NO PREP

Elastic or Inelastic? Mastering Price Elasticity of Demand

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Defining Price Elasticity

Price elasticity of demand measures how sensitive consumers are to price changes. Formally, it is the percentage change in quantity demanded divided by the percentage change in price (%ΔQ / %ΔP). If elasticity exceeds 1, demand is elastic. Quantity changes proportionally more than price does. If elasticity is less than 1, demand is inelastic. Quantity changes proportionally less. Unitary elasticity (equal to 1) means quantity and price change by the same percentage. Understanding elasticity allows businesses to predict how a price cut or hike will affect revenue and guides policymakers on taxation impacts.

Classifying Goods by Elasticity

Different goods fall into distinct elasticity categories: Elastic goods (e.g., designer handbags) see large quantity responses to price changes. Inelastic goods (e.g., insulin) witness minor quantity shifts even when prices move significantly. Unitary goods (e.g., certain commodities) exhibit proportional changes. For example, if the price of a designer bag rises by 10% and sales drop by 15%, elasticity equals 1.5 (elastic). But if insulin prices climb by 10% and usage falls by only 2%, elasticity equals 0.2 (inelastic). Firms use these measures to optimize pricing. Raising prices on inelastic goods increases revenue, while cutting prices on elastic goods can boost total sales.

Key Determinants of Elasticity

Several factors shape a good's elasticity: Availability of substitutes: More substitutes → more elastic demand. Necessity versus luxury: Necessities → inelastic; luxuries → elastic. Budget share: Larger share of income → more elastic;

small share → inelastic. Time horizon: Longer time → more elastic as consumers adjust habits; shorter → inelastic.

Real-World Applications

Companies and governments rely on elasticity to set policy and pricing. Retailers decide whether to run promotions based on expected sales lift: steep elasticity means steep discounts can drive volume. Policymakers consider tax incidence: inelastic goods (cigarettes) bear higher tax rates to maximize revenue without deterring consumption drastically, while taxing elastic goods yields lower revenue and can reduce demand significantly.

Key Information

Determinant	High Elasticity Scenario	Low Elasticity Scenario
Substitutes available	Many brands of breakfast cereal	Water
Nature of good	Luxury cruise vacations	Basic life-saving medication
Budget share	High-end smartphone costing 30% of monthly income	Salt costing less than 1%
Time to adjust	Fuel consumption over months (find alternatives)	Immediate gasoline fill-up with no alternatives

Case Study Excerpt: Fuel Prices and Commuter Behavior

Between 2019 and 2021, Meadowvale's average gasoline price climbed from $2.50 to $3.50 per gallon—a 40% increase driven by international oil-market fluctuations. Initially, daily posted fuel sales fell only 5%, suggesting inelastic demand: commuters still needed to drive to work and school. Over the following year, however, Meadowvale's public transit authority expanded bus routes and introduced discounted monthly passes. By mid-2022, commuters could choose between driving alone at higher cost or riding a bus for $50 monthly. Sales data showed that, after six months, gasoline consumption had dropped by 20% relative to pre-2019 levels—an elasticity of 0.5 in the short run transitioning toward elasticity above 1 in the long run. Surveys indicated that once alternatives became accessible, many drivers shifted modes, illustrating the critical role of the time horizon and substitute availability in demand responsiveness.

1. Which two determinants most clearly explain the shift in fuel elasticity over time?

_____

_____

2. How did the introduction of discounted transit passes change commuter choices?

_____

_____

Multiple Choice

1. A 20% price cut leads to a 30% rise in quantity demanded. This implies demand is:

    a) Perfectly inelastic

    b) Unitary elastic

    c) Inelastic

    d) Elastic

2. If a product represents a small fraction of income and has no close substitutes, demand is likely:

a) Highly elastic

b) Unitary elastic

c) Inelastic

d) Perfectly elastic

3. Over longer time horizons, consumers typically find more alternatives, making demand:

a) More elastic

b) Perfectly inelastic

c) Less elastic

d) Unchanged

Matching

Write the letter of the correct definition on the line next to each term.

Term	Definition
1. ___ Time horizon	A) Demand reacts strongly to price changes for nonessential goods
2. ___ Availability of substitutes	B) Demand for original good increases when alternatives cost more
3. ___ Necessity vs. luxury	C) Larger expense → greater sensitivity
4. ___ Budget share	D) Consumers shift consumption when cheaper options become available
5. ___ Substitute price rise	E) Demand falls only slightly, even as price rises

Fill-in-the-Blank

1. Price elasticity of demand equals _____ divided by _____.

2. Demand is _____ when quantity changes proportionally more than price.

3. The _____ of substitutes is a key determinant of how elastic demand is.

Short Answer

Answer each question in 2-4 complete sentences.

1. Explain why Meadowvale's gasoline demand became more elastic over the long run.

2. Describe how a good's budget share influences consumer price responsiveness.

3. Distinguish between elastic and inelastic demand in your own words.