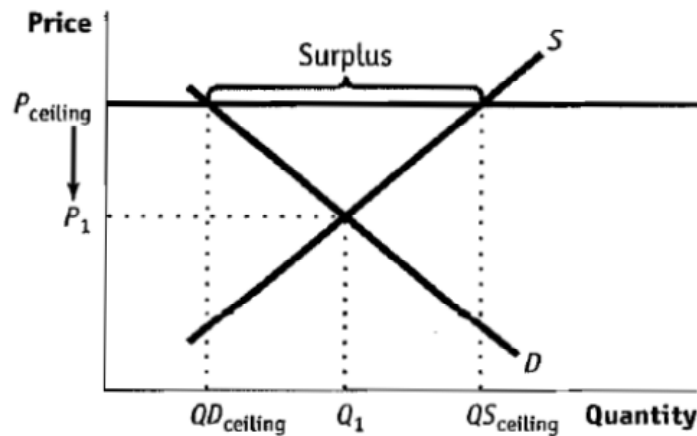


TIP: When the government imposes a price ceiling, be sure the price ceiling is below the equilibrium price; if it isn't, the price ceiling won't affect the market. Similarly, when the government imposes a price floor, be sure the price floor is above the equilibrium price to affect the market.

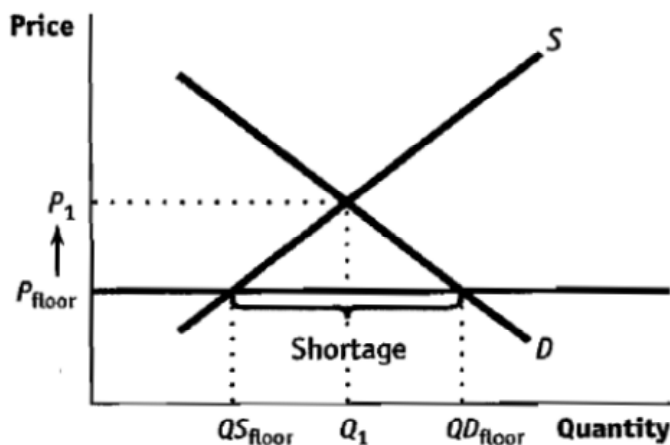
If the government sets a price ceiling above the equilibrium price, the price control will not affect the market equilibrium price. See Figure 4.1. At the price ceiling, quantity supplied will be greater than quantity demanded and the price in the market will fall until it returns to its original equilibrium price. The price ceiling only restricts the price from rising.

Figure 4.1



If the government sets a price floor below the equilibrium price, the price control will not affect the market equilibrium price. At the price floor, quantity demanded will be greater than quantity supplied and the price in the market will rise until it returns to its original equilibrium price. The price floor only restricts the price from falling. See Figure 4.2.

Figure 4.2



TIP: Remember that the government can use either an excise tax or license sales to change the equilibrium price and output in a market. Either way, the government can raise the same amount of revenue.

By imposing an excise tax or a quantity control, the government drives a wedge between the demand price and the supply price. When the government imposes a tax, the price wedge is equal to the amount of the tax. See Figure 4.3a. When the government grants licenses as a means of quantity control, the price wedge is the quota rent. See Figure 4.3b. If the government sells licenses to produce output and sets the price of each license equal to the price wedge, it can generate the same revenue as the excise tax; you can see this by comparing Figure 4.3a with Figure 4.3b.

Figure 4.3a

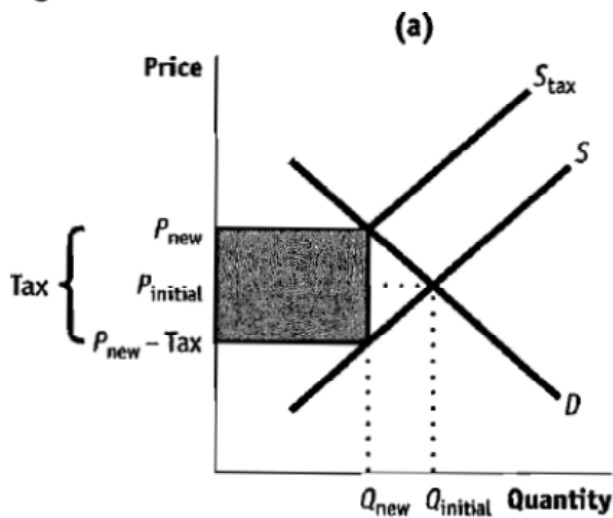
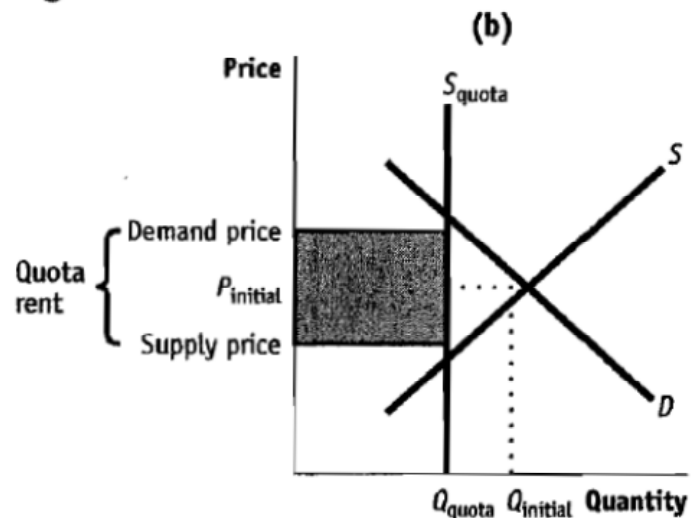


Figure 4.3b



TIP: The question of “who pays the tax?” is more than just a question of who remits the tax money to the government. It doesn’t matter whether the buyers or the sellers are required to send the tax to the government because the tax burden is usually shared by the buyers and the sellers.

