What three factors must be taken into account in order to fully understand the effect of taxes on economic well-being?
ANSWER: In order to assess the impact of taxes on economic well-being, we must compare (1) the effect on the welfare of buyers and (2) the effect on the welfare of sellers to (3) the amount of revenue the government raises. The net effect on welfare is measured as the difference between the increased revenue to the government and the reduced consumer surplus and producer surplus.

What happens to the gains from trade when a tax is imposed? Explain.
ANSWER: A tax causes a reduction in the gains from trade by raising the price the buyer pays and reducing the price the seller receives. Hence, it will reduce the total volume of trade. This causes a loss of consumer surplus and producer surplus referred to as deadweight loss. The tax will reduce the gains realized from some trades and will discourage other trades from being made at all.

Using the graph shown for cases of Coke, calculate each of the following.

a. equilibrium price
b. equilibrium quantity
c. consumer surplus
d. producer surplus

Now suppose that the government imposes a $2.00 tax per case on the sellers of Coke. Show this on the graph and calculate each of the following after the tax is imposed.
e. price paid by buyers
Draw a supply-demand diagram for chocolate. On the diagram, show the equilibrium before and after the imposition of a tax. Now identify areas corresponding to each of the following.

- a. consumer surplus before the tax
- b. producer surplus before the tax
- c. total surplus before the tax
- d. consumer surplus after the tax
- e. producer surplus after the tax
- f. total surplus after the tax
- g. tax revenue
- h. deadweight loss
Using the graph shown, determine each of the following.

a. equilibrium price before the tax
b. consumer surplus before the tax
c. producer surplus before the tax
d. total surplus before the tax
e. consumer surplus after the tax
f. producer surplus after the tax
g. total tax revenue
h. total surplus (consumer surplus + producer surplus + tax revenue) after the tax
i. deadweight loss

ANSWER:

a. $55
b. $1250
c. $1250
d. $2500
e. $450
f. $450
g. $1200
h. $2100
i. $400
Use the graph shown to fill in the following table.

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<thead>
<tr>
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<th>WITHOUT TAX</th>
<th>WITH TAX</th>
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<td>Consumer surplus</td>
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<td>Total surplus</td>
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Economists disagree on the issue of how much labor taxes distort the outcome in labor markets and create deadweight loss. What characteristics of labor supply is at the heart of the disagreement? 

**ANSWER:** The disagreement among economists about tax distortions in labor markets comes down to different views about the elasticity of labor supply. If labor supply is fairly inelastic, labor taxes have a small deadweight loss; if labor supply is quite elastic, labor taxes have a large deadweight loss.

What is the relationship between elasticities of demand and supply and the size of the deadweight loss caused by a tax? 

**ANSWER:** The more elastic demand and supply, the greater the deadweight loss from a tax.

Using demand and supply diagrams, show the difference in deadweight loss between a market with inelastic demand and supply curves and a market with elastic demand and supply curves.

**ANSWER:**
Illustrate on three demand and supply graphs how the size of a tax (small, medium and large) can alter total revenue and deadweight loss.

ANSWER:
Some economists believe that the deadweight loss of taxes on labor in the U.S. is relatively small, while other economists believe that the deadweight loss is relatively large. What are the arguments employed to support these conflicting beliefs?

**ANSWER:** Economists who believe that the deadweight loss of the tax on labor is small argue that labor supply is fairly inelastic because most people would work full-time regardless of the wage; hence, the labor supply curve is almost vertical, and a tax on labor has a small deadweight loss. Economists who believe that the deadweight loss is large claim that many groups of workers respond to wage incentives by changing their quantity of labor supplied. These groups include those who work overtime, second-income earners who can choose to do unpaid work at home or paid work in the marketplace, elderly people who can choose when to retire and whether to take part-time work after retirement, and people who engage in illegal economic activity in the underground economy.

What is the best predictor of whether reducing a tax in a market will increase or decrease tax revenue?

**ANSWER:** The best predictor is the elasticity of supply and the elasticity of demand in the market. The more elastic supply and demand are in a market, the more taxes in that market distort behavior, and the more likely it is that a tax cut will raise tax revenue.

Suppose that a tax is imposed on the coal market, and is left in place for several years. What would you predict about (a) the size of the deadweight loss of the tax in the short run relative to the long run, and (b) the amount of revenue collected from the tax in the short run relative to the long run? Assume that the economy doesn’t grow during the period in question.

**ANSWER:** Because both demand and supply tend to be more elastic in the long run than in the short run, we would predict that (a) the deadweight loss of the tax would be larger in the long run than in the short run, and (b) the tax revenue would be smaller in the long run than in the short run.