Answers to Homework # 2

1) Use supply and demand curves to show the change in the price of mini-vans and the quantity sold, when these events occur:

a. The population grows.

The demand for mini-vans would shift out, increasing the price and the quantity sold.

b. The price of steel falls.

Steel is an input and its become less expensive. Thus, the supply of mini-vans would shift out, decreasing the price and increasing the quantity sold.

c. The price of sport-utility vehicles falls.

Assuming SUVs are a substitute --the demand for mini-vans would shift in, decreasing the price and the quantity sold.

d. The United Auto Workers are successful in negotiating higher wages.

UAW members are an input and their labor has become more expensive. The supply of mini-vans would shift in, increasing the price and decreasing the quantity sold.

e. The price of gasoline rises dramatically.

Assuming gasoline is a compliment and not an input --consumers will switch their automobile purchases toward smaller, more fuel-efficient cars. The demand for mini-vans would shift in, decreasing the price and the quantity sold.

An alternative (and acceptable answer): assuming gasoline is both a compliment and an input --both the demand and supply of mini-vans would shift in, the effect on price is indeterminate and the quantity sold decreases.

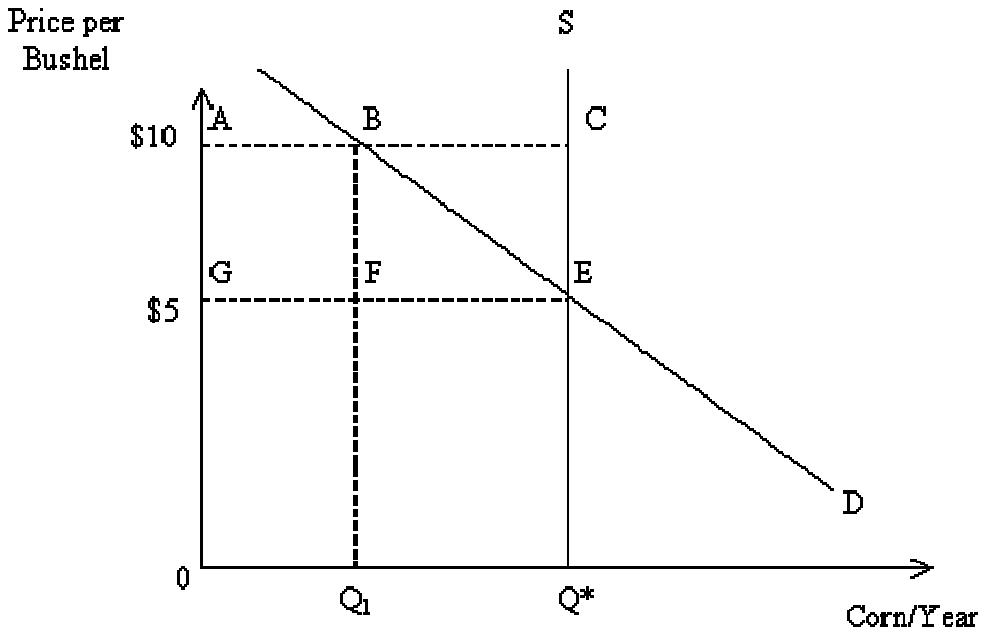
f. Numerous reports announce that sport-utility vehicles perform poorly in highway crash tests.

Assuming SUVs are a substitute --the demand for mini-vans would shift out, increasing the price and the quantity sold.

2) Answer questions 2.12 and 2.15 on page 46 and 47 of the textbook. (Hint for question 2.12 part b: assume the quantity of corn is fixed at Q* with the government subsidy.)

Answer to 2.12

a. The figure below shows the demand and supply curves for corn. The original equilibrium is E, with Q* units of corn produced and sold at a price of $5. The purchasing of corn by the government at $10 causes quantity demanded by consumers to fall to Q_1. Consumers pay $10 x Q_1, which is the area ABQ_10 while the government pays BCQ^*Q_1. If the price-elasticity of demand for corn is 0.5, then a 100% increase in price leads to a 50% reduction in quantity demanded by consumers. Hence, $Q_1 = .5Q^*$. The amounts spent by consumers and the government are the same.



b. Because the supply curve is vertical, the $5 per bushel subsidy has no effect on consumers. They still purchase Q* units and pay $5 per bushel. The government also pays $5 per bushel, so farmers are getting $10 per bushel. Consumers pay GEQ*0 and the government pays ACEG. The cost to the government is the same under the two programs. In part a, the government pays farmers $10 x .5Q*. In part b, the government pays $5 x Q*.

Answer to 2.15

Using the ε_d formula we have: $0.4 = 0.10/(\%\Delta P)$ so the $\%\Delta P = 0.25$. This implies a $1.00 increase in the price of gasoline. Since demand is inelastic (i.e., $0.4 < 1$) and the price has increased, we know that total spending (i.e. TR = P x Q) on gasoline will rise. It will rise by 12.5%. This is found by using a couple of equations. Before the reduction in quantity, TR = $4 x Q. After the 10% reduction in quantity, TR = $5.00 x 0.90Q = $4.50 x Q. Comparing $4Q with $4.50Q gives us a 12.5% increase (i.e., 0.50/4) in total spending.