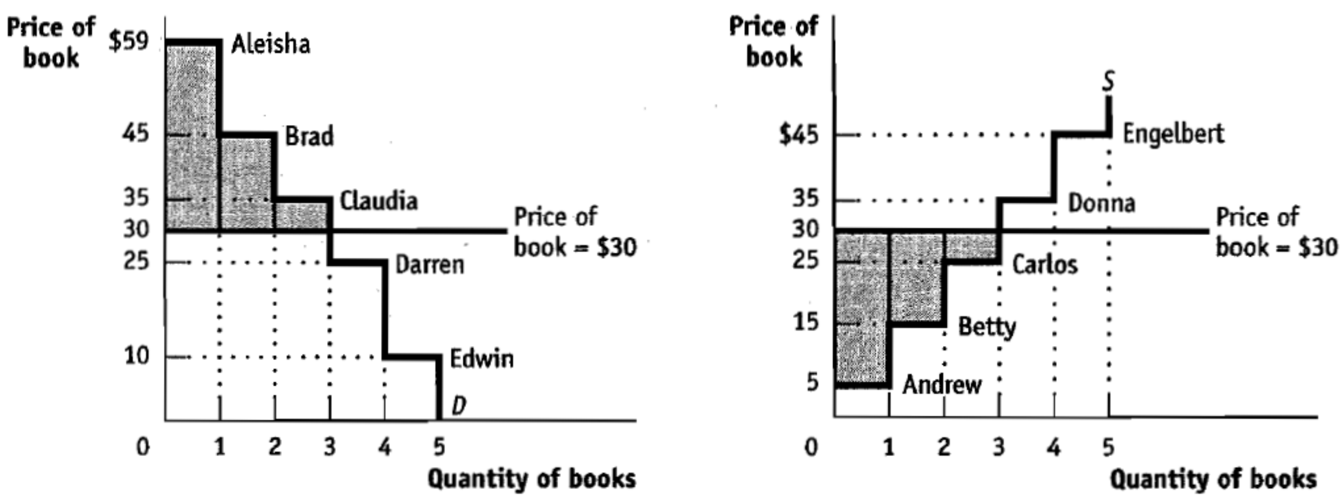
TIP: You can only measure consumer surplus as the triangle under the demand curve and above the market price if there are a large number of buyers. You can only measure producer surplus as the triangle above the supply curve and under the market price if there are a large number of sellers.

If you only have a few buyers or a few sellers, as in Figure 6.1 (Figures 6-2 and 6-7 in the text), you must calculate each individual's surplus and then add them together to get the market consumer or producer surplus. Each individual's consumer surplus is measured as the difference between that individual's willingness to pay and the market price. Each individual's producer surplus is measured as the difference between the market price and the individual's cost.

Figure 6.1



TIP: Producer and consumer surplus changes when the price of a good changes.

As the price of a good rises, quantity demanded will fall. Since consumers buy fewer goods at higher prices, and on those goods there is a smaller difference between willingness to pay and the market price, consumer surplus must decline. The reverse is true for a decrease in price.

As the price of a good rises, quantity supplied will rise. Since producers supply more goods at higher prices, and on those goods and the others that had been supplied there is a larger difference between market price and cost, producer surplus must increase. The reverse is true for a decrease in price.

TIP: The combined loss in consumer and producer surplus exceeds the revenue to the government when the government imposes a tax in the market.

Since fewer units of the good are exchanged, the consumer and producer surplus earned on those units no longer sold is lost to everyone. In Figures 6.2 and 6.3, consumer surplus is shown as triangle *A*, producer surplus as triangle *B*; rectangle C represents the government's revenue and triangle *F* is the total loss (deadweight loss) in producer and consumer surplus because of the tax.

Figure 6.2

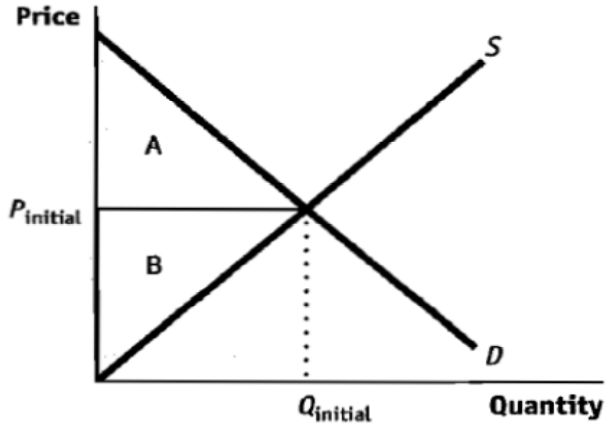
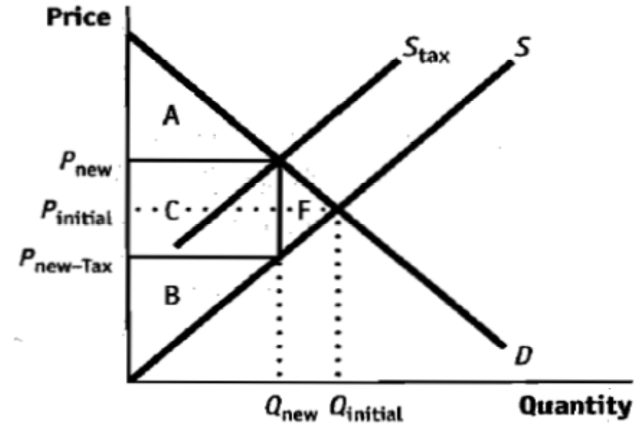


Figure 6.3



TIP: The excess burden or deadweight loss of a tax will be greater the larger the price elasticities of demand and supply.

The excess burden or deadweight loss of the tax comes about because of the loss of total surplus that results when transactions that are mutually beneficial to consumers and producers do not take place. A tax will discourage a larger number of transactions when the demand and supply curves are relatively price elastic. Compare Figures 6.4 and 6.5. In Figure 6.4, the demand and supply curves are relatively price inelastic when compared with Figure 6.5. If the government imposes the same per-unit tax in both markets, the loss of consumer and producer surplus will be much larger in Figure 6.5 than in Figure 6.4. This is because when the supply and demand curves are relatively price elastic, the tax will discourage more transactions than when the curves are relatively price inelastic. (The more elastic curves indicate that the consumers and producers are more responsive to changes in prices.)

Figure 6.4

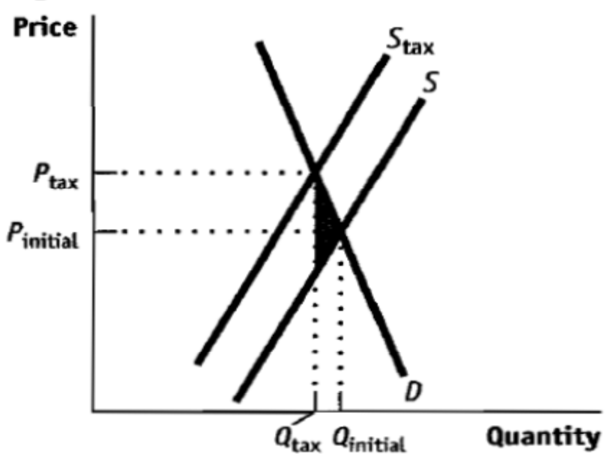


Figure 6.5