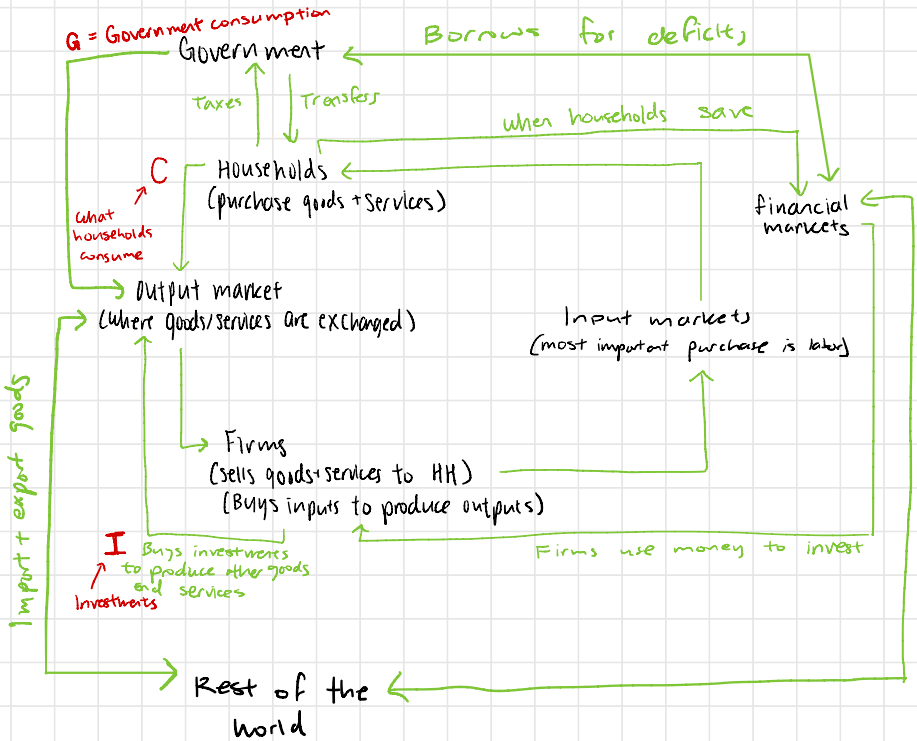
1.2: MACRO AND MICRO

Economy: System through which money flows and how various actors interact with each other

Money flow actors



NX = exports - imports
↕ Net exports

Gross Domestic Product:
C + I + G + NX
Total sum of goods produced in the country

Macroeconomics: Studying the system as a whole

Microeconomics: About decisions that we make based on costs and benefits
Looking at components of the system

CAUSAL INFERENCE

↳ The attempt to infer that a certain event caused a particular outcome

Treatment: variable that we think affects an outcome
what was the cause?

Counterfactual: what would have happened in the absence of the treatment

we need both scenarios to infer causation, however, we only get 1 situation ← we cannot observe the counterfactual

Unit treatment effect: Effect of a treatment in a single unit

How do we overcome?
↳ conduct a randomized controlled experiment

Pre-treatment characteristics/variables: variation of differences between subjects of study

↳ overcome with randomization and dividing into 2 groups

Assign Treatment vs controlled groups
↓
observe outcomes

If the avg results are different, we can say that the treatment is the cause

Average treatment effect: Difference between the avg. treatment group and avg. controlled group / Average of unit treatment effects

Ex.		male 1	male 2	female 1	female 2
	Treat	16	12	10	16
	No treat	12	10	12	16
	unit treatment effect	4	2	-2	0

Average treatment effect = 1

Conditional avg. treatment effect: males → 3
females → -1

CAUSAL INFERENCE W/O RANDOMIZED EXPERIMENTS

Reduced Form Approach: Accounts for confounders

1. Can we infer causation from data that comes from the real world?
2. Can we recover what the treatment effect would have been if we could have conducted a randomized controlled experiment?

↳ 1. **Natural experiments**: Similar to randomized controlled experiments but happens in the real world Ex. charter schools

Confounder: Anything that is not constant across treatment and controlled groups

Correlation may have been caused → Correlation ≠ causation
by a confounder

- Confounders are created when people choose into their treatments

Econometrics: Studying causal inference and how we tease out causation from data that didn't originate from randomized controlled experiments

What if we don't have a natural experiment?

↓

- we create a **model** to predict what might happen
- we can rerun the model to run the counterfactual

Ex. Climate Change

- Create a model of the earth to test how much humans contribute to climate change
- Rerun the model without humans

Structural Approach to Casual inference

People attempt to create an accurate model of the economy and run the counterfactual → we can say what we infer from the results
↑ using all the current info they have to create an accurate model

PRODUCTON POSSIBILITIES CURVE

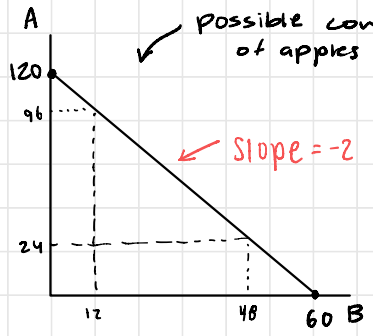
Suppose you have 10 workers...

2 sectors → apples
→ bananas

one worker makes → 12 tons of apples/year
→ 6 tons of bananas/year

N = workers

N_A	N_B	A	B
0	10	0	60
2	8	24	48
4	6	48	36
6	4	72	24
8	2	96	12
10	0	120	0



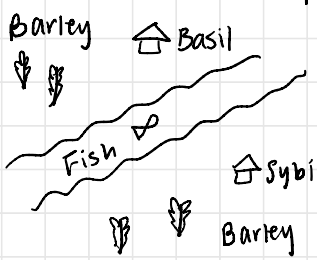
possible combinations of apples and bananas

slope = -2

Opportunity cost for 1 banana is 2 apples
for 1 apple is ½ banana
1B : 2A
1A : ½B

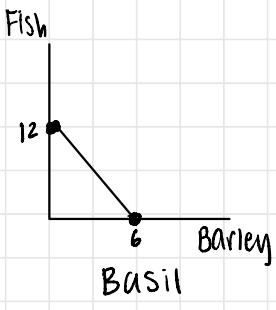
* slope tells you the opportunity cost

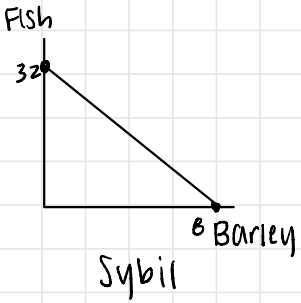
Puddletown example



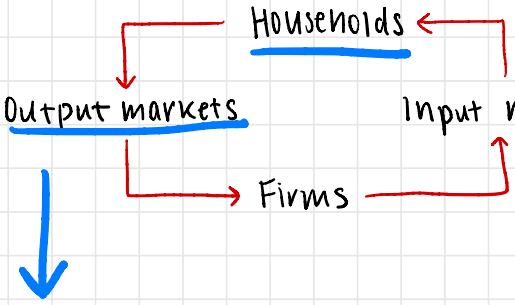
	Basil	Sybil
Barley	6	8
Fish	12	32

2 economies, each has a PPC





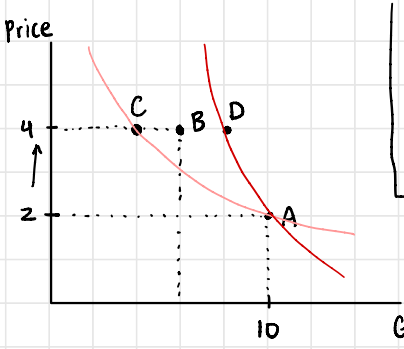
DEMAND CURVES AND FUNCTIONS



Role of households in the output market

- Households buy goods in the output market
  - ↳ Demanders of goods and services

Demand Curves



Substitution effect:
When the opportunity cost of something goes up, you do less of it.
$ gas ↑ → gas usage ↓
↳ Point A → Point B

Income effect:
Increase in price is a decrease in income

Law of downward sloping demand
Demand will always slope down for us

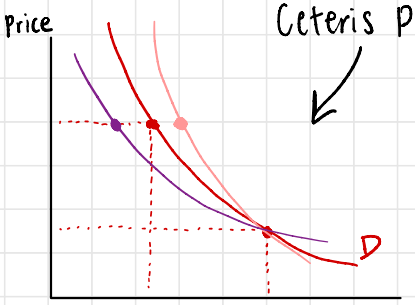
Point C: If gasoline is a normal good
Point D: If gasoline is an inferior good

Two kinds of goods:

Normal goods: income increases, consumption increases
income decreases, consumption decreases

Inferior goods: income increases, consumption decreases
income decreases, consumption increases

Ex. Steak vs. pasta → Income ↑ steak ↑ (Normal good) pasta ↓ (inferior good)



Ceteris Paribus → "All else is fixed"

Demand is a fxn of...

D (P, other prices, Income)

Price of gas you're looking at

If other prices change, you may change the amount of gas you get

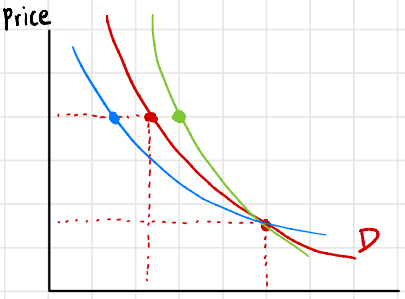
A demand curve limits us to two dimensions even when there are a lot of things that determine change in demand...
- We are looking at price so other prices and income are viewed as "fixed"

CHANGE IN INCOME

If income increases and gas is a normal good

If income increases and gas is an inferior good

} When other variables change, the demand curve shifts.



CHANGE IN OTHER PRICES

Price of car maintenance ↑ → ↓ gas

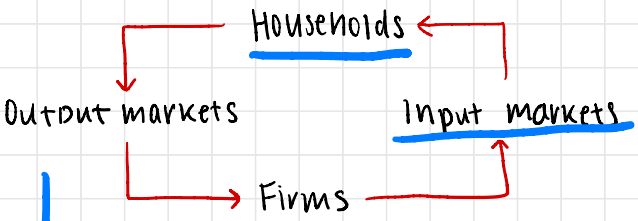
↕ complements gasoline so you use less

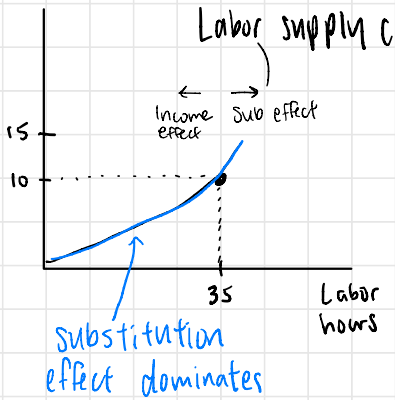
Price of bus rides ↑ → ↑ gas

↕ substitutes gasoline, you take car more

Car maintenance is a **complement** while buses are a **substitute**

IF: Good is not normal or inferior → Demand curve will <u>not</u> change





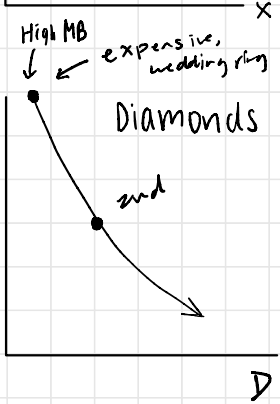
Substitution effect
* As wage ↑, opportunity cost ↑
↳ WORK MORE

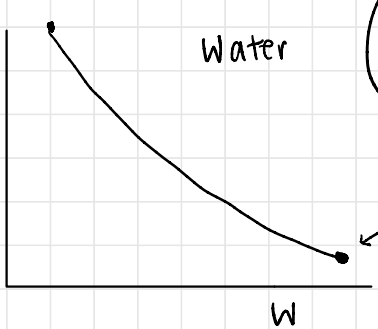
Income effect
* As wage ↑, income ↑
↳ WORK LESS (same amount still made)

1871 - William Jevons → Introduced **marginal benefit**
↳ Benefit from last unit

← Marginal benefit curve

"How much would you have paid for the first unit?"





Total benefit: sum of marginal benefits

$\int MB = TB$

MB is really small

MB = Demand curve

Total value w > d