Intro

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What is Economics?

- Economics as both a *subject* and *method*.
  1. As a *subject*: Economics is the study the allocation of goods and services - i.e., questions about 'the economy'
  2. As a *method*: Economists ask and answer questions by:
     - ★ Generating *falsifiable* theories
     - ★ Representing these theories formally (with math) as models
     - ★ Testing these models with *econometrics*

Falsifiable or not?

A scientific statement is one that could possibly be proven wrong

- An alien spaceship crashed in Roswell, New Mexico.
- A giant white gorilla lives in the Himalayan mountains.

versus

- No alien spaceship crashed in Roswell, New Mexico.
- There are no giant white gorillas living in the Himalayan mountains

What is a Model?

A model is a representation of reality, simplified to only include the parts of reality important to your theory.

- *Therefore, all models are wrong!*

Economiststs use math for models to help our reasoning, and impose internal consistency.

Some examples

What do these research questions have in common?

1. What was the effect of literacy on vote-buying in 19th century Britain?
2. What was the effect of the Vancouver homeless shelters on neighbourhood crime rates?
3. Does the legalization of marijuana in the US reduce Mexican cartel violence?
4. Can sending your child to kindergarten one year later improve their attendance in highschool?

Microeconomics

- In general, economics (as a subject) studies allocation
- Microeconomics undertakes this study at disaggregated level; ie, the people making the decisions show up in the model

Supply and Demand: Supply Curve

The Supply curve is a function of prices:

$$Q_S = Q_S(P)$$

This means that it describes a *relationship* between price and quantity supplied. Are the following changes in the relationship (shift in the function) or changes in the function output (movement along)?

1. A fall in the price of bacon leads to a (change in quantity supplied / shift in supply) for Canadian bacon
2. The invention of a new pig fertility drug leads to a (change in quantity supplied / shift in supply) in of for Canadian bacon
3. A successful campaign to stop Canadians eating meat leads to a (change in quantity supplied / shift in supply) for Canadian bacon

Supply and Demand: Demand Curve

The Demand curve is a function of prices:

$$Q_D = Q_D(P)$$

This means that it describes a *relationship* between price and quantity demanded. Are the following changes in the relationship (shift in the function) or changes in the function output (movement along)?

1. An increase in the price of rubber leads to a (change in quantity demanded / shift in demand) for new new racing tires
2. *The Fast and the Furious* led to a (change in quantity demanded / shift in demand) for new racing tires

Substitutes and Complements

An *increase* in the price of a good leads to an *increase* in the demand for its substitutes and *decrease* in the demand for its complements.

- eg: an increase in the price of Apple Macbooks leads to ? in the demand for those Apple laptop stickers and a ? in the demand for Asus laptops.

The Market Mechanism

The market mechanism leads to an allocation rule that satisfies some sense of stability; that is, when the market mechanism operates we end up in an equilibrium where, given the equilibrium, nobody prefers to do something differently.

- In particular: given prices, no buyer that isn't buying prefers to buy, no buyer that is buying prefers to not buy, no seller that... etc. This is one notion of *stability*.
- Contrast this with other allocation rules (for example, first-come-first-served)

The **equilibrium** arising from the market mechanism is an equilibrium price and equilibrium quantity:

$$\textbf{Equilibrium} = \{P^*, Q^*\}$$

Comparative Statics

- Exogenous versus endogenous variables - which is which?
- Solve for the equilibrium: $Q^d = \alpha - \beta P$, $Q^s = \gamma P$, and describe the locus of equilibria for all α, holding γ, β fixed.

Example

From class: equilibrium in the market for natural gas

$$Q_g^d = -5P_g + 3.75P_o$$
$$Q_g^s = 14 + 2P_g + 0.25P_o$$

1. Are oil o and natural gas g compliments or substitutes?
2. Find the equilibrium given $P_o = 8$.
3. Suppose the government imposes a 1\$ price ceiling. Describe the market outcome.