# Who Pays a Sales Tax?

**Introduction**

To collect a sales tax a merchant totals up the amount due for the products sold and then adds on the sales tax. While this suggests that the buyer pays the sales tax, economists generally agree that a more insightful interpretation is that the suppliers of the products may indeed be paying the sales tax. The analysis that leads to this conclusion is an important step in understanding how economists think about such issues.

**The Model**

The demand curve is

$$P = 10 - ( Q - 100 - 0.20\ Y^* ) / 10,$$

where $Y^*$ is "extra income." The supply curve is

$$PS = 10 + 0.05\ ( Q - 100 ) + 0.20\ W^*,$$

where $W^*$ is "unusual weather." The price actually paid by a consumer subject to a sales tax is

$$P = ( 1 + Rate )\ PS.$$

**Exercises**

1. Verify that, if Rate = 0, $Y^* = 0$, and $W^* = 0$, then the equilibrium price is 10 and the equilibrium quantity is 100.

2. Determine P, PS, and Q for sales tax rates of 0.10, 0.20, and 0.40.

3. Graph the before tax and after tax supply curves and the demand case for the 0.40 tax rate.

4. Are the consumers paying the 0.40 sales tax? (Hint: do the producers still receive 10 per unit?)

5. Explain how the answer to "Who Pays a Sales Tax?" depends on the slopes of the supply and demand curves.

6. For the original supply and demand curves, what sales tax rate maximizes sales

tax revenue?  Is it actually possible to increase sales tax revenues by lowering the sales tax rate?  Provide an example if you find this to be possible.