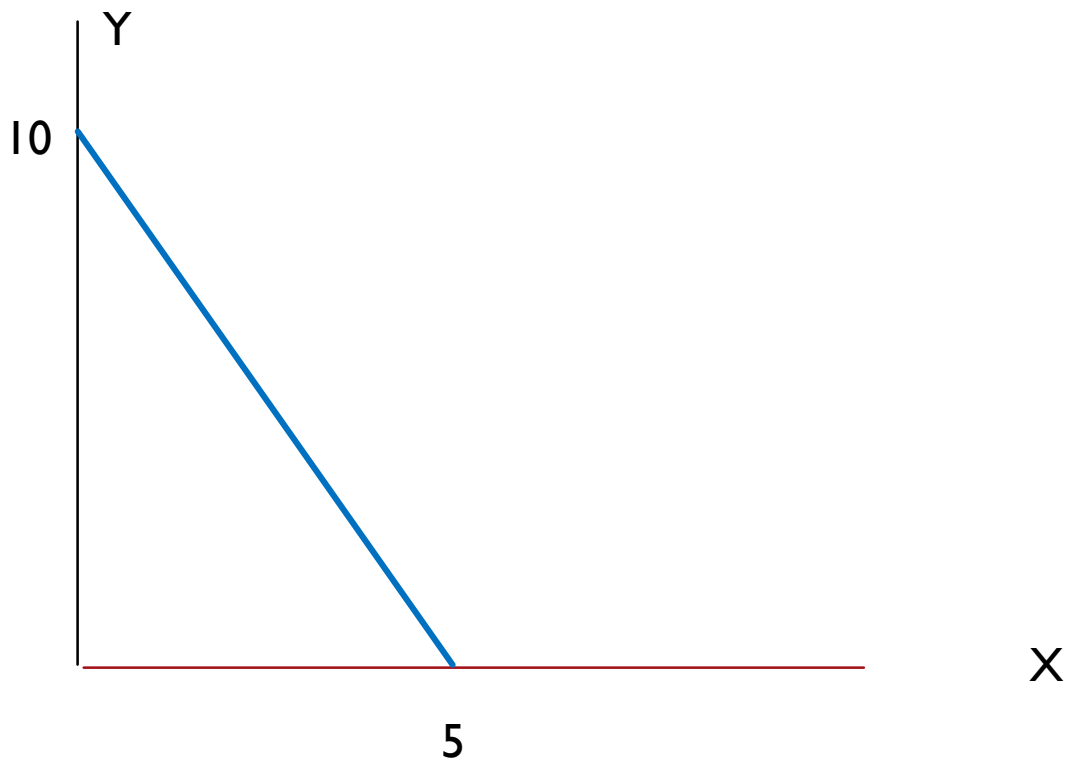
ECO 10350 PRINCIPLES OF MACRO

LECTURE 2

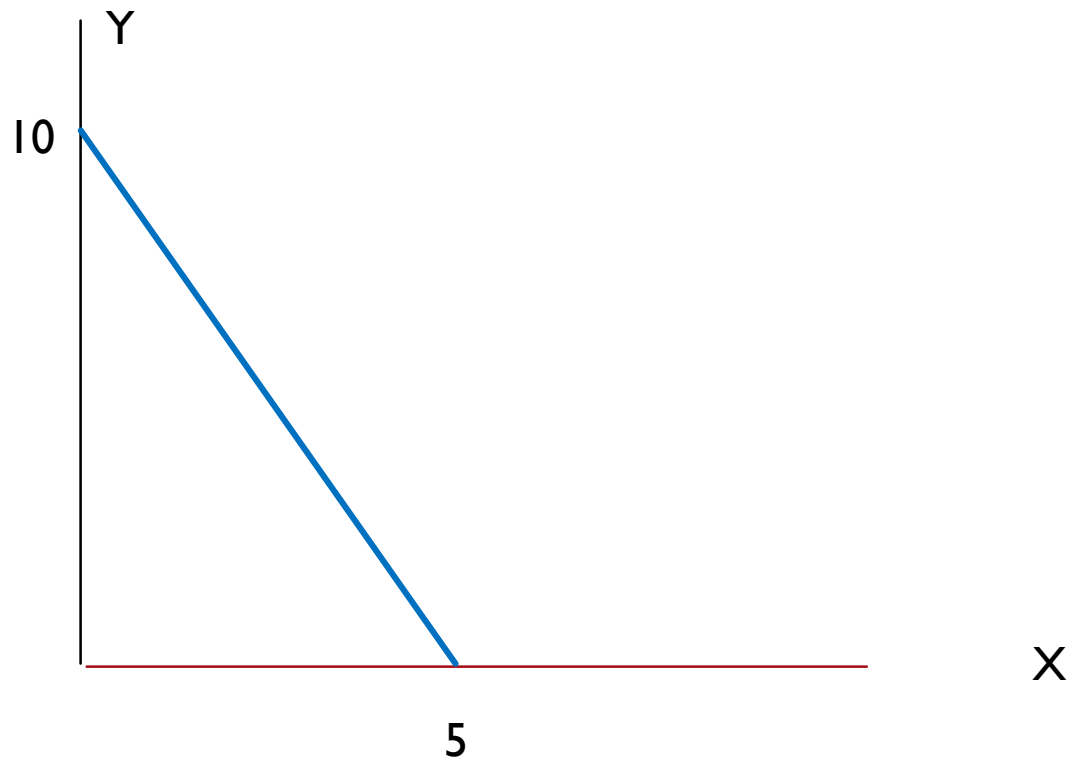
BUDGET

- Suppose we spend all of our budget on just 2 goods, imaginatively labelled X and Y
- Suppose price of X is $2 and price of Y is $1
- Can buy any bundle inside the budget set or on the line
- What happens if P_X rises/falls? If P_Y rises/falls?
- {obv just 2 goods is unrealistic but math extends to $\mathbb{R}^N$}



