Lecture 01

Introduction to Environmental Economics

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ECON 467

Roadmap

- What is environmental economics?
- What are the goals for this class?
- Microeconomics recap

What is environmental economics?

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These ideas can be applied to the environment

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Environmental economics helps us understand things like:

The value of mitigating pollution

How agents will response to climate change policies

Whether investment tax credits for wind power are cost-effective

Air pollution is bad

How do people respond to info?

Places provide info to help people avoid air pollution

Does it work?

How well?

Climate change
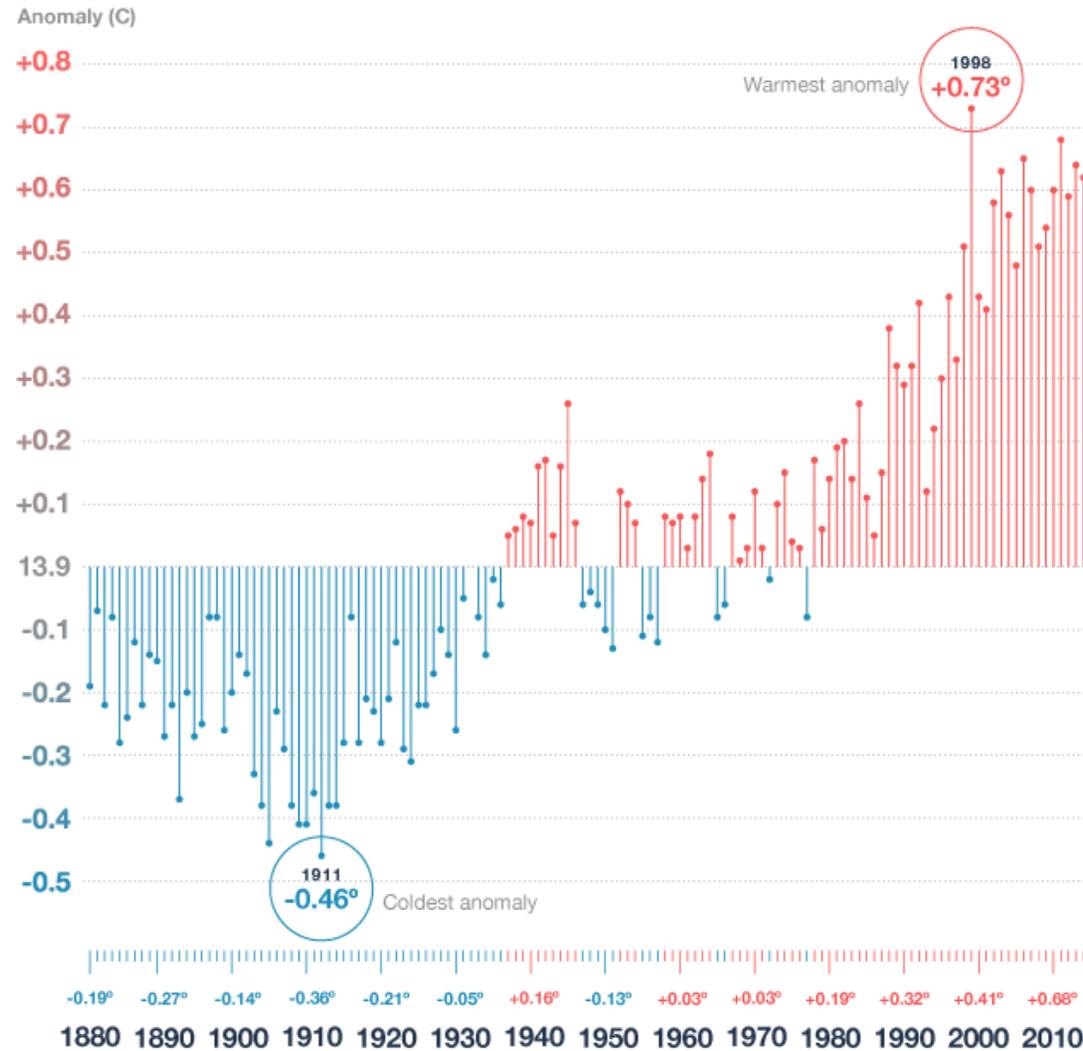
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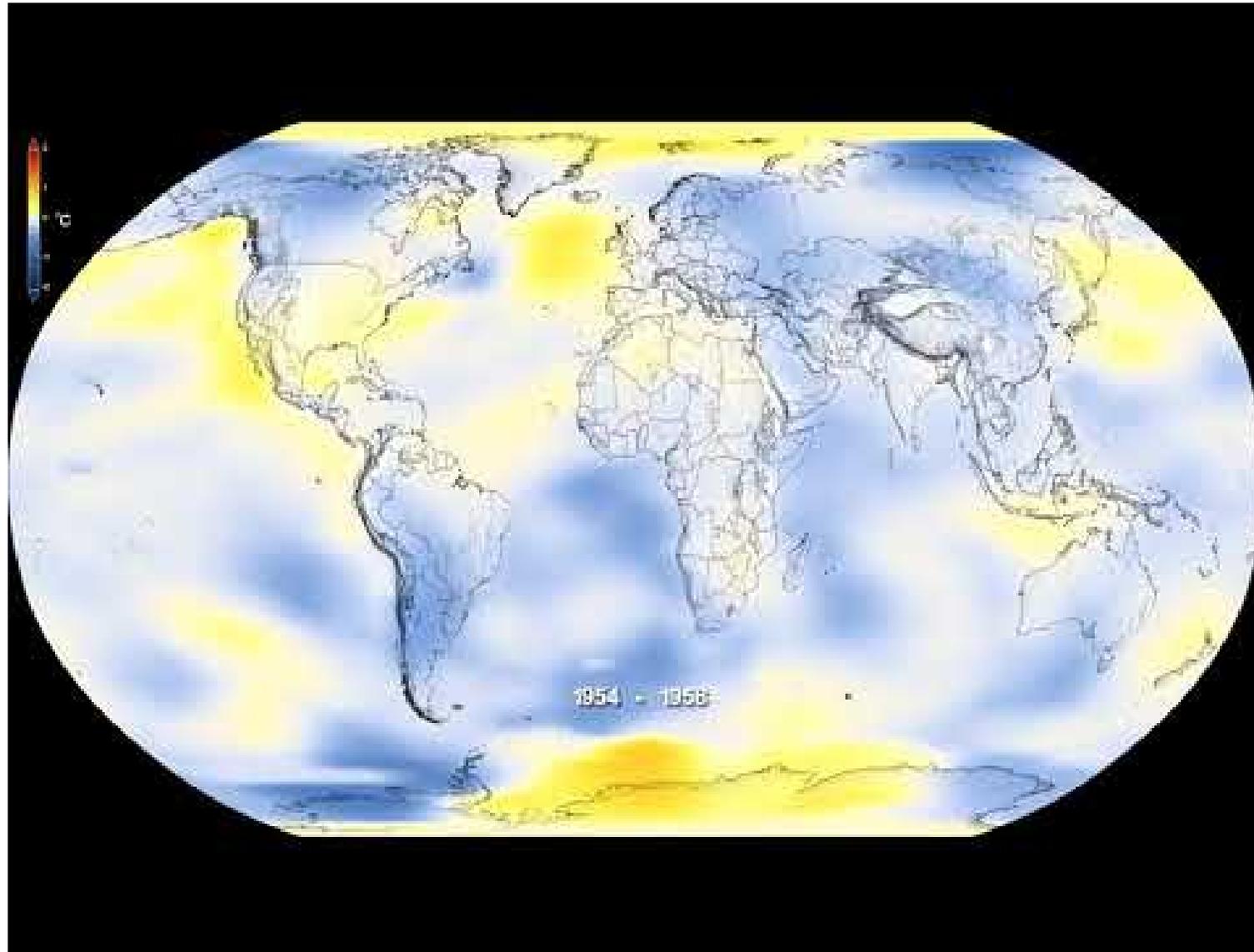
Climate change

