

INTRODUCTION

Supply, Demand, and Market Equilibrium

Welcome to the core analytical framework of economics. This deck explores how markets coordinate millions of individual decisions through price signals, how external shocks ripple through the economy, and how policy interventions reshape outcomes.

PRICE SIGNALS

MARKET SHOCKS

ELASTICITY

POLICY TOOLS



Learning Goals

By mastering these concepts, you'll be able to analyze real-world economic events—from oil price fluctuations to housing policy debates—using a systematic analytical framework.

01

Define demand and supply curves

Understand what shifts entire curves versus movements along them

02

Explain market equilibrium

Predict effects of economic shocks on price and quantity

03

Apply elasticity concepts

Reason about responsiveness and measure policy impacts

04

Analyze policy interventions

Evaluate price ceilings, floors, taxes, and their incidence

05

Use welfare analysis tools

Assess consumer surplus, producer surplus, and deadweight loss

- The goal isn't memorizing graphs—it's mastering causal reasoning: cause → curve shift → new equilibrium → policy consequences.

Understanding Demand

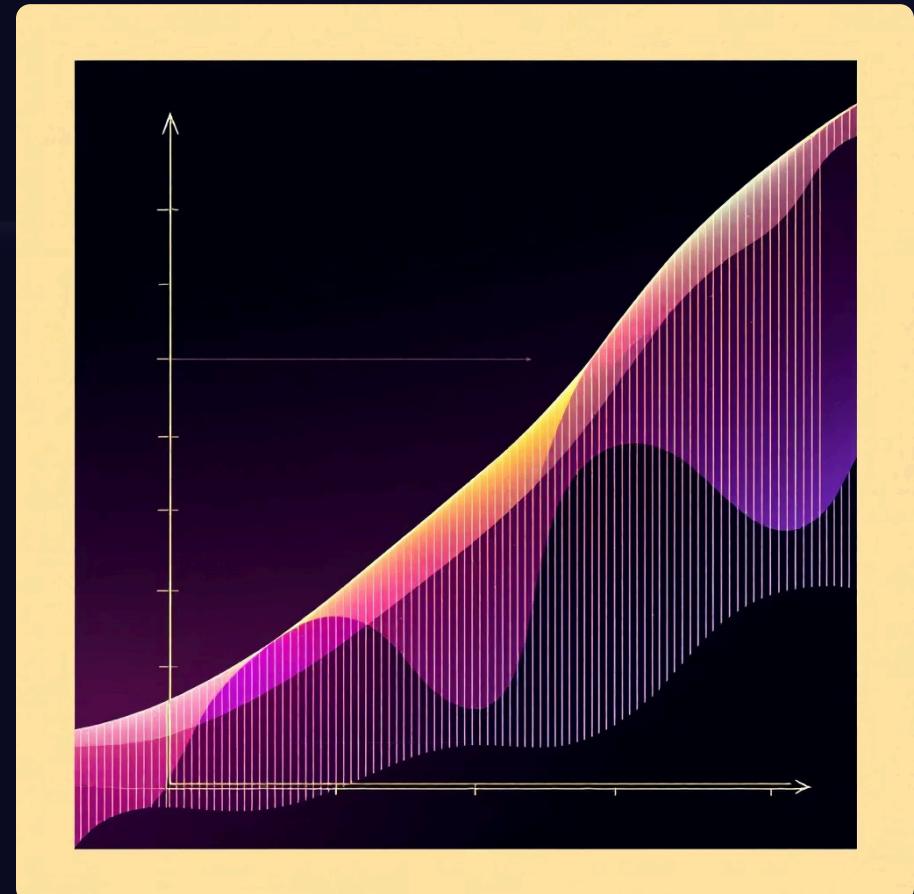
The Demand Relationship

Demand shows the relationship between price (P) and quantity demanded (Q_d), holding all other factors constant. This "ceteris paribus" assumption is crucial for isolating price effects.

Law of Demand: When price rises, quantity demanded typically falls—an inverse relationship reflecting rational consumer behavior.

Two Types of Changes

- **Movement along demand:** Price changes cause movement along the existing curve
- **Shift in demand:** Non-price factors shift the entire curve left or right



- Common mistake: Saying "demand increased" when quantity demanded rose due to lower price. That's a movement along the curve, not a shift!

A **demand increase** means at every possible price level, buyers want to purchase more—the entire relationship shifts rightward.

What Shifts Demand?

Demand curves shift when these key determinants change. Understanding these factors helps you translate real-world events into economic analysis.



Income

Normal goods: demand increases with income (restaurant meals). Inferior goods: demand decreases with income (instant ramen).



Tastes & Preferences

Fashion trends, health information, advertising, and social influences shift demand. Example: plant-based foods gaining popularity.



Prices of Substitutes

When tea prices rise, coffee demand increases. Goods that serve similar purposes create competitive relationships.



Prices of Complements

When gasoline prices rise, demand for SUVs falls. Goods consumed together have inverse relationships.



Expectations

If consumers expect future price increases or income growth, current demand shifts right as people buy now.



Number of Buyers

Population growth, market expansion, or demographic changes increase the total number of potential customers.

Understanding Supply

The Supply Relationship

Supply represents the relationship between price and quantity supplied (Q_s), holding other factors constant.

Law of Supply: When price rises, quantity supplied typically increases—producers find it profitable to offer more.

