

5.4: Elasticity of Demand

Learning Objectives

- Describe and give examples of elasticity



Figure 1. Mr. Fantastic is elastic.

Think about the word *elastic*. It suggests that an item can be stretched. In economics, when we talk about **elasticity**, we're referring to how much something will stretch or change in response to another variable. Consider a rubber band, a leather strap, and a steel ring. If you pull on two sides of a rubber band (or Mr. Fantastic), the force will cause it to stretch a lot. If you use the same amount of force to pull on the ends of a leather strap, it will stretch somewhat, but not as much as the rubber band. If you pull on either side of a steel ring, applying the same amount of force, it probably won't stretch at all (unless you're very strong). Each of these materials (the rubber band, the leather strap, and the steel ring) displays a different amount of elasticity in response to being pulled, and all three fall somewhere on a continuum from very stretchy (elastic) to barely stretchy (inelastic).

There are different kinds of economic elasticity—for example, price elasticity of demand, price elasticity of supply, income elasticity of demand, and cross-price elasticity of demand—but the underlying property is always the same: how responsive or sensitive one thing is to a change in another thing.

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Elastic and Inelastic Demand

Let's think about elasticity in the context of price and quantity demanded. While the law of demand does tell us that more of a good will be bought at a lower price, it does not tell us *how much* the quantity demanded will increase because of the price change. For example, if a store owner raises prices, she can expect that the quantity demanded will drop, but she might not know how sensitive customers will be to the change. How many people will buy her products despite the price increase and how many people will be driven away?

If a small change in price creates a large change in the quantity demanded, then we would say that the demand is very **elastic**—that is, the demand is very sensitive to a change in price. If, on the other hand, a large change in price results in a very small change in demand in the quantity demanded, then we would say the demand is **inelastic**. As we will see later, elastic and inelastic are relative concepts. Here's a way to keep this straight: demand is **inelastic** when consumers are **ins**ensitive to changes in price.

Consider the example of cigarette taxes and smoking rates—a classic example of inelastic demand. Cigarettes are taxed at both the state and federal level. As you might expect, the greater the amount of the tax increase, the fewer cigarettes are bought and consumed. While the taxes are somewhat of a deterrent, demand doesn't decrease as much as the price increase, though. We can say, then, that the demand for cigarettes is relatively inelastic.

You might think that elasticity isn't an important consideration when it comes to the price of cigarettes. Surely *any* reduction in the demand for cigarettes would be a good thing, right? Does it really matter whether the demand is elastic or inelastic? It does. The reason is that taxes on cigarettes serve two purposes: to raise tax revenue for government and to discourage smoking. On one hand, if a higher cigarette tax discourages consumption by quite a lot—meaning a very large reduction in cigarette sales—then the cigarette tax on each pack will not raise much revenue for the government. On the other hand, a higher cigarette tax that does

not discourage consumption by much will actually raise more tax revenue for the government (but not have much impact on smoking rates). Thus, when Congress tries to calculate the effects of altering its cigarette tax, it must analyze *how much* the tax affects the quantity of cigarettes consumed. In other words, understanding the elasticity of cigarette demand is key to measuring the impact of taxes on government revenue AND public health.

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This issue reaches beyond governments and taxes; every firm faces a similar challenge. Every time a firm considers raising the price that it charges, it needs to know how much a price increase will reduce the quantity of its product that is demanded. Conversely, when a firm puts its products on sale, it wants assurance that the lower price will lead to a significantly higher quantity demanded.

Learning Objectives

[glossary-page][glossary-term]elastic demand: [/glossary-term]
[glossary-definition]a high responsiveness of quantity demanded or supplied to changes in price[/glossary-definition][glossary-term]elasticity: [/glossary-term][glossary-definition]an economics concept that measures responsiveness of one variable to changes in another variable[/glossary-definition][glossary-term]inelastic demand: [/glossary-term][glossary-definition]a low responsiveness by consumers to price changes[/glossary-definition][glossary-page]

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