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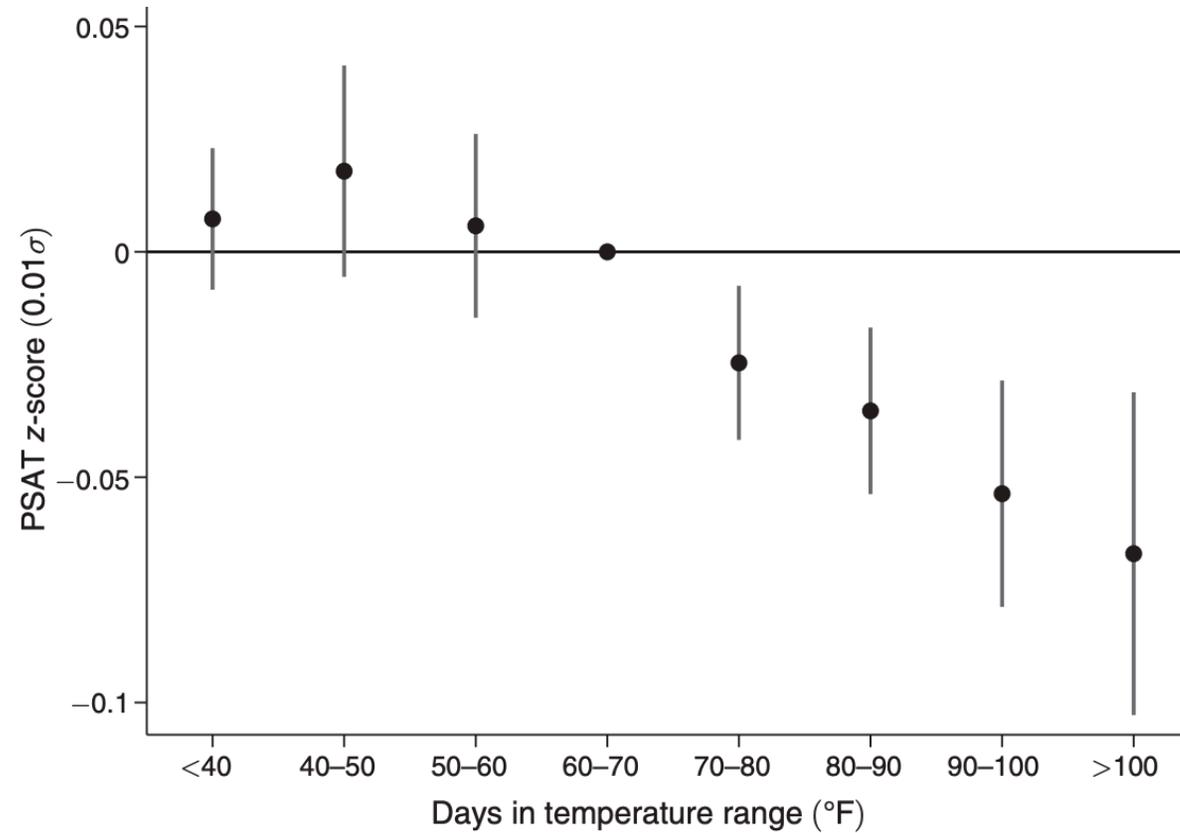
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Climate change

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- Production
- Learning
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- Fishing
- etc, etc

Climate change: heat hurts learning

Park et al. (2020)