Figure 4.4a illustrates an example of the government imposing a per-unit tax to be paid by the consumers, while Figure 4.4b shows an example of a per-unit tax to be paid by the producers.

Figure 4.4a

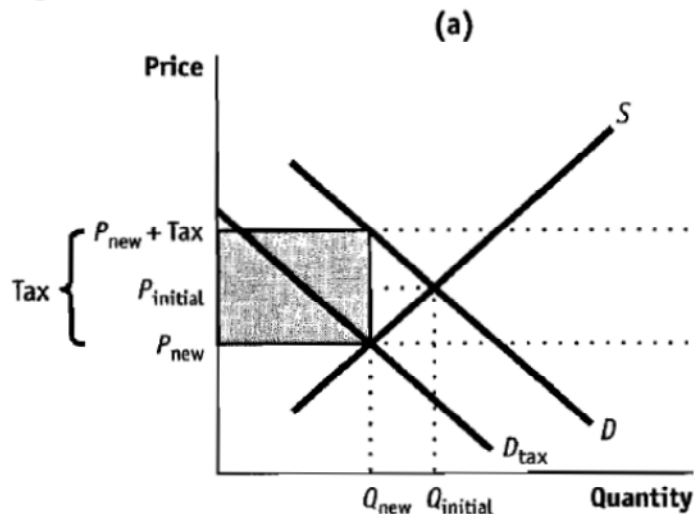
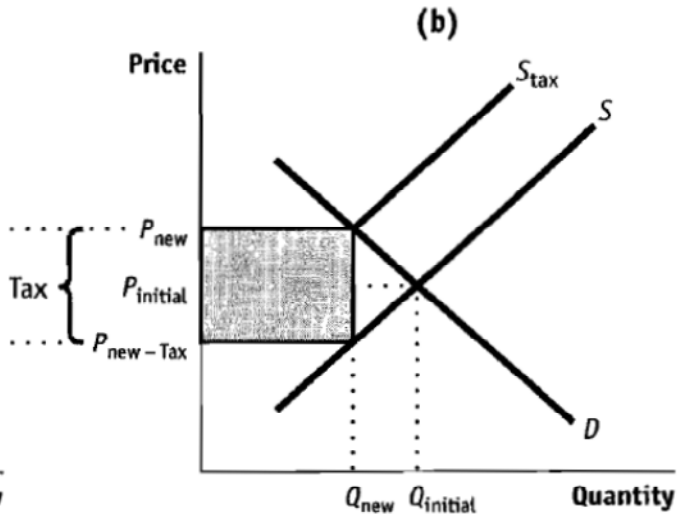


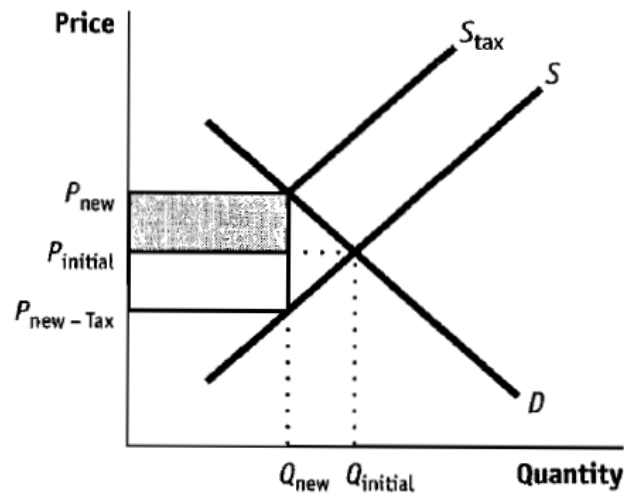
Figure 4.4b



Although the new price falls to P_{new} in Figure 4.4a, where the consumer is required to “pay the tax,” that price represents the price that producers receive after the imposition of the tax. Since the consumer must pay that price plus the tax, the cost to the consumer of the good is $P_{new} + Tax$ after the imposition of the tax. The portion of the tax paid by the consumer and the portion paid by the producer does not depend upon who is nominally required to pay the tax. While the producer is nominally responsible for the tax in Figure 4.4b, the market price rises to P_{new} and the consumer pays that price; the producer only receives $P_{new} - Tax$ after the tax is paid to the government. Figure 4.4b shows that the price the consumer pays and the price the producer receives are identical to the prices shown in Figure 4.4a, even though in that figure we assumed that the consumer was nominally responsible for the tax. The price the consumer pays and the price the producer receives is the same whether the consumer or the producer is required to “pay the tax.”

Since it does not matter who actually “pays the tax,” we can look at the burden of the tax assuming the producer pays the tax. Figure 4.5 shows the government’s revenue from the tax and the consumer’s and producer’s share of the tax.

Figure 4.5



The government’s revenue is the amount of the tax (the difference between the supply curves, or $P_{\text{new}} - [P_{\text{new}} - \text{Tax}]$) times the quantity exchanged after the imposition of the tax (Q_{new}). It is the sum of the shaded rectangles. The consumer pays a higher price with the tax (P_{new} versus P_{initial}) on the quantity exchanged after the imposition of the tax (Q_{new}), so the consumer’s burden is $(P_{\text{new}} - P_{\text{initial}})$ times Q_{new} . The producer receives a lower price ($P_{\text{new}} - \text{Tax}$ versus P_{initial}) with the tax on the quantity exchanged after the imposition of the tax (Q_{new}), so the producer’s burden is $(P_{\text{initial}} - [P_{\text{new}} - \text{Tax}])$ times Q_{new} .