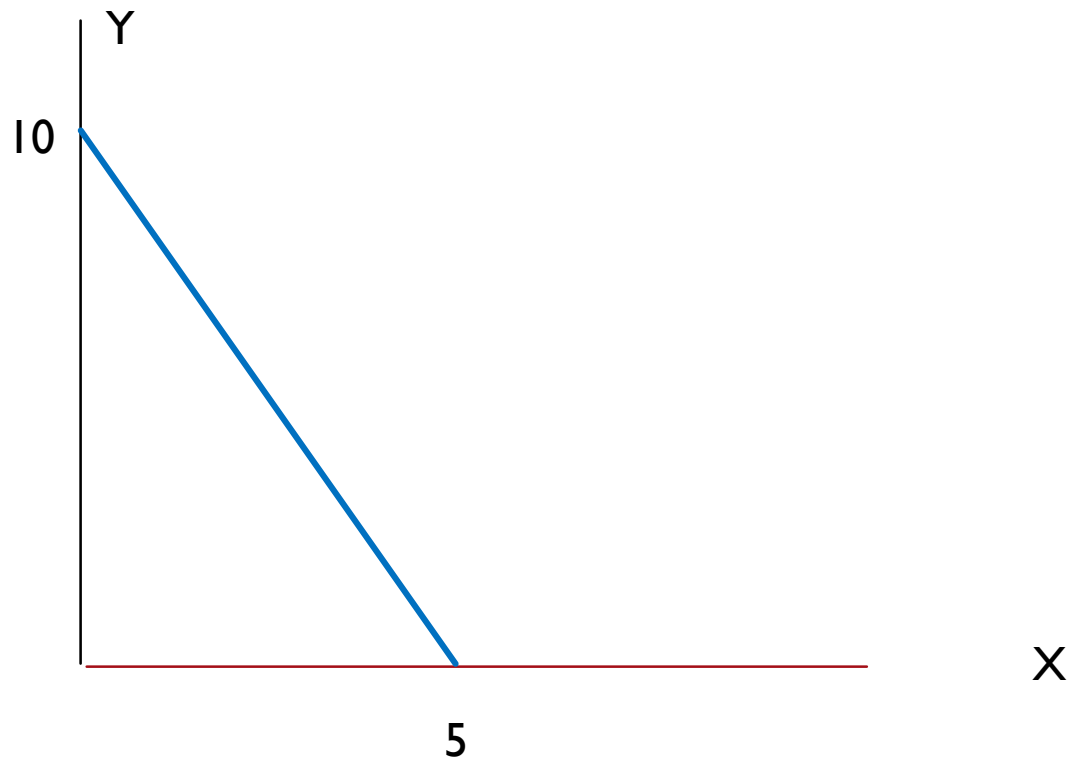
BUDGET ALGEBRA

- Equation is
- $B = P_X X + P_Y Y$
- Where B is budget
- Re-write to get Y on LHS
- $Y = (B/P_Y) - (P_X/P_Y)X$
- This assumes prices are constant but in real world usually budget not linear (maybe dozen donuts cheaper than 11)



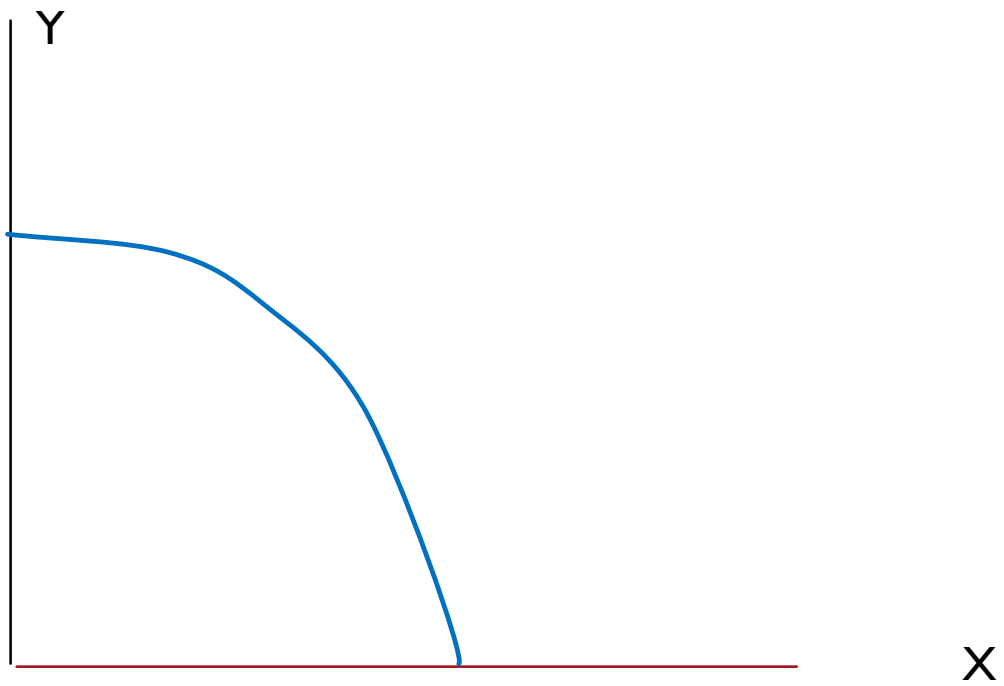
OPPORTUNITY COST

- "Opportunity Cost" is what you have to give up to get something – broader than just money
- Although it might seem a bit stilted, we can express tradeoffs so "opportunity cost" of 1 more X is to give up 2 of Y.
- So can express cost of things that aren't priced in money



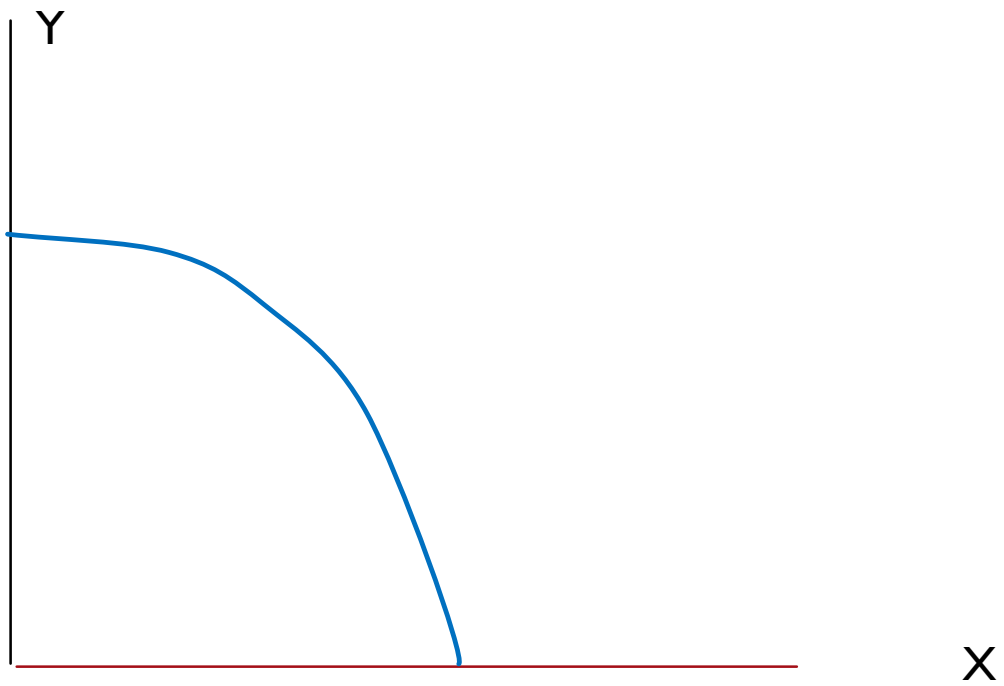
PPF PRODUCTION POSSIBILITY FRONTIER

- PPF for producing not shopping, diminishing marginal returns
- So bowed shape
- Tech change shifts whole PPF
- Applies to individual & larger groups
- Individual eg: Y is body fitness & X is school grades
- Society eg:Y is clean environment & X is cheap gas



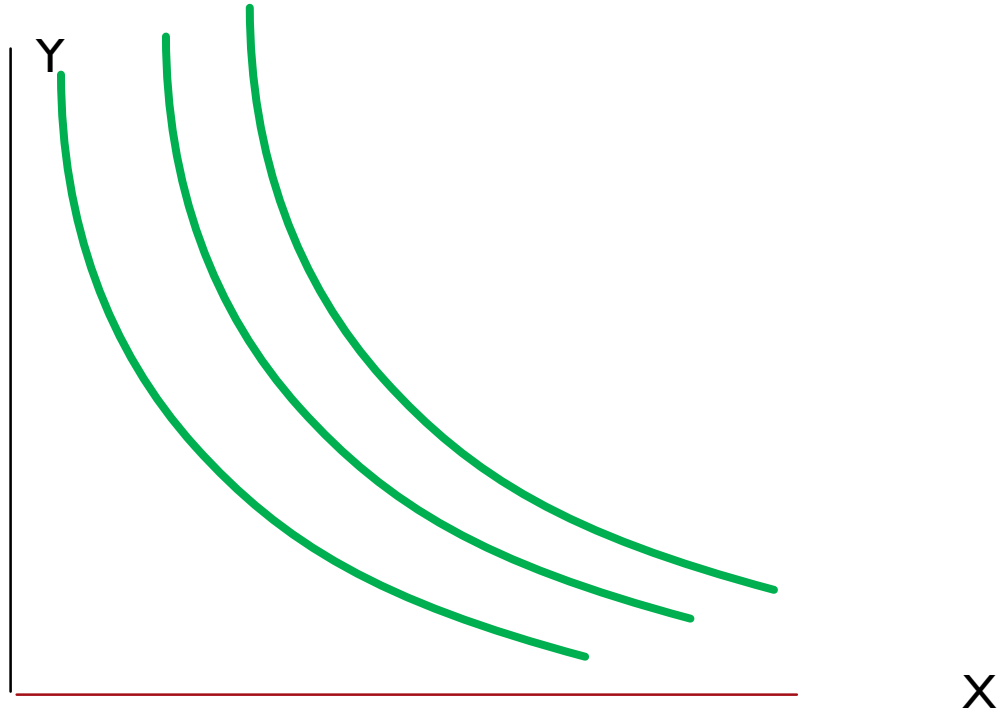
PPF PRODUCTION POSSIBILITY FRONTIER

- Again opportunity cost
- But now it's not constant as with budget
- Depends on combination of X&Y



INDIFFERENCE CURVES

- What does individual (or group) want?
- More is better
- But diminishing marginal utility



IDEAL MARKETS

- People buy and sell a multitude of different goods and services, many of them extremely specialized
- **Commodities** are generalized goods, items that have been laboriously standardized in order to make them comparable
- **Commodities** are created by people in particular situations (commoditization) – for example, the grocery store buys apples as commodities by the thousand but then these same apples are chosen as individual goods (look for the ripest and unbruised fruit)
- Ideal markets trade non-durable consumption good, private without externalities, many firms could supply and many households consuming (so all are price takers), assume this market is small (both in use of resources and as expenditure by any household) relative to other markets. Quantity and quality are perfectly known & verifiable, transactions are enforced by outside agency.
- Example: WTI Light Sweet Crude Oil (http://www.cmegroup.com/trading/energy/crude-oil/light-sweet-crude.html) is traded in units of 1000 barrels (each barrel is 42 gallons), delivered in Cushing Texas, where "light" and "sweet" are carefully defined physical qualities. Many lawyers & engineers worked to write up the documents that define this commodity and specify how variations are recompensed. Some details are in Chapter 200 (!) of the basic NYMEX rulebook http://www.cmegroup.com/rulebook/NYMEX/2/200.pdf. Oil companies work hard to ensure that a particular quantity of oil meets these standards. It took a great deal of human ingenuity (and lawyers' billable hours) to create this commodity.
- Various creative humans might create a new commodity that doesn't exist, such as "Crack Spread," the difference between crude oil prices and the value of the refined products such as gasoline. Or the US dollar interest rate paid in JPY. Or Bitcoin.

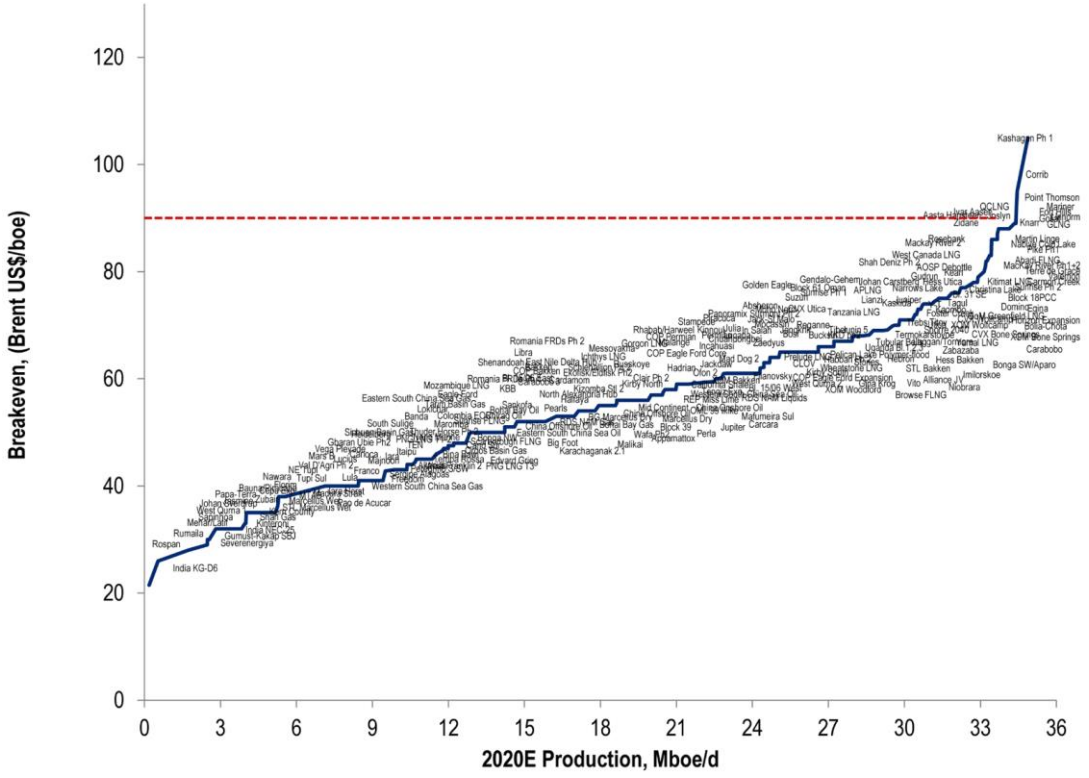
DEMAND CURVES

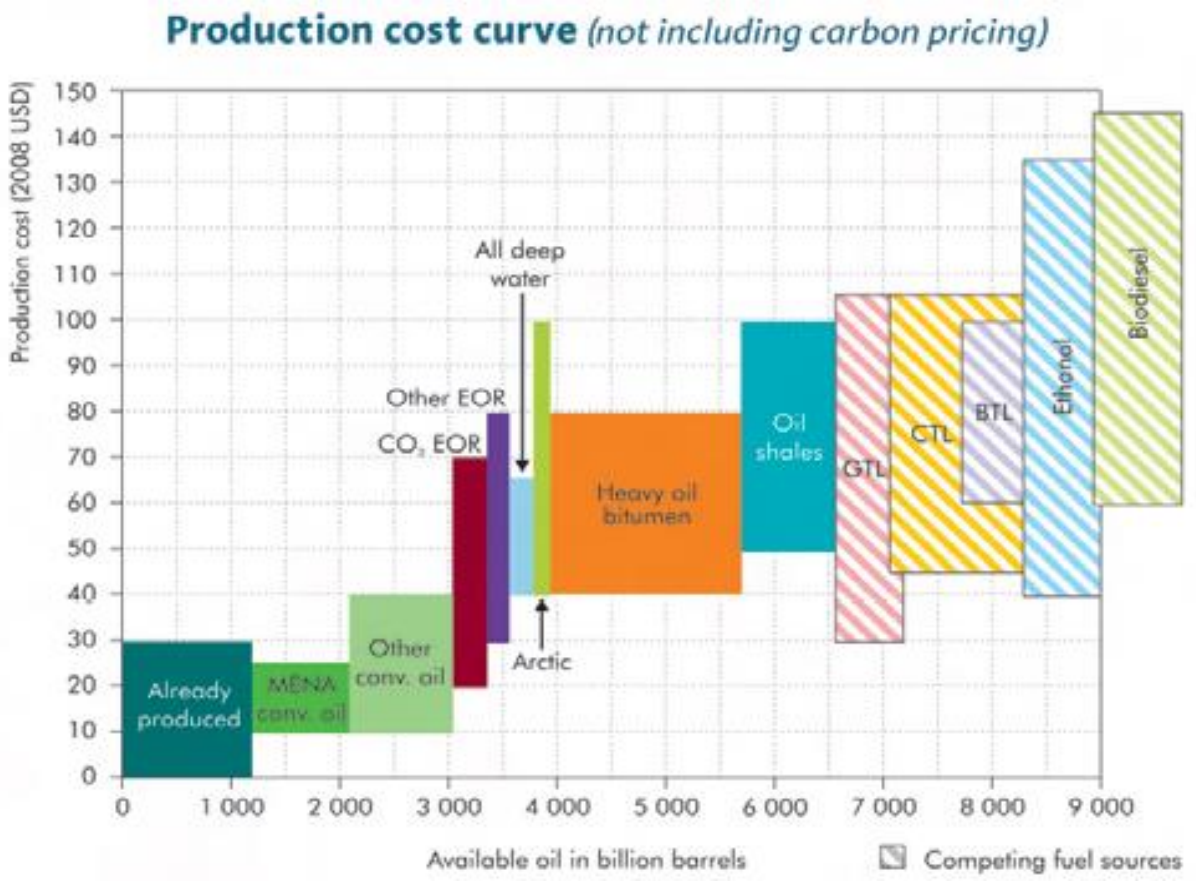
- For each person: shows the extra benefit gained from consuming one more unit
- People compare Costs & Benefits so if the extra benefit from consuming one more unit is greater than the price, then consume; if not then don't
- Individual Demand Curve shows how many are purchased at any given price
- Individual Demand Curves are combined to get a market demand curve of how many would be purchased by all the people in the market at a given price (horizontal sum)
- Depend on **LOTS** of other factors than price (which shift the demand curve)
- Especially income – so a poor person might have low demand for food but that's because they can't afford NOT they don't want it

SUPPLY CURVES

- opportunity cost of producing certain quantity of output.
- If no fixed costs and no barriers to entry then firms produce commodities at marginal cost
- Assuming diminishing returns, marginal cost rises
- Depend on **LOTS** of other factors than price (which shift the supply curve) especially technology