Climate change: heat hurts the economy

Climate change: extreme heat/cold increases mortality

Full mortality risk of climate change in 2100 (deaths per 100,000)
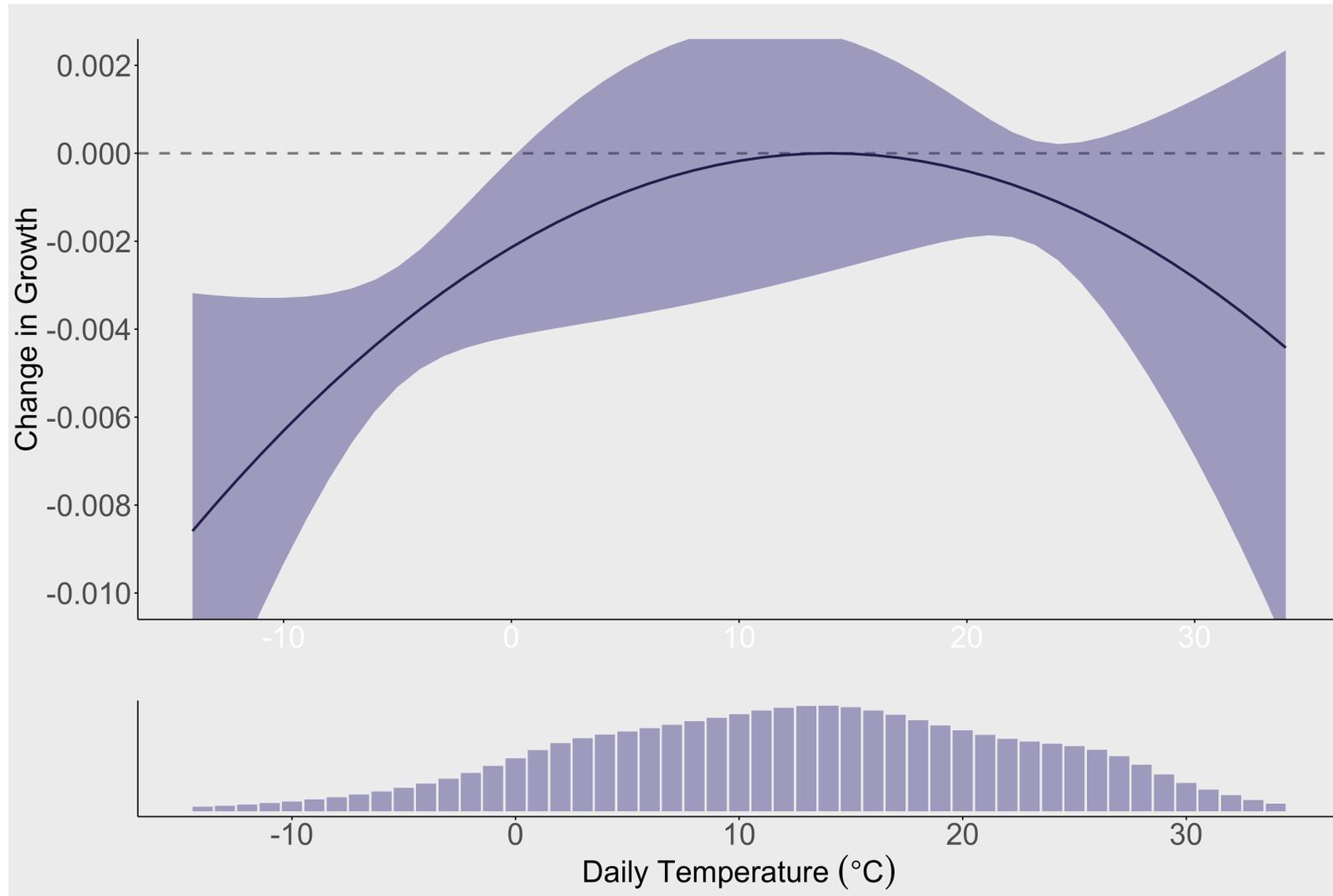
What is enviro econ?

Environmental economics is actually pretty new

Spurred by **John Krutilla** in the 1950s

His paper Conservation Reconsidered is the landmark paper in the field (sort of like Wealth of Nations and economics as a whole)

What are the goals of this class?
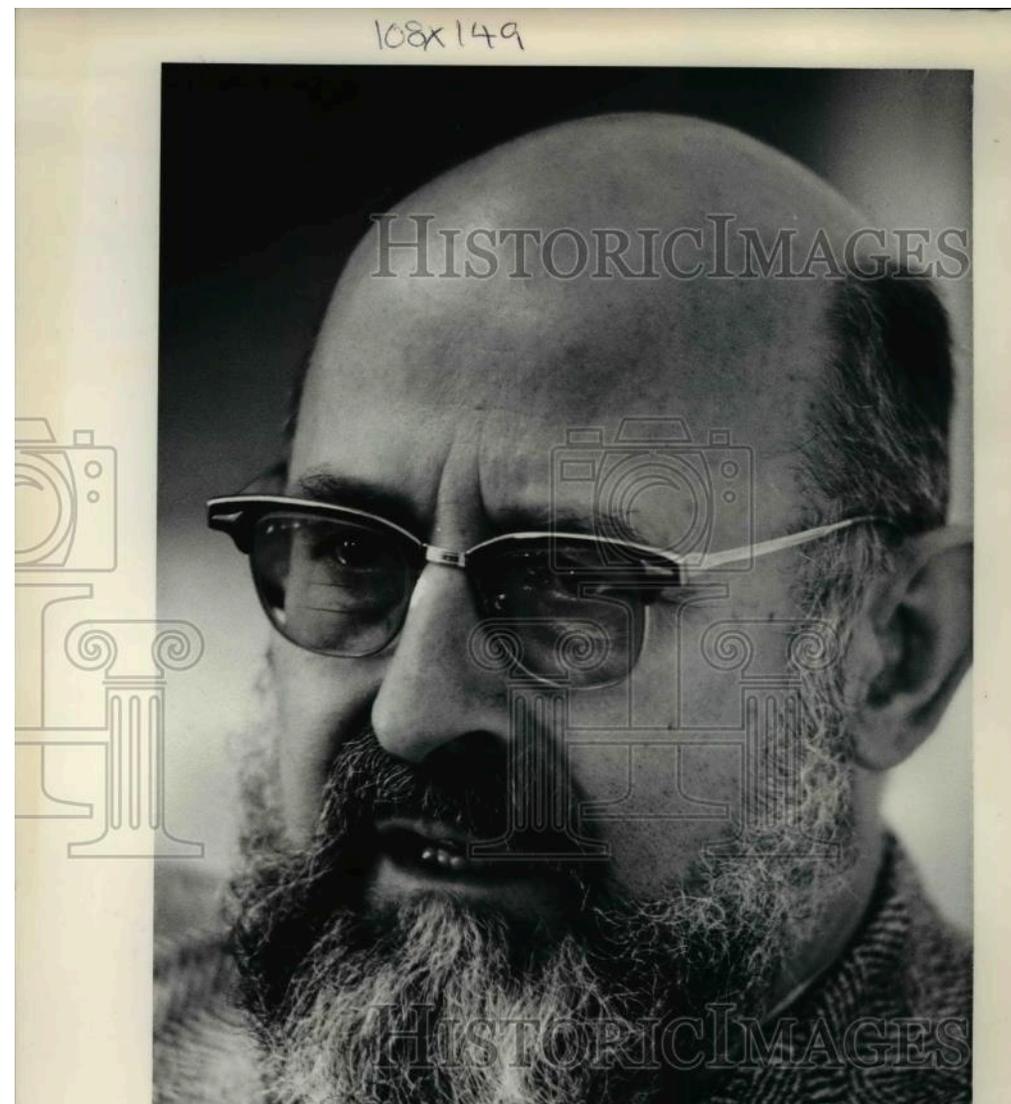
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Learn both the theory and **applications** of environmental economics

Microeconomics recap

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Is Intro to Micro applicable everywhere?

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Creating markets to solve problems

How do we solve some problems in practice?

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Micro recap: terminology

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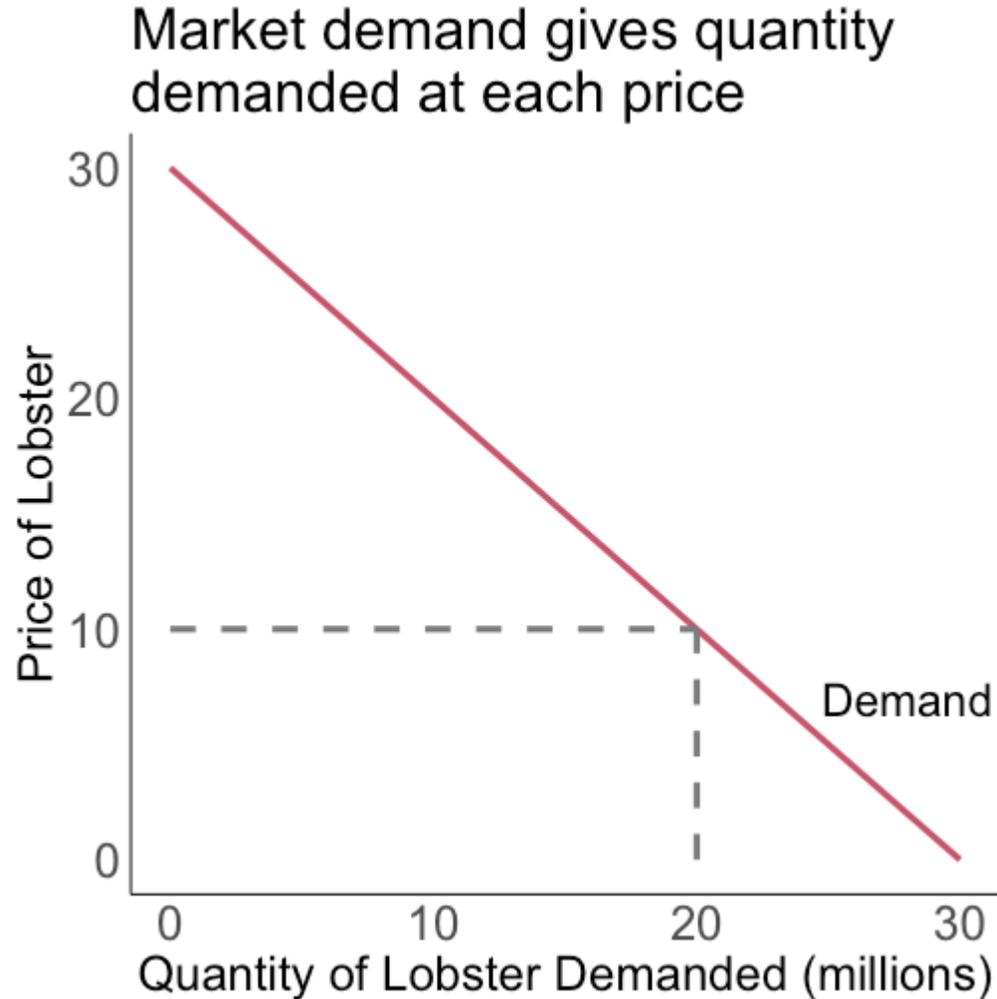
Supply curve: A schedule or graph showing the quantity of a good that sellers wish to sell at each price; it gives us the marginal willingness to accept or the marginal cost

Market demand

Market demand gives quantity demanded at each price
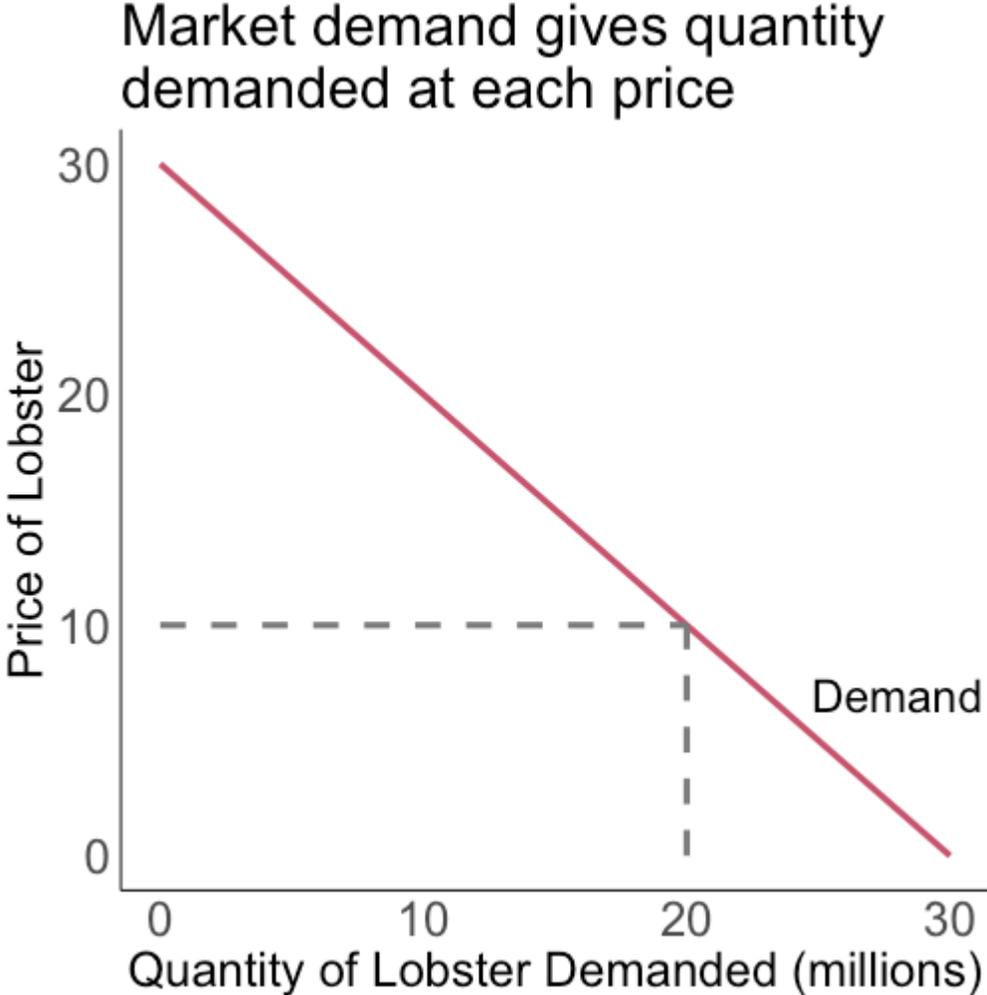
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Horizontal interpretation: if buyers face a price of $10/lobster they will want to purchase 20 million
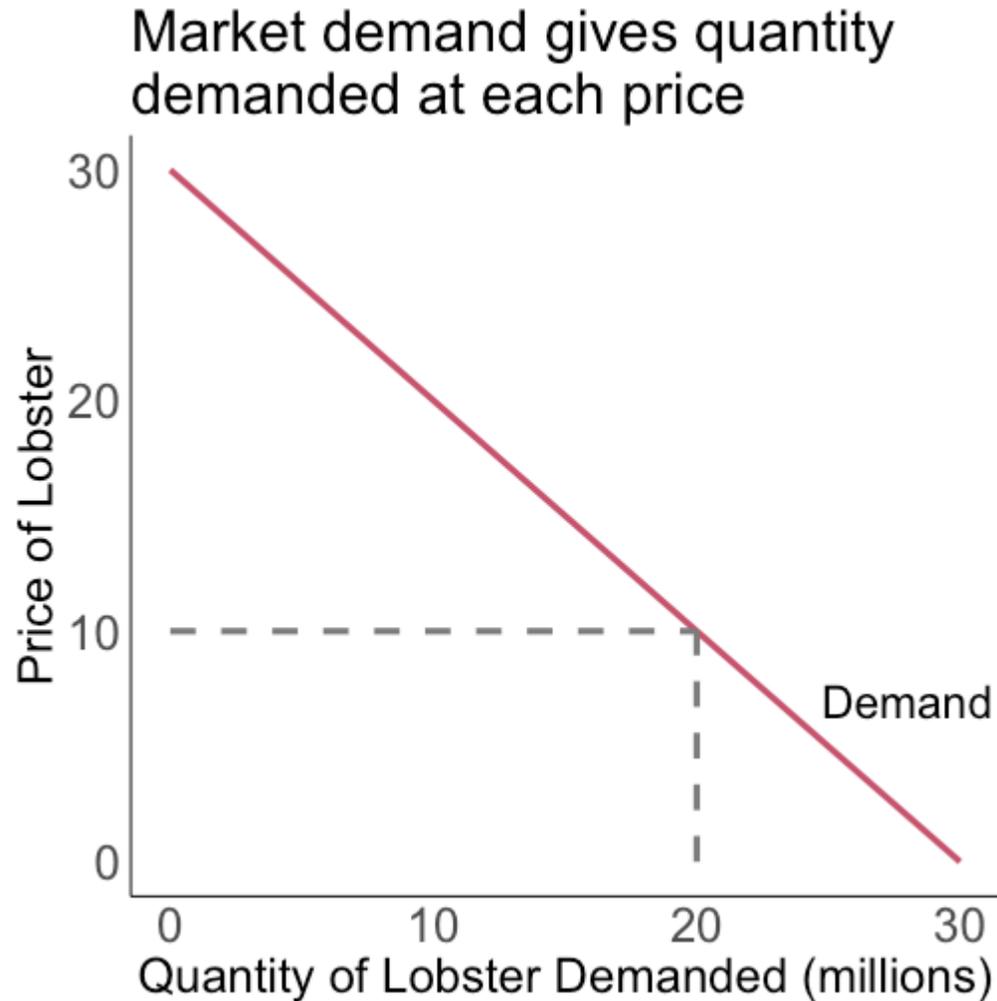
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Vertical interpretation: if buyers are buying 20 million lobsters, the marginal buyer is willing to pay at most $10

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Why do demand curves slope down?

