consumers are buying positive amounts. Express quantities in terms of prices. Label the quantity demanded by consumer 1 Q_1 , by consumer 2 Q_2 .

$$Q_1 = 30 - P$$

$$Q_2 = 10 - P$$

Then, aggregate demand is the sum of individual demands: $Q_A = Q_1 + Q_2 = 30 - P + 10 - P = 40 - 2P$.

Step 4. Graph aggregate demand. For prices above 30, it is just zero, so we do nothing. For $10 \leq P \leq 30$, we put on the first piece of aggregate demand given by $Q_A = 30 - P$. To express P in terms of Q_A , we write $P = 30 - Q_A$. Then, for $P < 10$, we put on the second piece of aggregate demand given by $Q_A = 40 - 2P$. To express P in terms of Q_A , write $P = 20 - \frac{1}{2}Q_A$. We get the following graph:

