Econ 201: Introduction to Economics Analysis

September 4 Lecture: Supply and Demand

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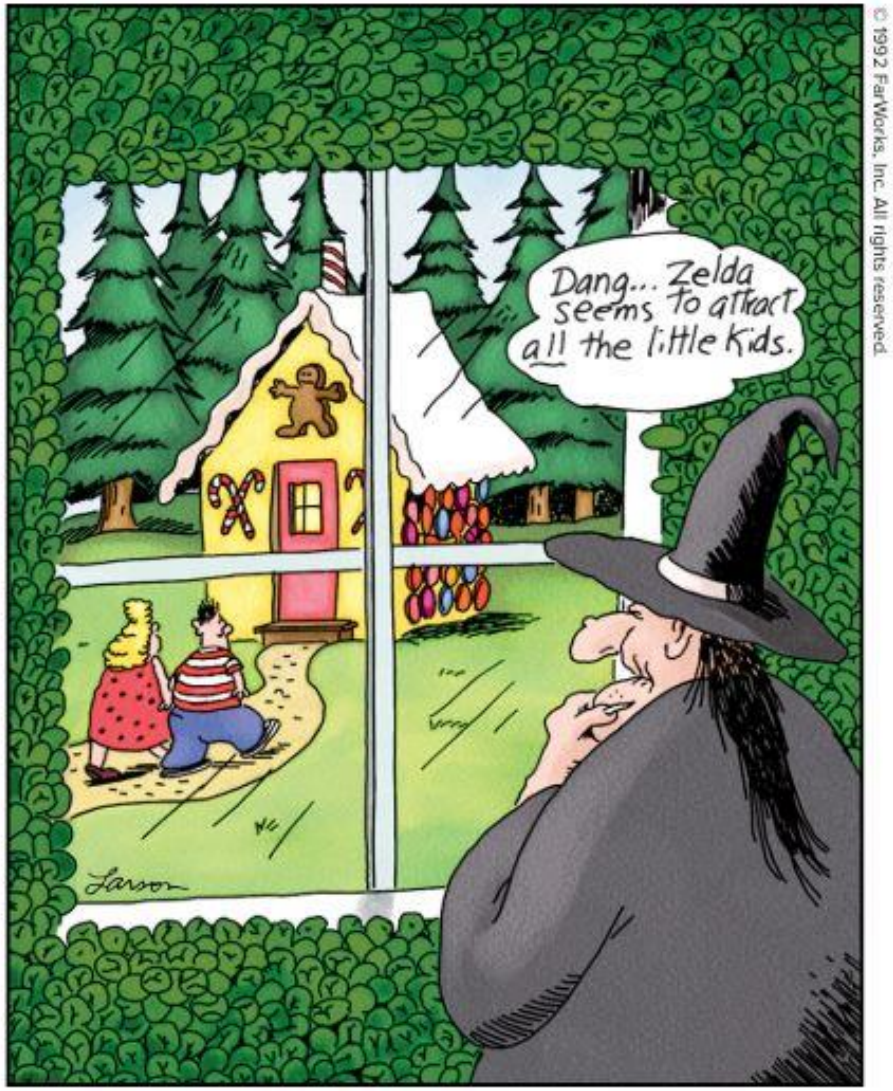
Daily dose of The Far Side

Keeping with the vegetable theme from Wednesday…

www.thefarside.com



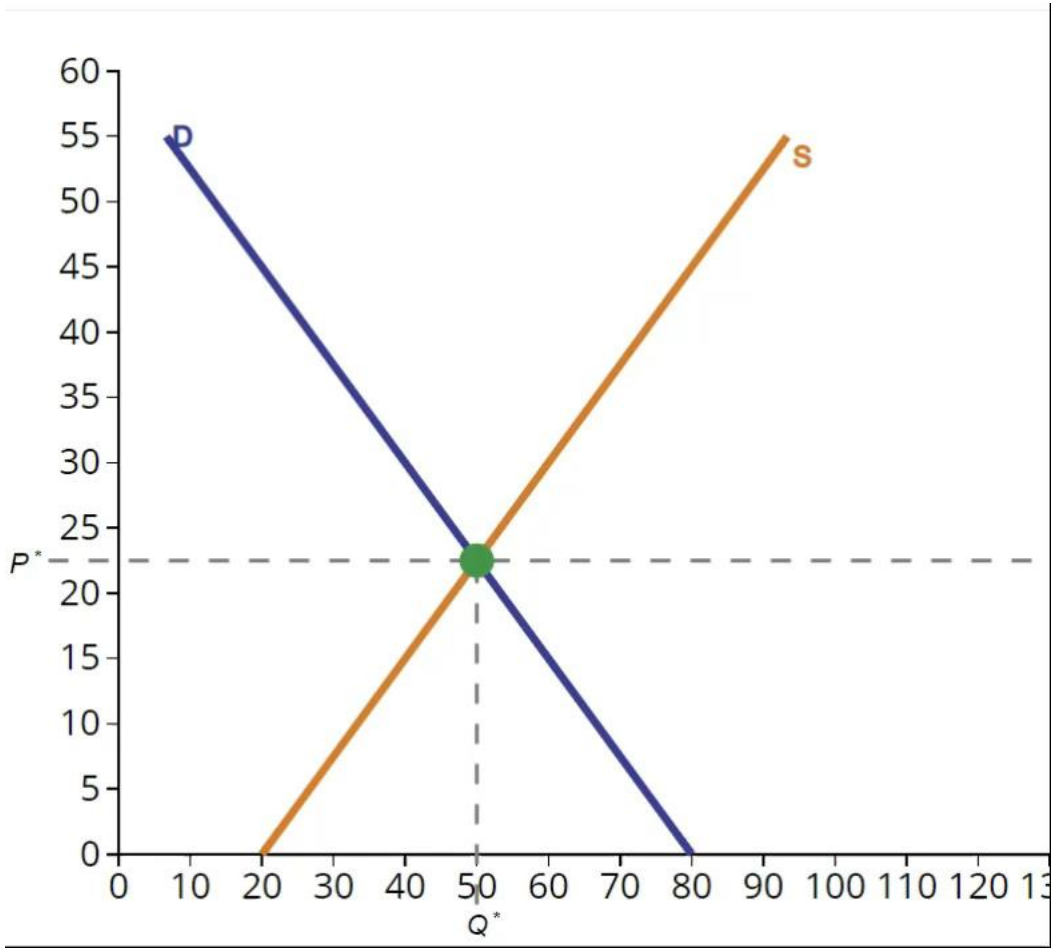
Later, Edna was forced to sell her Brussels sprout house.

Preview of this class session

- Basic principles of market analysis using supply and demand curves are central to economics
  - Formal conditions for "perfectly competitive" markets are strict and rarely satisfied
- We discuss what supply curves and demand curves are
- We define market equilibrium and why we expect markets to move there
- We consider effects of shifts in curves on equilibrium price and quantity

"Two-curve" analysis

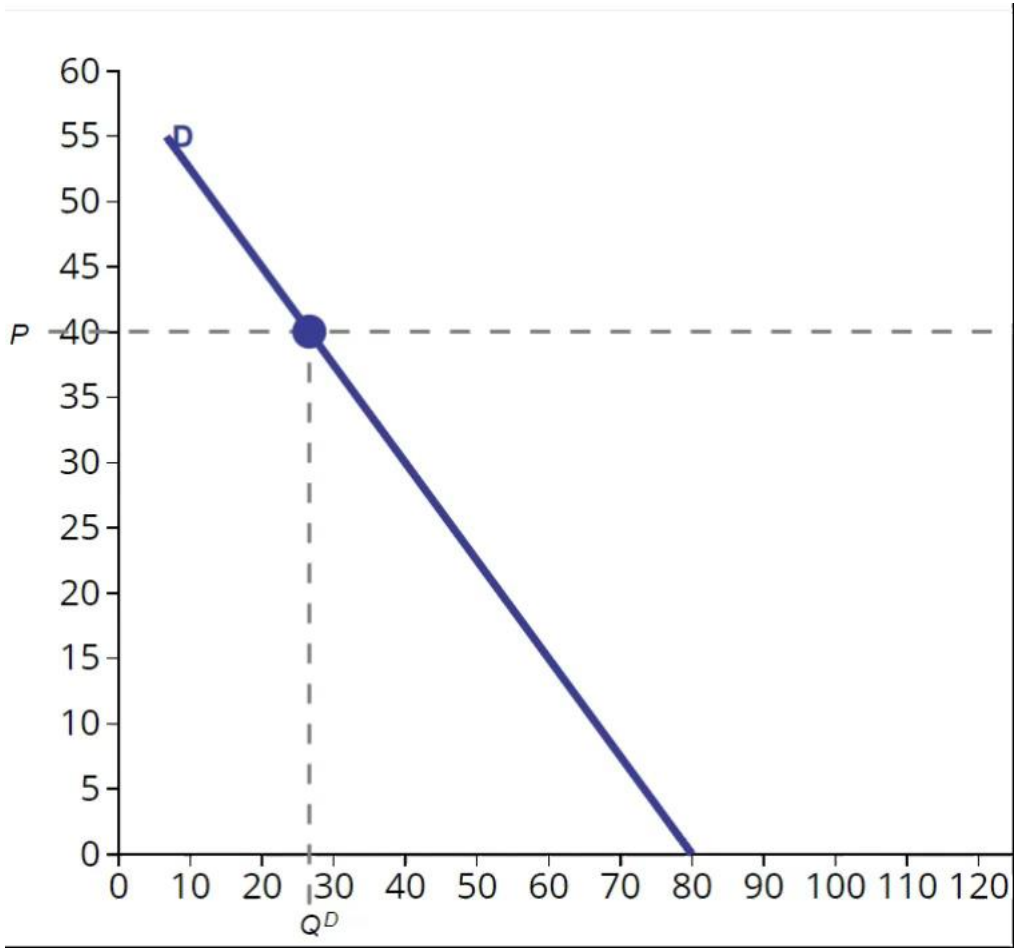
- Why is it useful?
  - Two key variables (price, quantity)
  - One curve slopes up and the other down
  - Some exogenous variables affect one curve, others the other
    - Few affect both
- Change in any exogenous variable **affects one curve** in predictable way:
  - Intersection moves SE, NE, NW, or SE
  - Predictable changes in price and quantity exchanged



https://www.econgraphs.org/graphs/micro/supply_and_demand/supply_and_demand?textbook=varian

Demand function

- Relates quantity of good demanded to its relative price
  - Quantity demanded = amount buyers are willing and able to purchase
  - Relative price is price of good holding all other goods constant
- Reflects decision-making by potential buyers
- **Demand function**: $Q^D = D(P)$
  - Negative relationship
  - Downward-sloping curve
  - Need not be straight line



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Demand curves

Demand curve

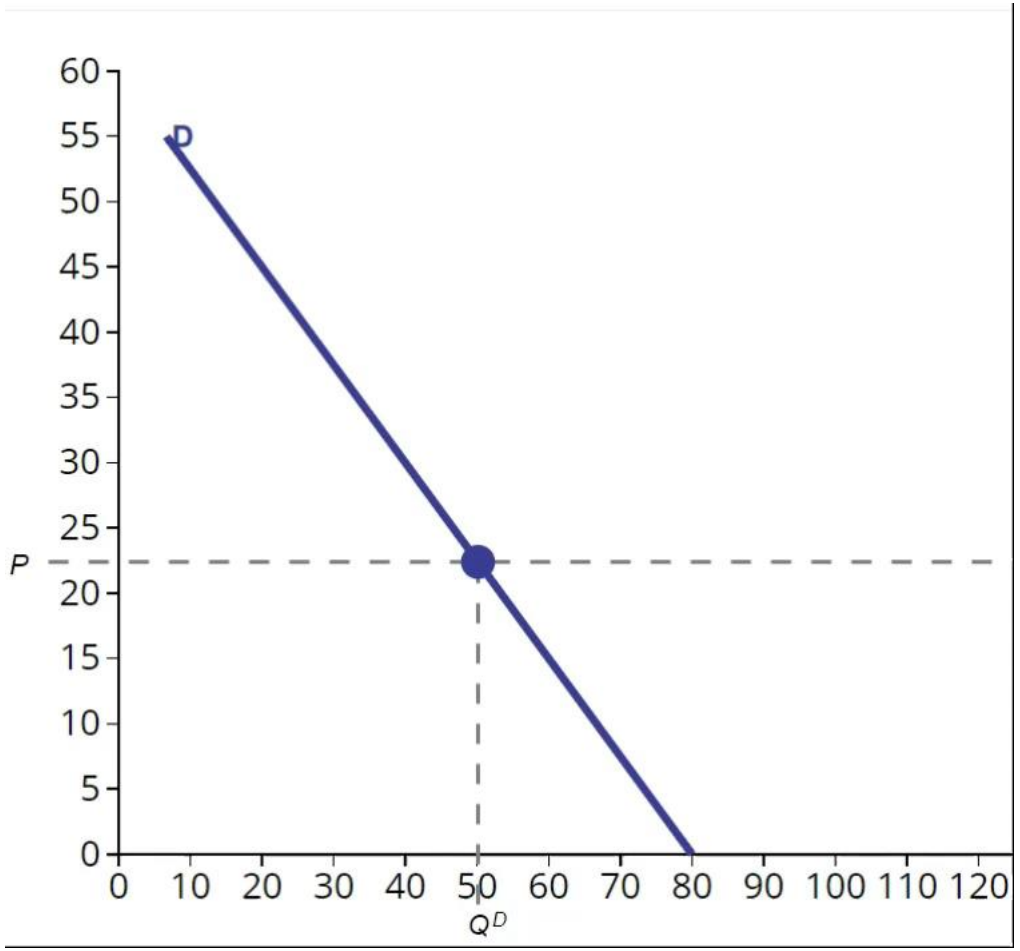
- "**Demand**" vs. "**quantity demanded**"
- Price on vertical axis; quantity demanded on horizontal axis
  - ☹
  - We assume that buyers are price takers, so to individual buyer, price is the "independent" variable and quantity demanded is "dependent" variable
  - In aggregate market, both are jointly dependent variables
- "**Law of demand**"
  - Higher relative price → less is demanded