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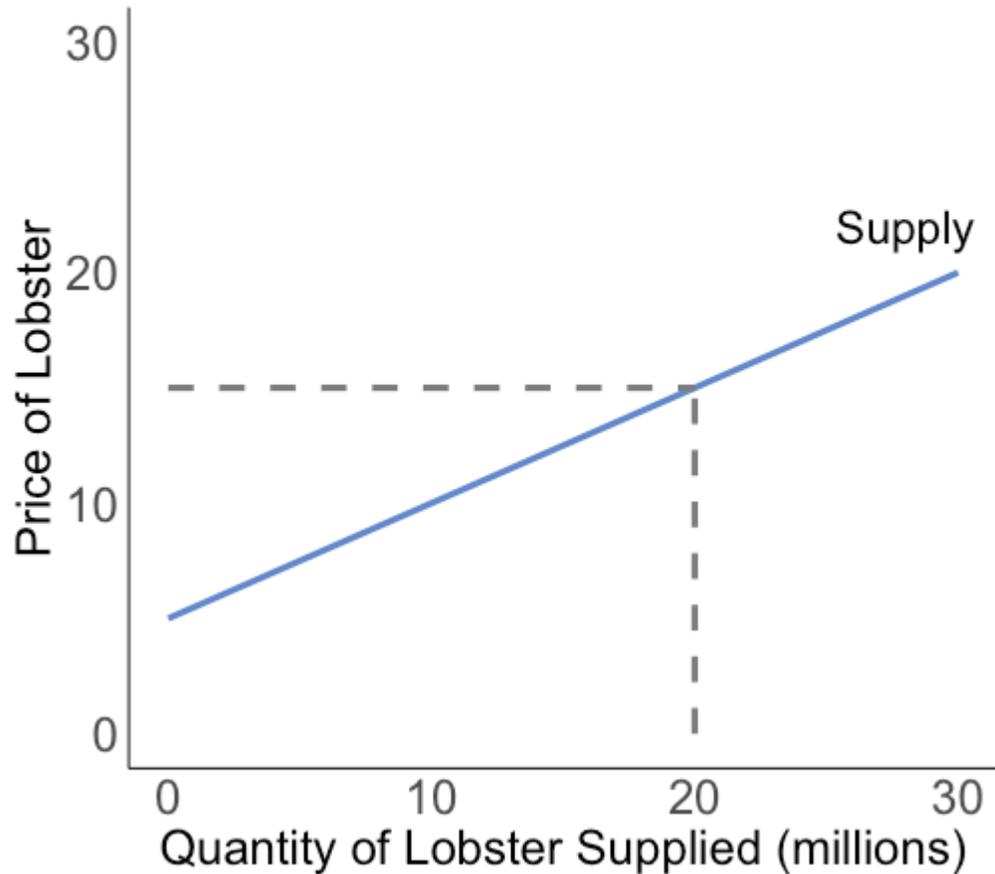This is the **substitution effect**: if the price of Coke goes up, people buy more Pepsi

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This is the **income effect**: if the price of pizza goes up, we have a lower real budget
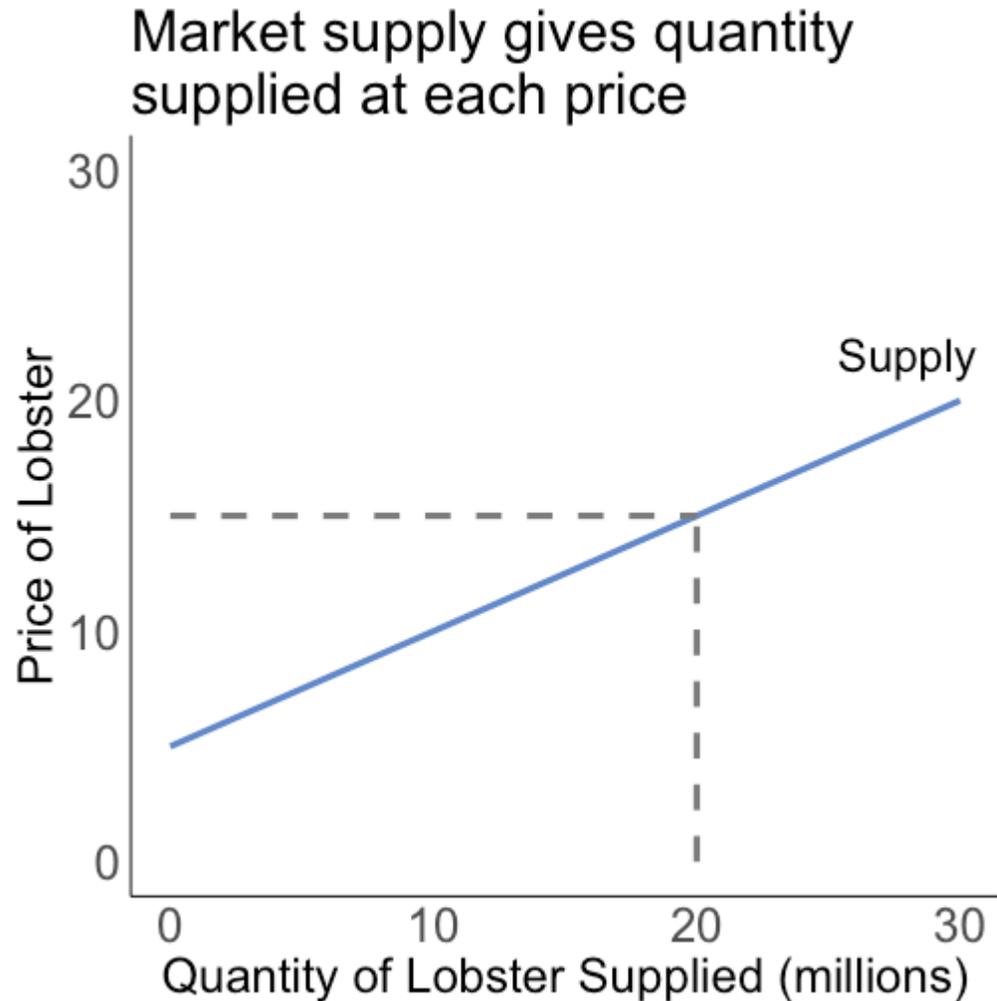
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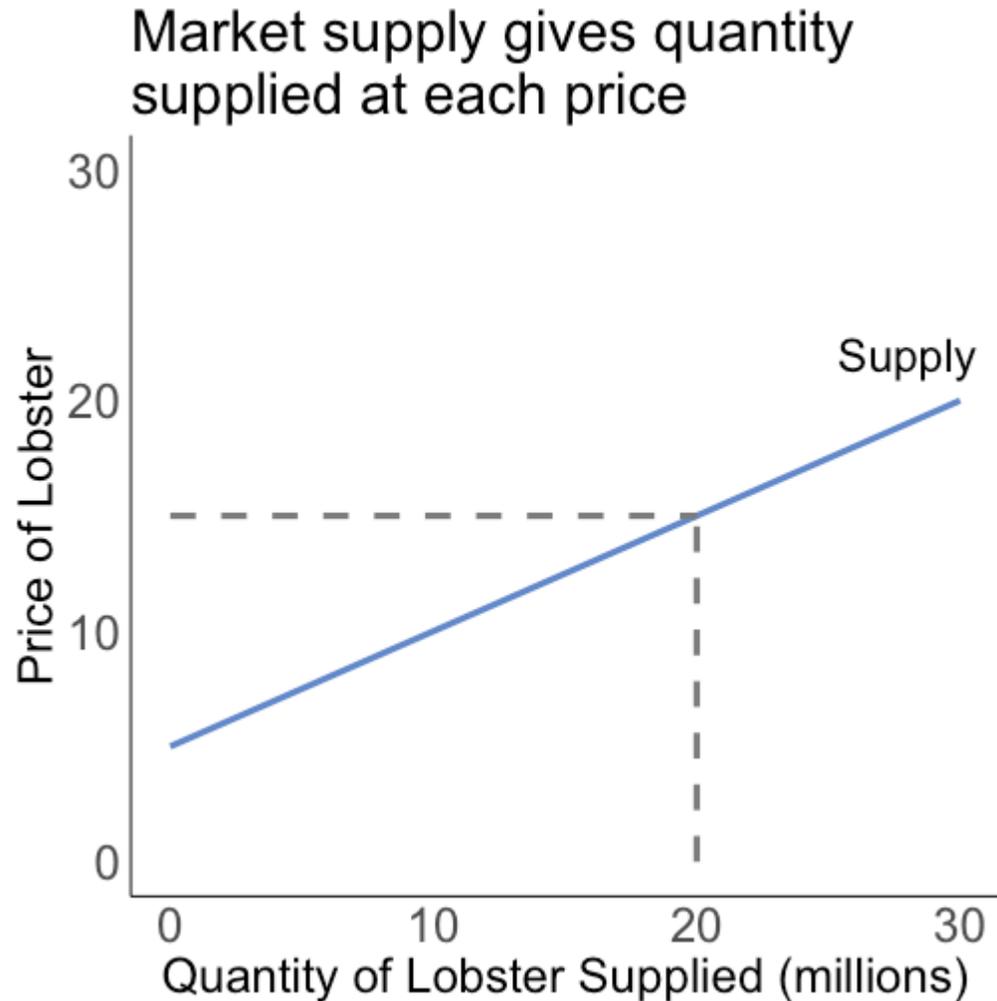Market supply gives quantity supplied at each price

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Horizontal interpretation: if sellers face a price of $15/lobster they will want to sell 20 million

Vertical interpretation: if sellers are selling 20 million lobsters, the marginal cost of the last lobster is $15

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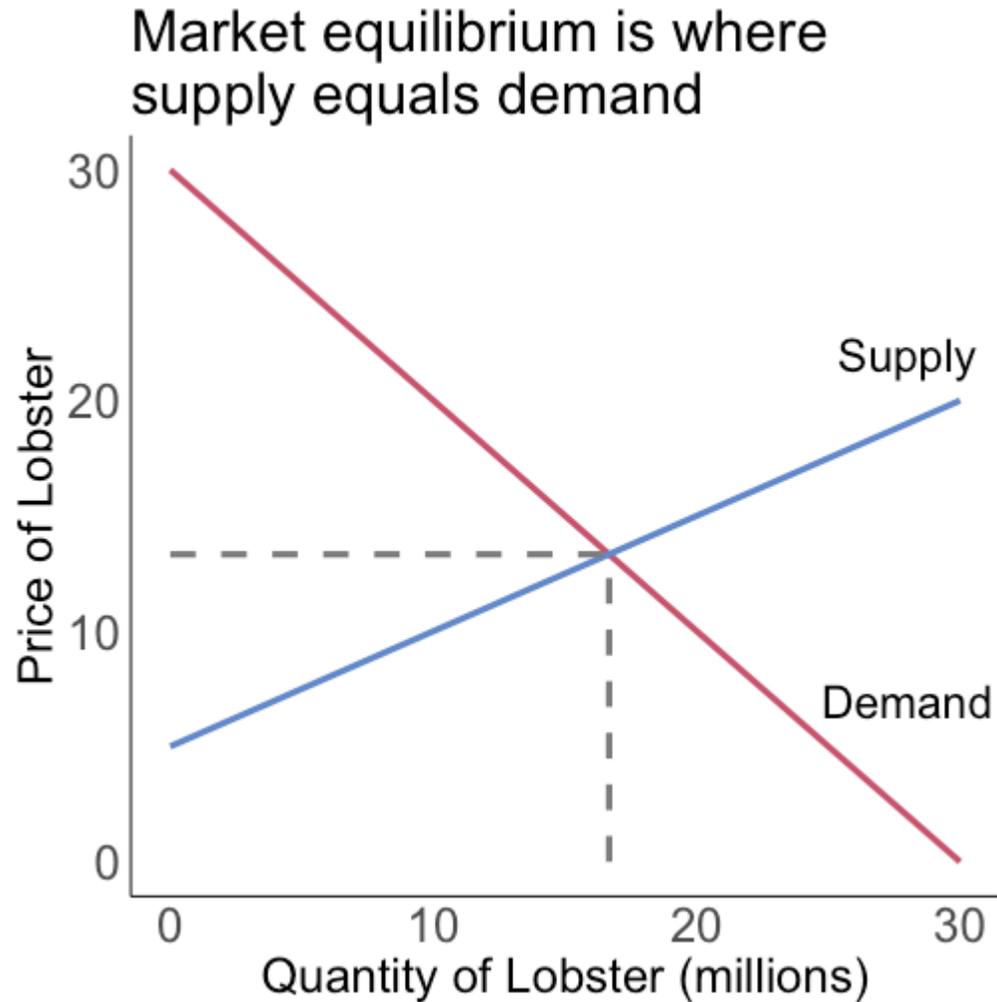Marginal costs go up as production goes up $\rightarrow$ producers need higher prices in order to produce more goods