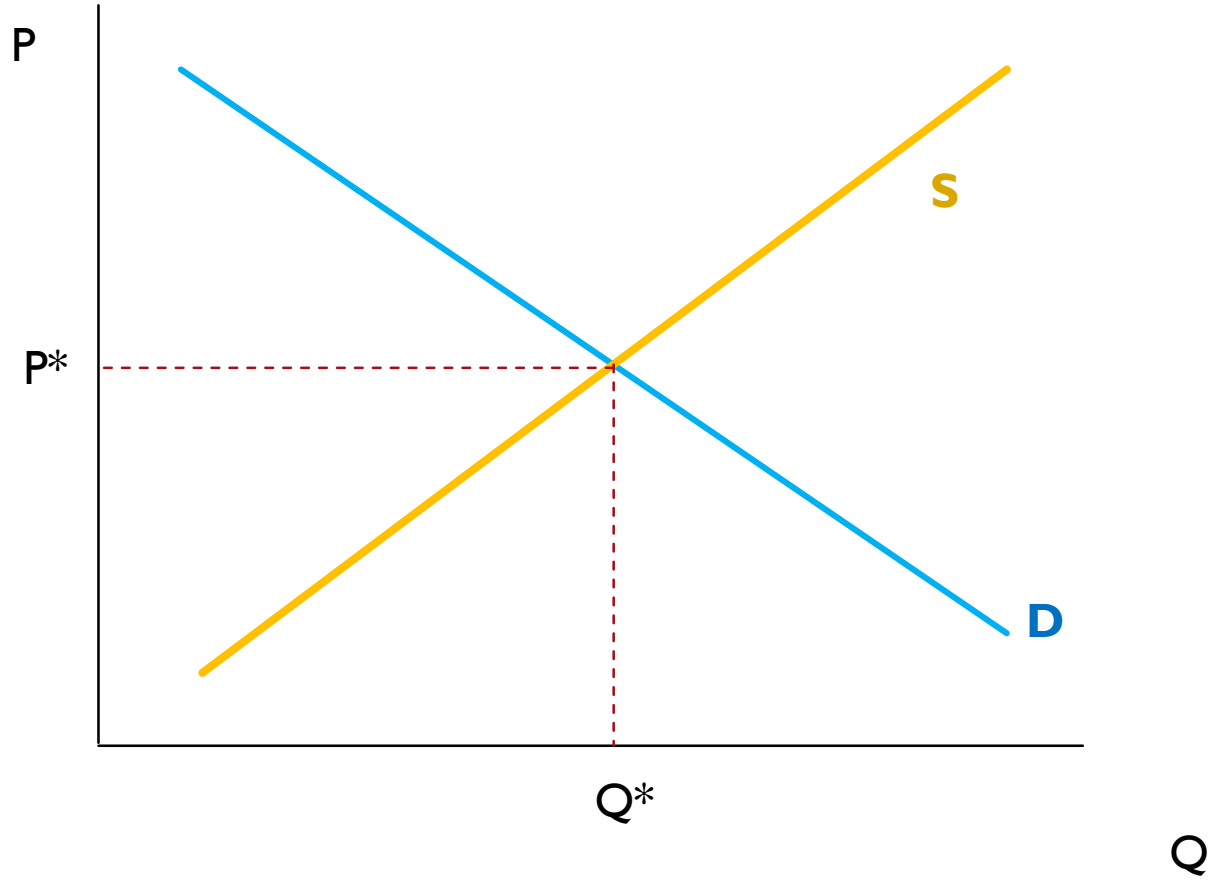
SUPPLY CURVE EXAMPLES





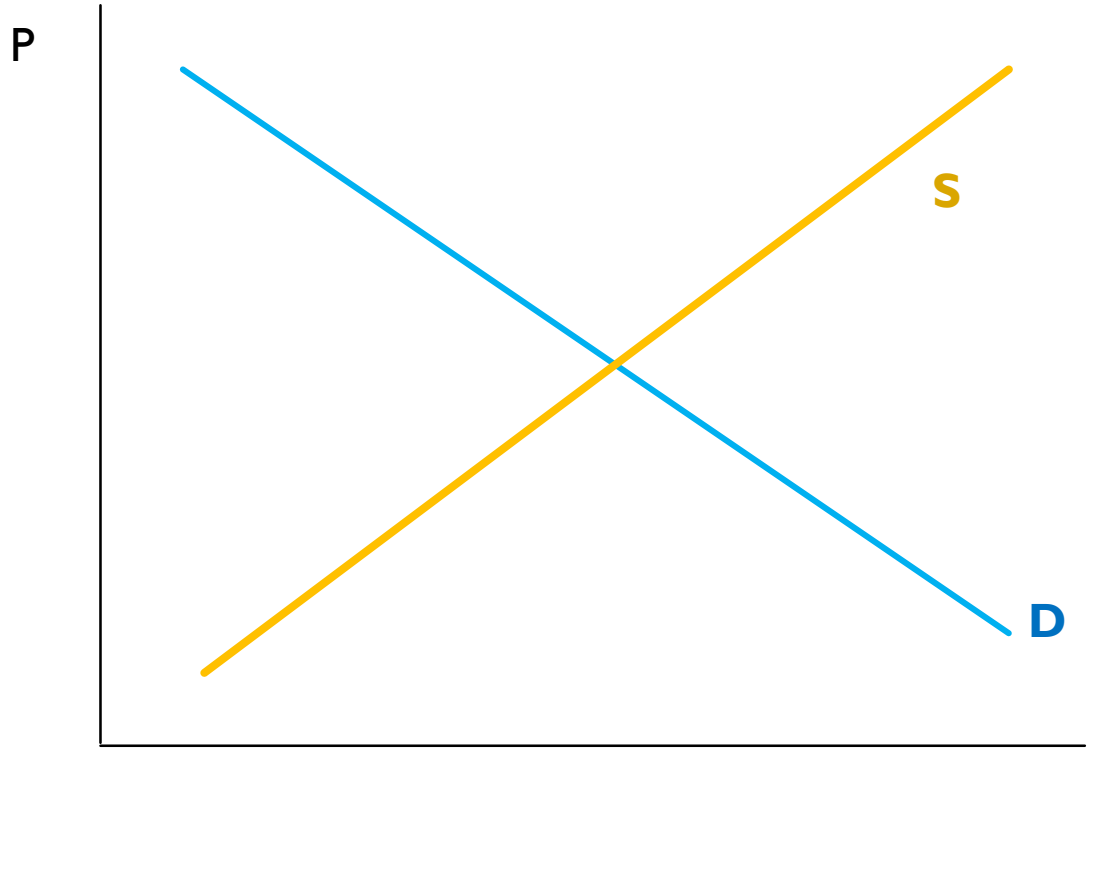
S&D

- Equilibrium Price & Quantity
- Distinguish between
  - shift along the curve
  - shift of the curve



