

Price Elasticity of Demand

By [Patrick L. Anderson](#), [Richard D. McLellan](#), [Joseph P. Overton](#), and [Dr. Gary L. Wolfram](#) | Nov. 13, 1997

The "law of demand," namely that the higher the price of a good, the less consumers will purchase, has been termed the "most famous law in economics, and the one that economists are most sure of."⁸⁷ To predict consumer behavior, economists use well-defined techniques evaluating the sensitivity of consumers to changes in price. Such techniques, pioneered by the great British economist Alfred Marshall (1842-1924) in the early part of this century, are the foundations of microeconomics.⁸⁸ The most commonly used measure of consumers' sensitivity to price is known as "price elasticity of demand." It is simply the proportionate change in demand given a change in price.⁸⁹ If a one-percent drop in the price of a product produces a one-percent increase in demand for the product, the price elasticity of demand is said to be one.⁹⁰ Hundreds of studies have been done over the years calculating long-run and short-run price elasticity of demand. For most consumer goods and services, price elasticity tends to be between .5 and 1.5. As the price elasticity for most products clusters around 1.0, it is a commonly used rule of thumb.⁹¹ A good with a price elasticity stronger than negative one is said to be "elastic;" goods with price elasticities smaller (closer to zero) than negative one are said to be "inelastic." Goods that are more essential to everyday living, and that have fewer substitutes, typically have lower elasticities; staple foods are a good example. Goods with many substitutes, or that are not essential, have higher elasticities. Goods that are considered luxuries, or whose purchase can be easily postponed, often have elastic demand. Table 5 on the next page shows estimated price elasticities of demand for a variety of consumer goods and services, taken from a standard economics textbook.⁹³

For example, the demand for automobiles would, in the short term, be somewhat elastic, as the purchase of a new vehicle can often be delayed. The demand for a *specific model* automobile would likely be highly elastic, because there are so many substitutes. Table 5 shows estimated price elasticities of demand for a variety of consumer goods and services. Over the long run, the demand for automobiles in rural areas would probably be inelastic, since there are few alternative modes of transportation.

Table 5 includes an estimate for the price elasticity of demand of 1.1 for alternative schools. Schooling itself is considered an essential service by most parents, and better schools are so desirable to many parents that they undertake considerable sacrifices to send their children to alternative schools. This would tend to produce a highly inelastic demand. However, there is also a widely available substitute for alternative schools, namely the traditional public schools. For most goods and services, the availability of substitutes produces a highly elastic demand. Given this combination of widely available substitutes and high importance to many parents, it is not surprising that the existing research places the demand elasticity for alternative schools near 1.

Table 5. Estimated Price Elasticities of Demand for Various Goods and Services

Goods	Estimated Elasticity of Demand
<i>Inelastic</i>	
Salt	0.1
Matches	0.1
Toothpicks	0.1
Airline travel, short-run	0.1

Gasoline, short-run	0.2
Gasoline, long-run	0.7
Residential natural gas, short-run	0.1
Residential natural gas, long-run	0.5
Coffee	0.25
Fish (cod) consumed at home	0.5
Tobacco products, short-run	0.45
Legal services, short-run	0.4
Physician services	0.6
Taxi, short-run	0.6
Automobiles, long-run	0.2
<i>Approximately Unitary Elasticity</i>	
Movies	0.9
Housing, owner occupied, long-run	1.2
Shellfish, consumed at home	0.9
Oysters, consumed at home	1.1
Private education	1.1
Tires, short-run	0.9
Tires, long-run	1.2
Radio and television receivers	1.2
<i>Elastic</i>	
Restaurant meals	2.3
Foreign travel, long-run	4.0
Airline travel, long-run	2.4
Fresh green peas	2.8
Automobiles, short-run	1.2 - 1.5
Chevrolet automobiles	4.0
Fresh tomatoes	4.6

Source: *Economics: Private and Public Choice*, James D. Gwartney and Richard L. Stroup, eighth edition 1997, seventh edition 1995; primary sources: Hendrick S. Houthakker and Lester D. Taylor, *Consumer Demand in the United States, 1929-1970* (Cambridge: Harvard University Press, 1966,1970); Douglas R. Bohi, *Analyzing Demand Behavior* (Baltimore: Johns Hopkins University Press, 1981); Hsaing-tai Cheng and Oral Capps, Jr., "Demand for Fish" *American Journal of Agricultural Economics*, August 1988; and U.S. Department of Agriculture.