Law of demand

- Very few relationships that economists call “laws”
- **Demand curves slope downward**
  - In limiting cases can be vertical or horizontal
  - No reliable examples of demand curves that slope upward
- Increases in relative price of good → quantity demanded falls
  - We will study consumer theory in detail in a couple of weeks to explore the decisions that lead to demand curves

Shift in demand vs. change in quantity demanded

- **Shift in demand** = movement in the demand curve
  - Amount demanded at any given price changes
  - Must be due to something other than a change in price
- **Change in quantity demanded** can be
  - Movement along the demand curve due to price change, or
  - Actual shift in demand



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What causes the demand curve to shift?

- Not current market price of good alone!
  - That is just a shift *along* the demand curve
- Variables that affect demand
  - Consumer **incomes**
  - Prices of "**substitutes**" and "**complements**"
  - **Preferences** of consumers
  - **Number of potential buyers** in the market
  - **Expectations**
    - Future income
    - Future prices

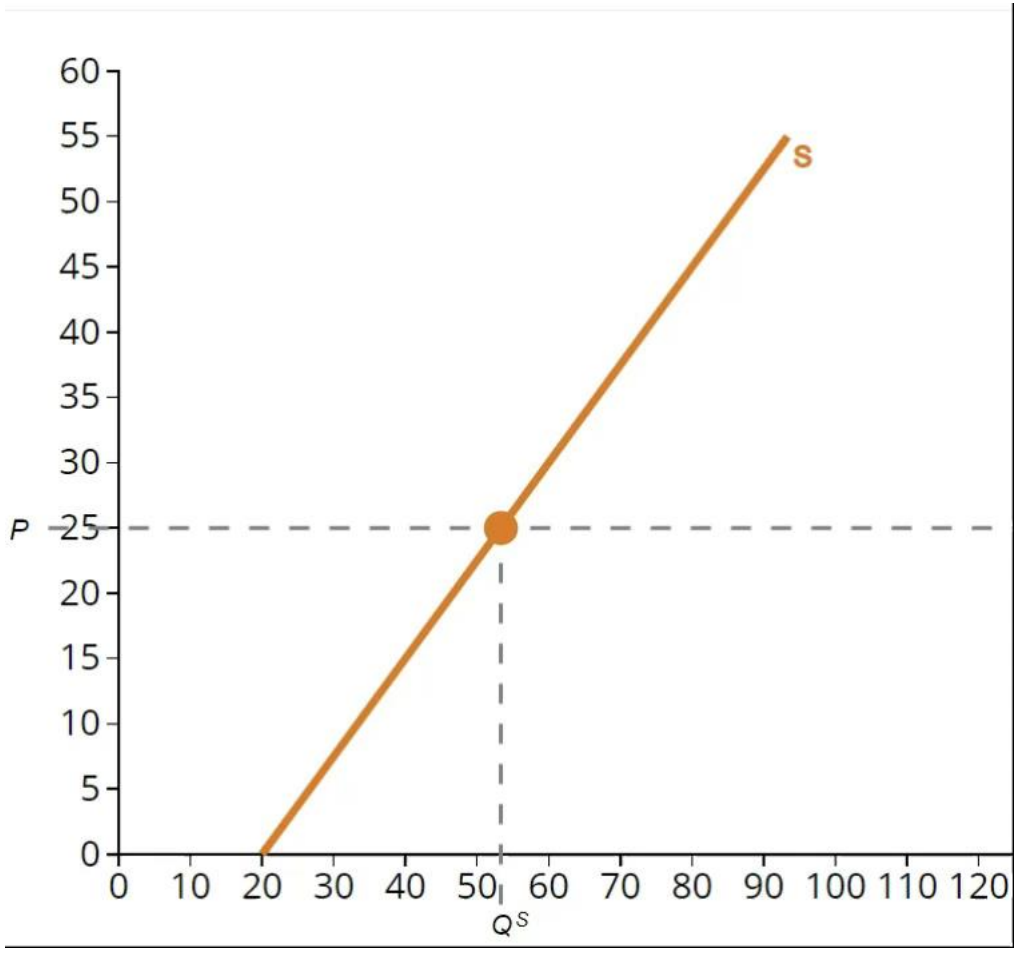
Supply curves

Supply function

- Relates **quantity of good supplied** to its relative price
  - Quantity supplied = amount sellers are willing to sell at given relative price
- Reflects decision-making by **potential sellers**
- **Supply function**: $Q^S = S(P)$
  - Often a positive relationship
    - Upward-sloping curve
  - There are interesting cases where supply curve is vertical, horizontal, or even downward sloping

Supply curve

- Again, quantity on horizontal and relative price on vertical axis
- We **usually** draw supply curve as upward sloping, but there's no "law of supply"
  - Important cases of horizontal, vertical, or even downward-sloping supply curves
- We will spend a couple of weeks on the "theory of the firm" that underpins the supply curve



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Shifts in supply

- Again, *not* just change in good's price
- Increase in supply shifts curve to the right (not up)
- Other variables that affect supply:
  - Cost of **inputs to production**
  - **Number of potential sellers**
  - **Technological changes** that affect production
  - Sellers' **outside options**
    - Could consume themselves
  - **Prices of related goods**
  - **Expectations** of future prices

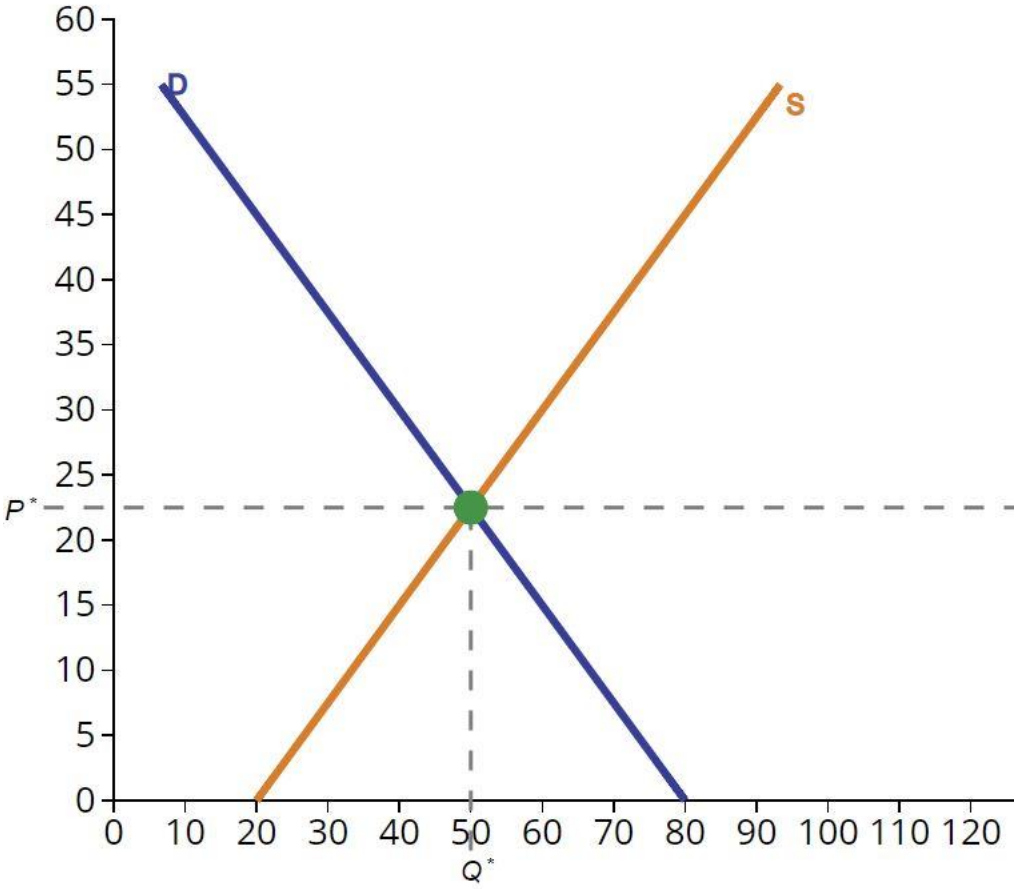
Competitive equilibrium

Assumptions of perfect competition

- No markets are truly perfectly competitive but many behave in similar ways
  - Economists often argue that relevance of a theory is in the accuracy of its predictions, not its assumptions
- Assumptions of **perfectly competitive market**
  - **Homogeneous good**
  - Buyers and sellers are "**price takers**"
  - **Perfect information** about …
    - Price
    - Product quality
  - Instantaneous **market clearing**
    - No price stickiness, price adjusts to competitive equilibrium immediately

Competitive equilibrium

- **Intersection** of demand and supply curves
- Value of P at which $Q^S = Q^D$ so $S(P) = D(P)$
- Guaranteed to be unique if curves have usual slopes
- We will show that competitive equilibrium has properties of **optimality** for buyers and sellers



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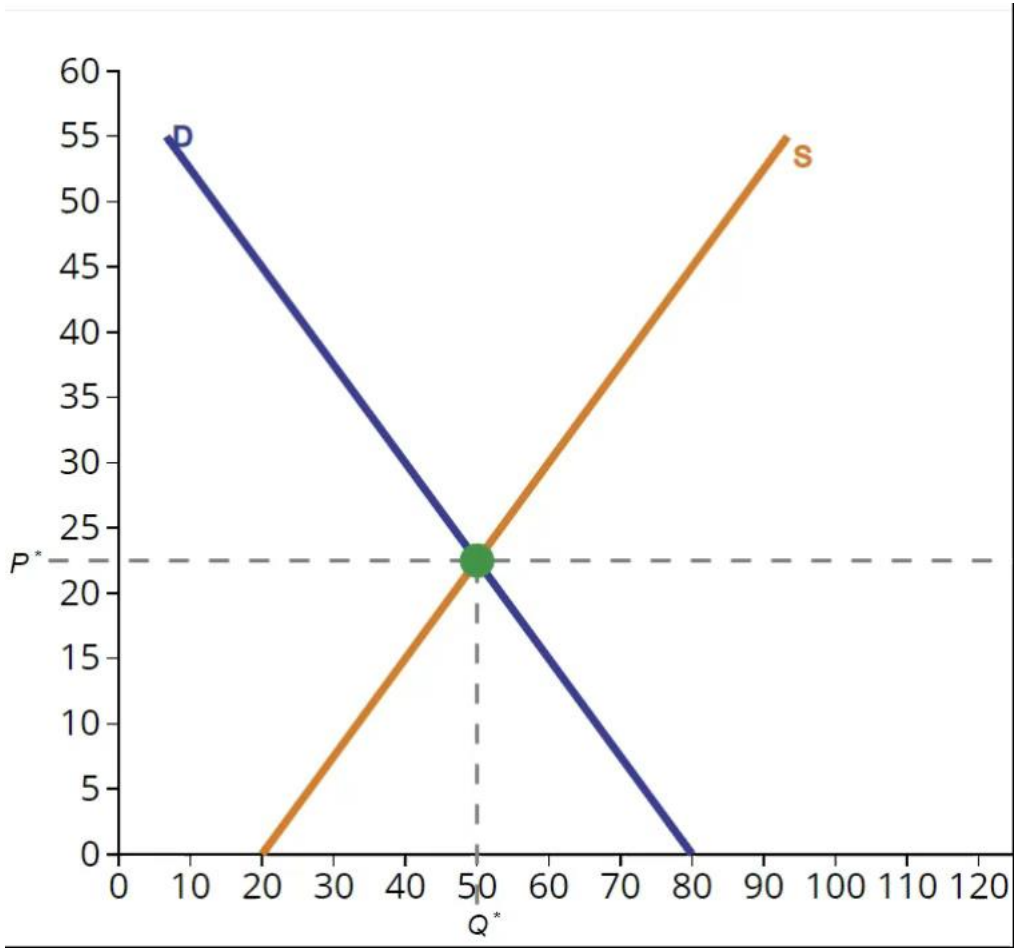
Excess supply or demand

- Price above or below competitive equilibrium → excess supply or demand
- Price too high → **excess supply** → "surplus" of good → incentive for price to fall
- Price too low → **excess demand** → "shortage" of good → incentive for price to rise
- Dynamic market forces push price toward competitive equilibrium



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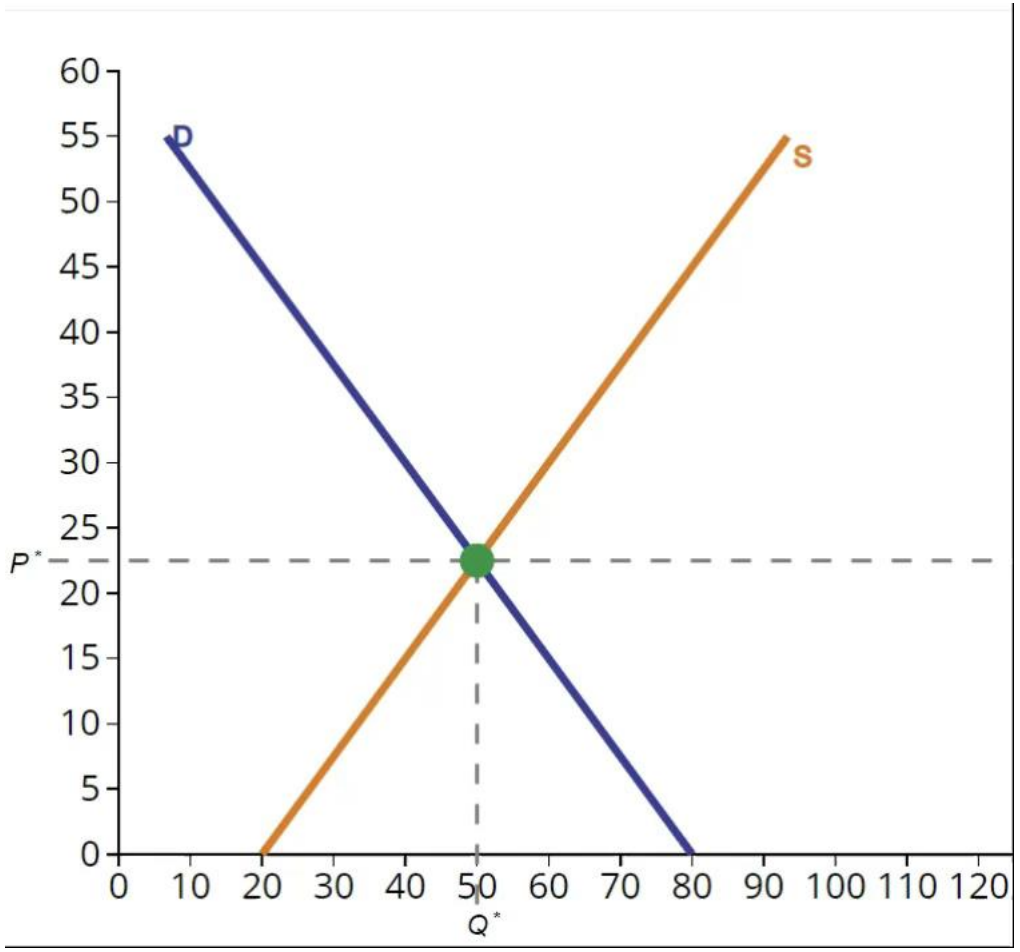
Effects of change in demand

- **Increase in demand** → demand curve shifts to right
  - More is demanded at any given price
- Both **equilibrium price and quantity increase**
  - At initial price, there is excess demand
  - Excess demand pushes price up
  - Equilibrium restored at higher price and quantity
  - Moving up on the supply curve
- Amount of change in *P* and *Q* depend on slope of supply curve