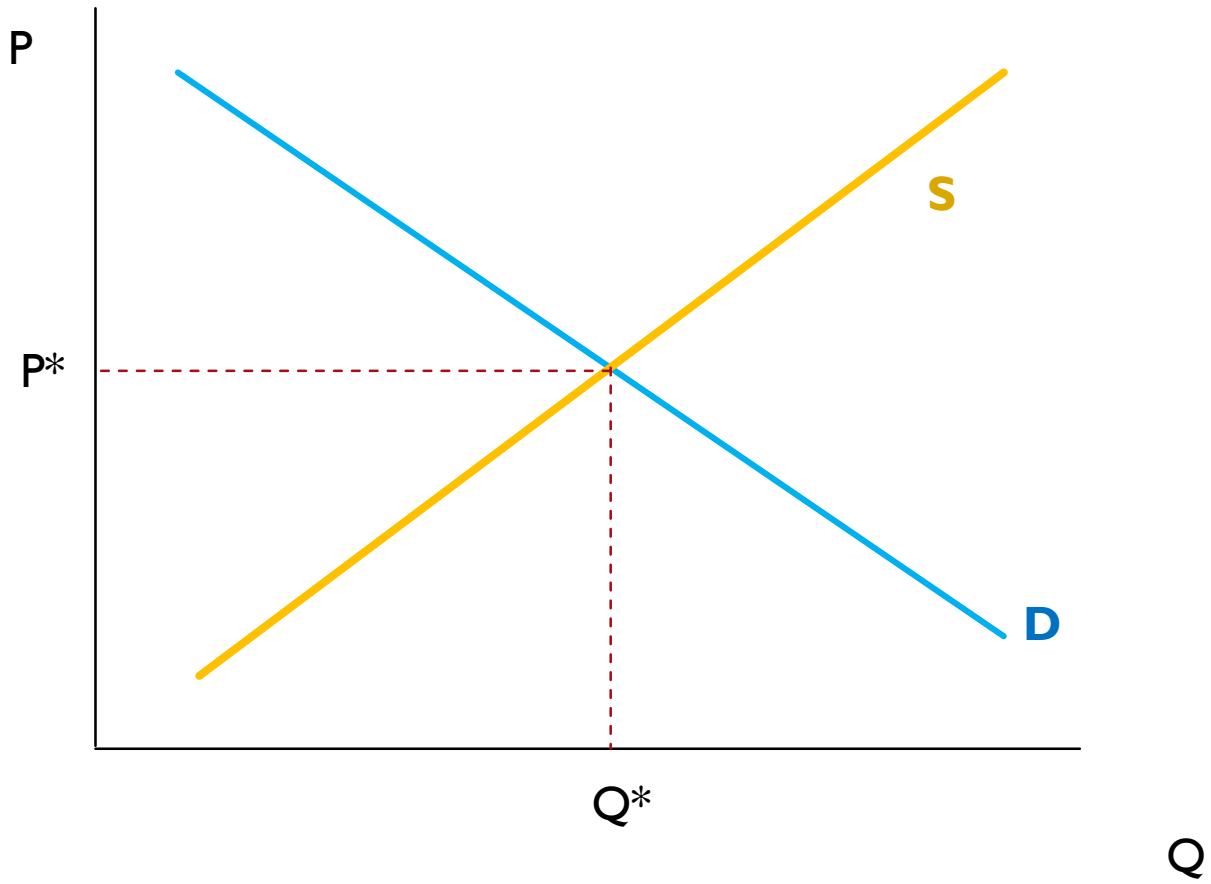
S&D

- Suppose this is market for gasoline
- What happens when:
  - Millennials less likely to buy cars
  - Economy goes into recession
  - More bus lines
  - Hurricane hits Gulf
  - Venezuela gets <ahem> *complicated*
  - Elon Musk gets <ahem> *complicated*
  - New regulations on fracking



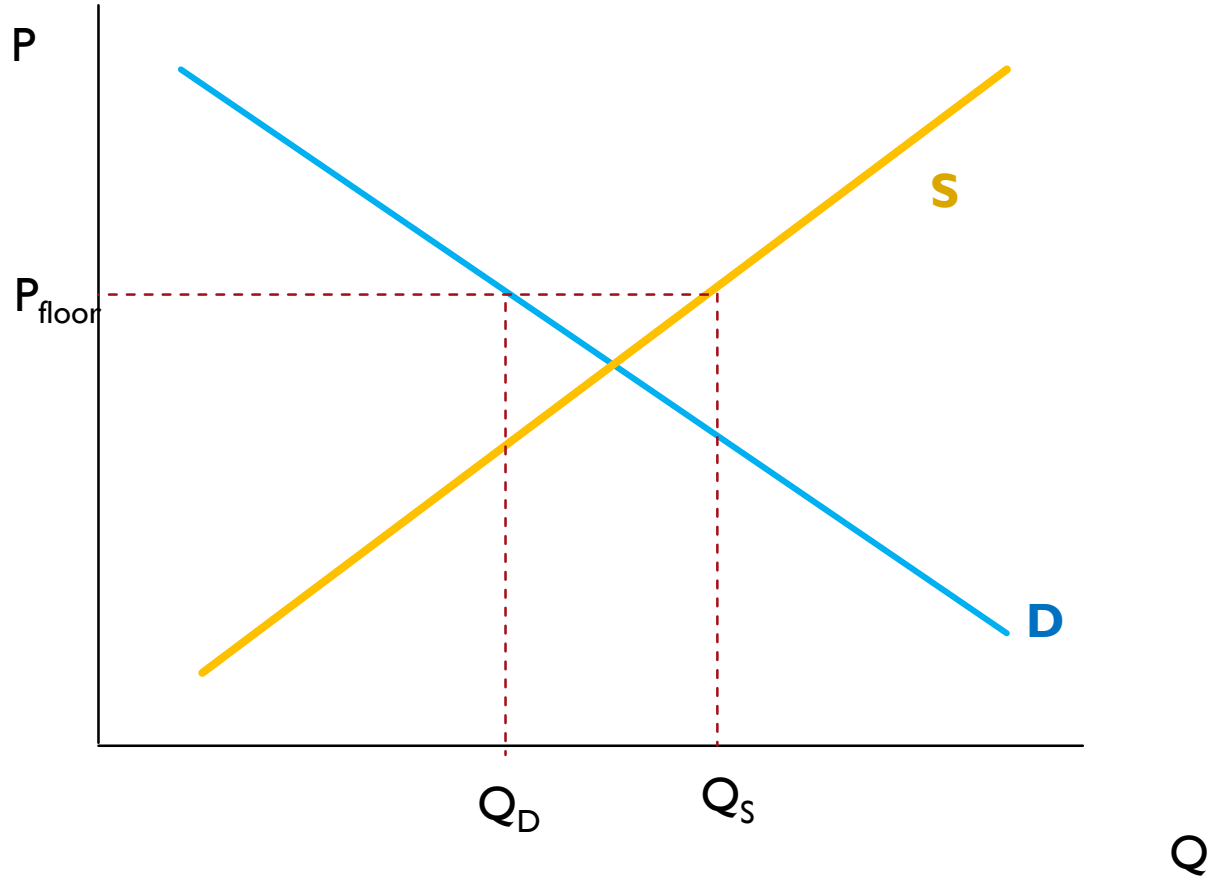
S&D

- Equilibrium price is coordinating device that reduces necessary information; it is choice of social planner if wanted to max wealth (but needs less info than a central planner)
- Of course D & S depend on all other prices – in fact, a complete Arrow-Debreu set of contingent contracts
- Ideal markets are Pareto efficient
- Why are actual markets so far from ideal?
  - initial endowments,
  - externalities (incl rule of law)
  - monopoly (necessary for R&D though, also econ of scale),
  - monopsony (esp labor)
  - macro events (slumps)



