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## Key points

- In the market for goods and services, quantity supplied and quantity demanded are often relatively slow to react to changes in price in the short run, but they react more substantially in the long run.
- As a result, demand and supply often—but not always—tend to be relatively inelastic in the short run and relatively elastic in the long run.

## Long-run vs. short-run impact

Elasticities are often lower in the short run than in the long run.

Changes that just aren't possible to make in a short amount of time are realistic over a longer time frame. On the demand side, that can mean consumers eventually make lifestyle choices—like buying a more fuel efficient car to reduce their gas usage. And on the supply side, it means that producers have time to do things like build new factories and hire new workers.

## Long-term and short-term demand elasticity

It can sometimes be difficult to change demand,  $Q_d$  in the short run, but it's much easier in the long run.

Let's look at consumption of energy as an example. In the short run, it's not easy to make substantial changes in energy consumption. Maybe you can carpool to work occasionally or adjust your home thermostat by a few degrees if the cost of energy rises, but that is about all you can do. In the long run, however, you can purchase a car that gets more miles to the gallon, choose a job that is closer to where you live, buy more energy-efficient home appliances, or install more insulation in your home. As a result, the elasticity of demand for energy is somewhat inelastic in the short run but much more elastic in the long run.

The diagram below is an example, based roughly on historical experience, for the responsiveness of  $Q_d$  to price changes for crude oil. In 1973, the price of crude oil was \$12 per barrel and total consumption in the US economy was 17 million barrels per day. That year, the nations who were members of the Organization of Petroleum Exporting Countries, OPEC, cut off oil exports to the United States for six months because the Arab members of OPEC disagreed with US support for Israel. OPEC did not bring exports back to their earlier levels until 1975—a policy that can be interpreted as a shift of the supply curve to the left in the US petroleum market.



Two graphs show that an inelastic demand curve means a shift in supply will mainly affect price and that an elastic demand curve means a shift in supply will mainly affect quantity.

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Diagram A and diagram B above show the same original equilibrium point and the same identical shift of a supply curve to the left from  $S_0$  to  $S_1$

Diagram A shows inelastic demand for oil in the short run, similar to that which existed for the United States in 1973. The new equilibrium,  $E_1$ , occurs at a price of \$25 per barrel—roughly double the price before the OPEC shock—and an equilibrium quantity of 16 million barrels per day.

Diagram B shows what the outcome would have been if the US demand for oil had been more elastic, a more likely result over the long term. This alternative equilibrium  $E_1$  would have resulted in a smaller price increase to \$14 per barrel and larger reduction in equilibrium quantity to 13 million barrels per day.

In 1983, for example, US petroleum consumption was 15.3 million barrels a day, which was lower than in 1973 or 1975. US petroleum consumption was down even though the US economy was about one-fourth larger in 1983 than it had been in 1973. The primary reason for the lower quantity was that higher energy prices spurred conservation efforts, and after a decade of home insulation, more fuel-efficient cars, more efficient appliances and machinery, and other fuel-conserving choices, the demand curve for energy had become more elastic.

## Long-term and short-term supply elasticity

On the supply side of markets, producers of goods and services typically find it easier to expand production in the long run of several years rather than in the short run of a few months. After all, in the short run, it can be costly or difficult to build a new factory, hire many new workers, or open new stores. But over a few years, all of these things are possible.

Indeed, in most markets for goods and services, prices bounce up and down more than quantities in the short run, but quantities often move more than prices in the long run. The underlying reason for this pattern is that supply and demand are often inelastic in the short run, so that shifts in either demand or supply can cause a relatively greater change in prices. But—since supply and demand are more elastic in the long run—the long-run movements in prices are more muted and quantity adjusts more easily.

## Review question

Would you usually expect elasticity of demand or supply to be higher in the short run or in the long run? Why?

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