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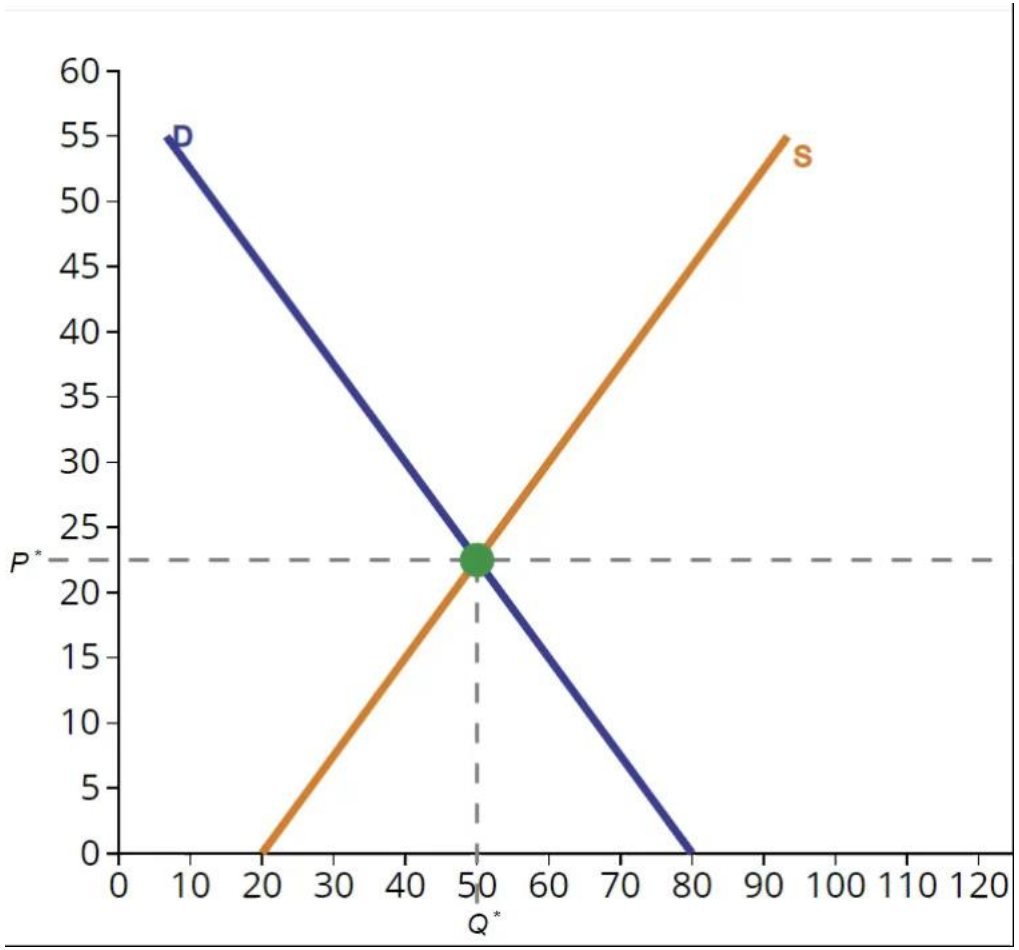
Effects of change in supply

- **Increase in supply** → supply curve shifts to right (NOT UPWARD)
  - More is supplied at any given price
- **Equilibrium quantity increases but price falls**
  - At initial price, there is excess supply
  - Excess supply pushes price down
  - Equilibrium restored at lower price and higher quantity
  - Moving down the demand curve
- Amount of change in P and Q depend on slope of demand curve



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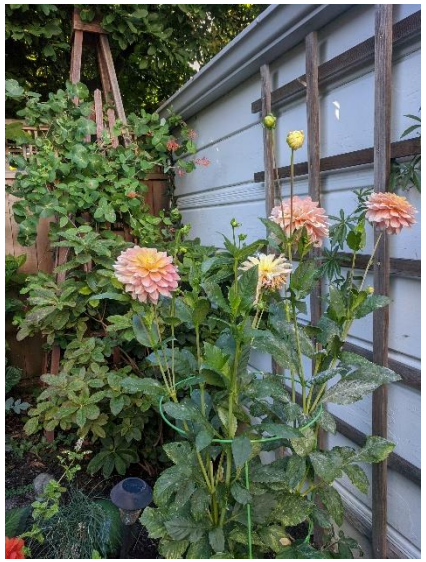
Review

- **Competitive market** analysis: price on vertical axis and quantity on horizontal
- **Demand curve** slopes downward and **supply curve** often slopes upward
- Demand is affected by income, prices of substitutes and complements, preferences, and other factors
- Supply is shifted by costs, technology, prices of alternative resource uses, expectations, and other things
- Increases in demand raise both price and quantity
- Increases in supply raise quantity but lower price

Daily diversion



What comes next?

- Conference:
  - Case study on oil prices
  - Questions about supply-demand model to be answered in class
- No class on Monday (Labor Day)
- Problem Set #1 due next Wednesday
- Wednesday's class: Interactive market experiment
  - Lecture will prepare you with instructions
  - Class will be online; be sure to be on time