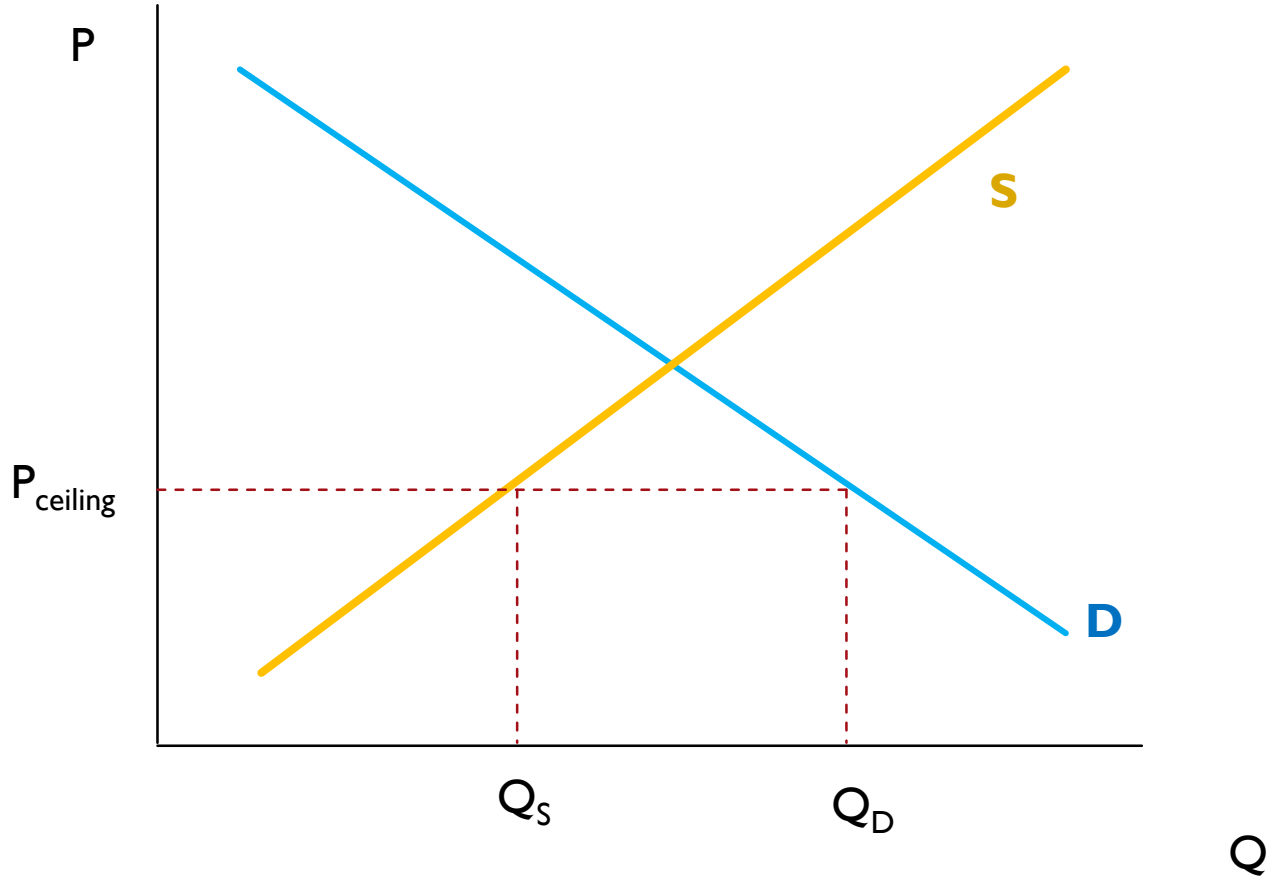
PRICE FLOORS

- Might be some reason prices are set higher than equilibrium
- (if floor is lower than equilibrium then no real impact)
- So $Q_S > Q_D$



PRICE CEILINGS

- Might be some reason prices are set lower than equilibrium
- (if ceiling is higher than equilibrium then no real impact)
- So $Q_D > Q_S$



S&D IN LABOR MARKETS

- Ch 4 of textbook explains how some economists think about labor markets with S&D, but recent evidence about minimum wage hikes should give caution. Monopsony in labor markets seems to be more important than realized. Most studies of effects of raising the minimum wage show little effect on employment – sometimes slightly negative but even sometimes slightly positive.

S&D IN FINANCIAL MARKETS

- Supply & Demand analysis works better for considering financial markets since those are closer to ideal
- Many products have been commoditized: mortgages, credit card debt, student loans – usually through clear government policy
- Depending on the market, "price" is a bit complicated
- Textbook gives example of credit card borrowing where price is rate of interest
- In some financial markets such as bonds, price of a bond is inverse to interest rate (remember present value calcs from previous lecture) since as rates rise, present value of those future payments falls – so bond price falls
- In bond market
  - interest rates up ⇔ bond prices down
  - interest rates down ⇔ bond prices up