Two Types of Changes

- **Movement along supply:** Price changes cause producers to adjust quantity
- **Shift in supply:** Non-price factors shift the entire curve

Key Supply Shifters

- **Input costs:** Wages, energy, raw materials—higher costs shift supply left
- **Technology:** Improvements increase productivity and shift supply right
- **Taxes & subsidies:** Producer taxes shift left; subsidies shift right
- **Number of sellers:** Market entry shifts right; exit shifts left
- **Regulations:** Environmental rules, safety standards affect production capacity
- **Natural conditions:** Weather, disasters impact agricultural and resource markets

Example: When oil prices surge, the supply of plastic goods shifts left because petroleum is a key input. When automation improves manufacturing efficiency, supply shifts right.

Equilibrium, Surplus, and Shortage

Equilibrium (P^* , Q^*)

The point where quantity demanded equals quantity supplied. At this price, the market clears—there's no persistent shortage or surplus. Every buyer willing to pay P^* finds a seller, and every seller willing to accept P^* finds a buyer.



Market Surplus

When $P > P^*$: Quantity supplied exceeds quantity demanded. Sellers compete by lowering prices, pushing the market back toward equilibrium. Unsold inventory accumulates.

Market Shortage

When $P < P^*$: Quantity demanded exceeds quantity supplied. Buyers compete by bidding prices up, drawing the market toward equilibrium. Some willing buyers can't find sellers.

- ❑ Equilibrium is a **prediction** of where markets tend to move when prices can adjust freely. It doesn't imply fairness or optimality—just stability under standard model assumptions.

Analyzing Market Shocks

Use this systematic four-step method to predict how external events affect market outcomes. This is the core analytical skill in applied economics.



Identify the Change

What event occurred? Examples: income rise, new regulation, input cost increase, viral trend, technological breakthrough, policy change.



Determine Which Curve

Does it affect buyers (demand) or sellers (supply)? Some events affect both curves simultaneously.



Determine Direction

Does the curve shift left (decrease) or right (increase)? Use the determinants framework from earlier slides.



Compare Equilibria

How do the new P^* and Q^* compare to the original? Trace through the logical chain to predict outcomes.

Common Shock Patterns



Demand Increases (Right)

Result: $P^* \uparrow$ and $Q^* \uparrow$

Example: Rising incomes increase demand for restaurant meals

Supply Decreases (Left)

Result: $P^* \uparrow$ and $Q^* \downarrow$

Example: Hurricane damages oil refineries, reducing gasoline supply

Both Shift

Result: Ambiguous outcomes

Need data on relative magnitudes to determine final P^* and Q^*

Elasticity: Measuring Responsiveness

Elasticity quantifies how strongly quantity responds to price changes. This concept is crucial for predicting the impact of taxes, price controls, and market shocks.

Price Elasticity of Demand (PED)

Formula: $PED = (\% \Delta Q_d) / (\% \Delta P)$

Usually negative; economists often use absolute value
 $|PED|$



Elastic

$|PED| > 1$

Quantity responds strongly to price changes

What Makes Demand More Elastic?

- **Many substitutes available:** Easy to switch to alternatives when price rises
- **More time to adjust:** Long-run elasticity exceeds short-run as consumers adapt
- **Large budget share:** Expensive items receive more attention when prices change
- **Luxury vs necessity:** Optional purchases are more price-sensitive



Inelastic

$|PED| < 1$

Quantity responds weakly to price changes

- ❑ Example: Gasoline demand is typically inelastic in the short run (people need to drive) but more elastic in the long run (they can buy fuel-efficient cars, move closer to work, or use public transit).

You don't need complex mathematics—focus on interpreting whether consumers are "responsive" or "not very responsive" to price changes.

Policy Tools I: Price Controls

Price Ceilings



Legal maximum price set below equilibrium

Binding when $P_c < P^*$ creates a persistent shortage where $Q_d > Q_s$

Likely Side Effects

- Long queues and waiting lists
- Non-price rationing mechanisms
- Quality deterioration
- Black markets and illegal transactions
- Reduced investment in supply

Example: Rent control in cities like New York and San Francisco

Price Floors



Legal minimum price set above equilibrium

Binding when $P_f > P^*$ creates a persistent surplus where $Q_s > Q_d$

Possible Responses

- Government purchases of surplus
- Production quotas to limit supply
- Informal/underground markets
- Reduced quality competition
- Exit of marginal suppliers

Example: Agricultural price supports and minimum wage laws

- A ceiling above equilibrium has no effect; a floor below equilibrium has no effect. Only binding controls alter market outcomes by preventing price adjustment to equilibrium.

Policy Tools II: Taxes and Welfare

Tax Incidence and Burden



A **per-unit tax** creates a wedge between the price buyers pay and the price sellers receive. The market quantity falls as the tax discourages transactions.

The Incidence Rule

The more inelastic side of the market bears more of the tax burden, regardless of who legally pays the tax.

- **Inelastic demand:** Consumers bear more burden
- **Inelastic supply:** Producers bear more burden

Welfare Analysis Tools

Consumer Surplus (CS): Value buyers receive beyond what they pay

Producer Surplus (PS): Revenue sellers receive beyond their costs

Deadweight Loss (DWL): Reduction in total surplus from market interventions

- Taxes and price controls typically reduce total surplus, creating deadweight loss. However, policies may still be justified for equity reasons or to correct market failures.

Lab Activity

Choose one simulation to explore these concepts hands-on:

1

2

Tax Simulation

Impose a per-unit tax and record how P, Q, and burden distribution change with different elasticities

Price Ceiling Simulation

Set a binding ceiling and observe shortage size, rationing mechanisms, and welfare changes

Deliverable: Narrate your results using economic reasoning. For example: "Because demand was inelastic, the tax mostly raised the buyer price and reduced quantity only slightly."