Example 15.1. For the supply and demand curves shown, suppose a tax of $6/lb is levied on sellers. What share of the burden of this tax be borne by buyers? By sellers?

The equilibrium price, including the tax, will rise from $6/lb to $10/lb. Sellers receive $4/lb net of the tax, $2 less than before. So the buyers’ share of the tax is \((10-6)/6 = 2/3\), and the sellers’ share is \((6-4)/6 = 1/3\).

Example 15.2. How would your answers to Example 15.1 have been different if the tax had been collected from buyers instead of sellers?

Using the vertical interpretation of the original demand curve, note that at a quantity of 8 million lb/month, the buyer is willing to pay $10/lb. With a tax of $6/lb, the most he would be willing to pay the seller at 8 million lb/month is only $4/lb. So the demand curve as seen by the sellers is the original demand curve shifted down by $6/lb.

So, as before, the buyer pays $10/lb and the seller receives $4/lb in equilibrium. As before the buyers’ share of the tax is 2/3 and the sellers’ share is 1/3.

Example 15.3. If the supply curve is completely elastic, what share of the tax is borne by buyers? By sellers?

For this empirically most relevant case, the tax is borne entirely by buyers. When supply is perfectly elastic, taxing sellers “because they can afford the tax more easily than buyers” makes no economic sense at all. The burden of a tax falls where it can, not where it is placed.
Different Types of Profit

Profit = Total revenue - Total cost
Accounting profit = Total revenue - Explicit costs
Economic profit = Total revenue - All costs (implicit and explicit)
Normal profit = the opportunity cost of the resources owned by the firm

**Example 15.4.** Cullen Perot runs a miniature golf course in Odessa, Texas. He rents the course and equipment from a large recreational supply company, for which he pays a monthly fee of $1000. He supplies his own labor, and considers the job of running the golf course just as attractive as his only other employment opportunity, working in a grocery store at a salary of $800/mo. Monthly revenue from ticket sales is $2000/mo.

What is Cullen's accounting profit? His economic profit?

Accounting profit = $2000 - $1000 = $1000/mo.
Economic profit = $2000 - $1000 - $800 = $200/mo.

**Example 15.5.** Now suppose Cullen learns that his Uncle Ross has died and left him the parcel of land in New York City shown in the diagram.

The land has been cleared, and Cullen discovers that a construction company is willing to install and maintain a miniature golf course on it for a payment of $4000/month. A market survey reveals that he would collect $16,000/month in revenue by operating a miniature golf course there. The cost of living in New York is the same as in Odessa.

If Cullen opens a golf course on the Manhattan site, what will be his accounting profit?

Accounting profit = $16,000 - $4000 = $12,000/mo.

Example 15.6. Suppose Cullen's land would sell for $100,000,000 in today's real estate market, and suppose that the interest rate is 1%/month. What is Cullen's economic profit from running the Manhattan golf course? Should he relocate to Manhattan?

The opportunity cost of devoting the land to a miniature golf course is the interest that Cullen could have earned from the money he could have gotten from selling the land:

\[(0.01) \times ($100,000,000) = $1,000,000/mo.\]

The opportunity cost of his time is $800/mo (the amount he could have earned at the grocery) + $200/mo (economic profit he could have earned).

So his monthly economic profit in Manhattan is

\[ $16,000 - $4000 - $800 - $200 - $1,000,000 = -$979,000 < 0. \] So Cullen should stay in Odessa.
Competition tends to drive economic profit down to zero

When a firm is making positive economic profit, it is earning more than the cost of all the resources required to produce the goods it sells. This means that another firm could produce the same goods and in the process increase its owners' wealth. Entry by new firms will cause price to fall until economic profit is driven down to zero. Likewise, an industry in which firms are earning negative economic profit is one in which firms are failing to cover all the costs of the resources they use. If this situation is expected to persist, some firms will go out of business. Exit will continue until price rises to cover all resource costs.

So in long-run equilibrium in a competitive industry, firms will earn zero economic profit.

Rent

**Example 15.7.** Normal agricultural land yields 50 bushels of corn per acre each year. Corn sells for $1/bushel, and a farmer can farm 500 acres with an equivalent amount of physical and psychological effort as is demanded by a factory job, which pays $10,000/yr and is the only other job available. If labor and land are the only farm costs, how much will normal agricultural land rent for?

Total revenue from farming = $25,000/yr
Total costs = $10,000 + 500x($30 per acre)
Economic profit = 0 = rent for 500 acres = $15,000/yr ⇒ rent = $30 per acre.

**Example 15.8.** Suppose there is one 500 acre plot that yields twice as much corn as the normal farmland that rents for $30 per acre. How much will this plot rent for?

Total revenue = 100(500) = $50,000/yr
Total cost = $10,000 + land rent
Farmers will bid for the fertile patch until it is no longer possible to earn positive economic profit from farming it. Thus, its rent will be $40,000, or $80 per acre.

**Example 15.9.** Imagine yourself a member of the California state legislature. You have been asked to vote for a bill whose purpose is to alleviate poverty among farm workers in a rural county. Farm workers in that county rent their farmland from landowners and are allowed to keep the proceeds from the sale of the crops they grow. Because of limited rainfall, their crops are usually meager, resulting in very low incomes for the average worker. The bill under consideration would authorize public funds to construct an irrigation system that would double the crop yields on the land in the county.

Will this bill achieve its desired purpose of raising farmers' incomes?

With the introduction of the irrigation project grain yields are now twice as high as before, so total revenues will double. If the land rent remained at its original level, a farm worker would then earn more than he could by working in a factory.

What the supporters of the bill have failed to recognize is that land rents will not remain the same. Factory workers would bid vigorously for farm parcels, and the rental price of farmland will continue to rise until it reaches a level that equalizes the incomes of farmers and factory workers.

The beneficiaries of the state supported irrigation project would be not the impoverished farm workers but the owners of the land. On the view that these owners already have high incomes, there is no social purpose served by spending tax dollars to increase their incomes further.

**Example 15.10.** Suppose one firm is like all others except that it employs an extraordinarily efficient manager. This manager is so efficient that the firm earns $500,000 of economic profit each year in an industry in which the economic profit of other firms hovers very close to zero. If this manager received the same salary as all other managers, the firm that employed her would have much lower costs than all other firms in the industry. Is this a stable outcome?

There would a strong incentive for some other firm to bid this manager away by offering her a higher salary.

Suppose a new firm offered her $300,000 more than her current annual salary and she accepted. That new firm would then earn an economic profit of $200,000/year. That's not as good as an economic profit of $500,000/year, but it's $200,000/year better than the normal profit her original employer will earn without her.

Still other firms would have an incentive to offer even more for this manager. Theory tells us that the bidding should continue until the cost savings for which she is responsible are entirely incorporated into her salary--that is, until her salary is $500,000/year higher than the salary of an ordinary manager. And once her salary is bid up to that level, the firm that hires her will no longer enjoy a cost advantage over the other firms in the industry.

**Example 15.11.** The owner of the team that wins the National Basketball Championship receives additional television revenues of $40 million. Whichever team hires Shaquille O'Neal wins the Championship. If there is free agency and teams can bid openly for any player's services, by how much will O'Neal's salary exceed the salaries of other players?

Suppose O'Neal received only a $39 million salary premium from his current team. Some other team could increase its wealth by bidding O'Neal away with a higher salary.
Only when O’Neal's salary premium is $40 million will there be no further tendency for bidding.

**Example 15.12.** Ford has sued GM for $1 billion for infringement on Ford's patent on a revolutionary new engine technology. GM has a reasonable claim that it developed an equivalent technology independently. The legal issues are complex, and experts regard the case as too close to call. Whichever side hires the better lawyer is sure to win. Smith and Jones are the best two patent lawyers in the world. Both are outstanding but Jones is ever so slightly better.

What are the equilibrium fees for Smith and Jones in this case? Fees aside, whichever side hires Jones will be $1 billion better off than if it hadn't hired Jones. So in equilibrium Jones's fee will be $1 billion, Smith's zero.

Although competition drives economic profit to zero, economic rent can persist indefinitely.