Market equilibrium

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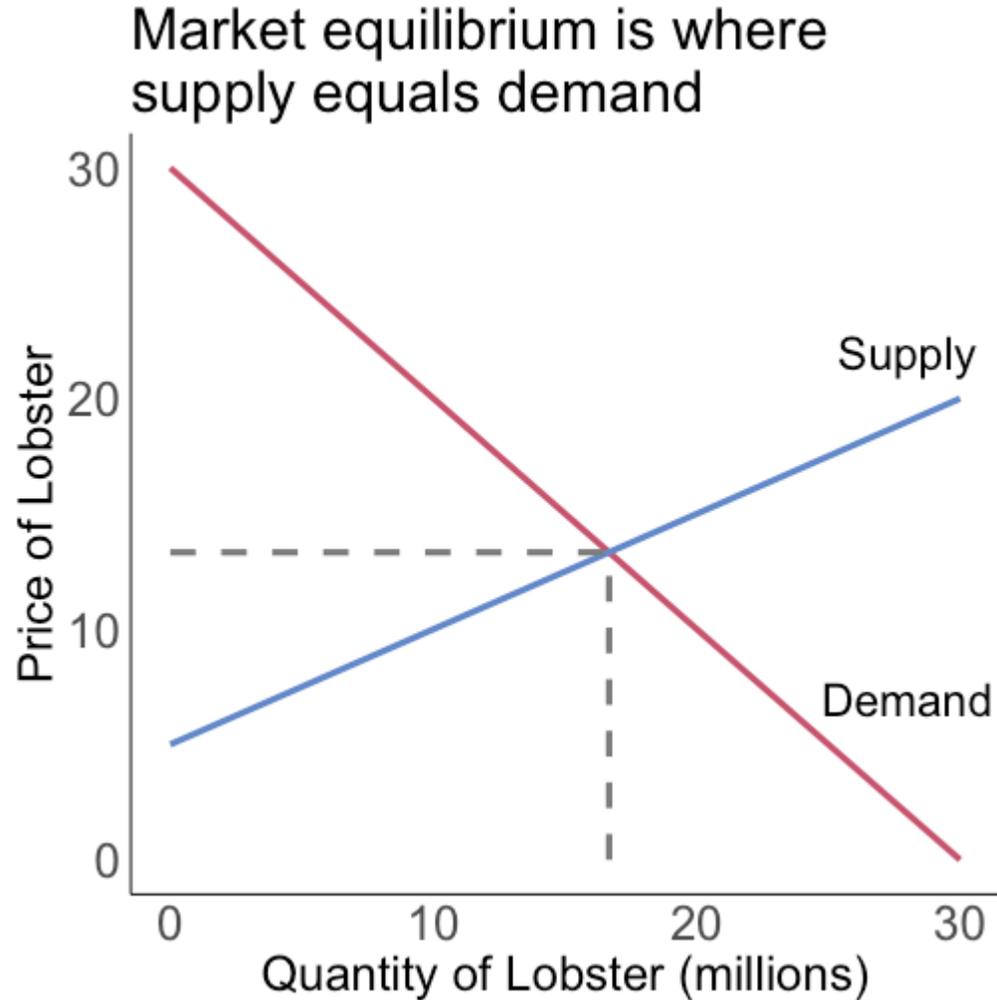
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This gives us the price where the quantity demanded exactly equals the quantity supplied: no shortages, no surpluses

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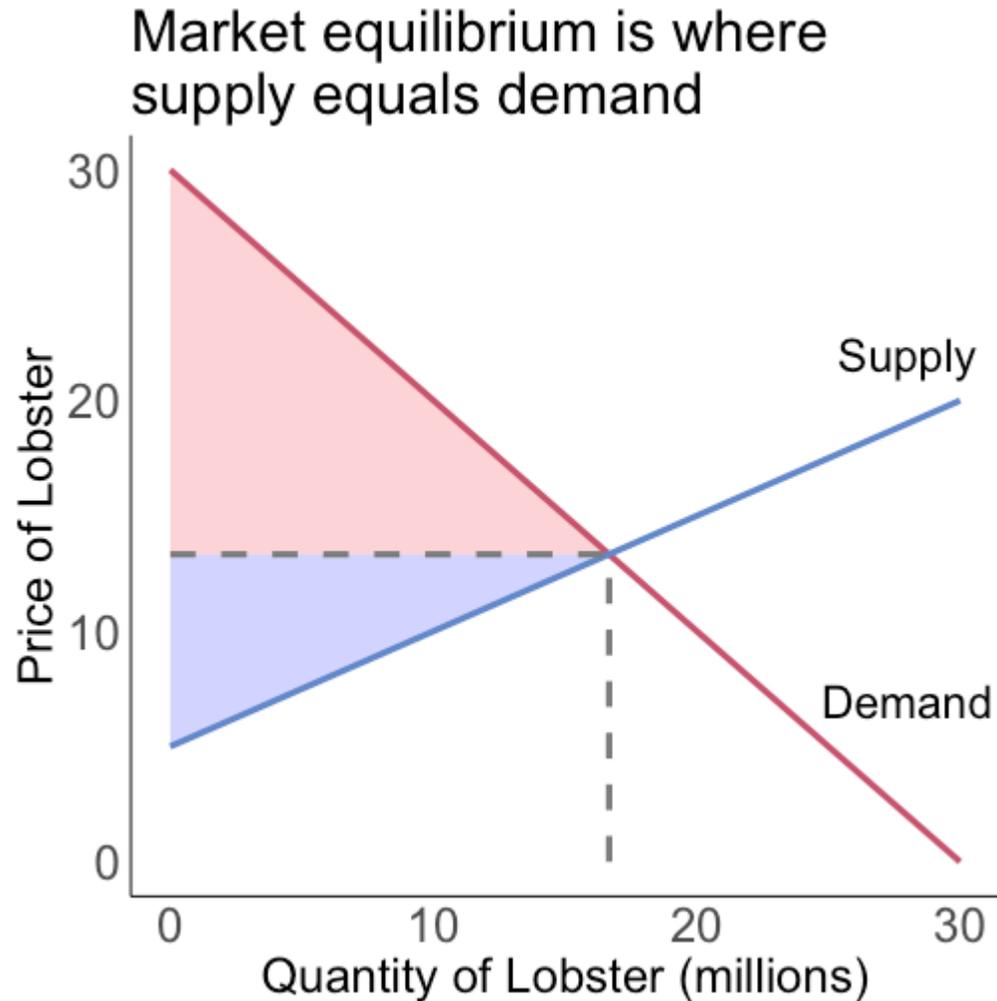
Consumer surplus is the difference between willingness to pay (demand) and price

Producer surplus is the difference between price and marginal cost (supply)

Total surplus is the sum of CS and PS

Efficiency

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If you can make one person better off without making anyone else worse off its called a **Pareto improvement**

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Main takeaway: markets are often a nice way to allocate scarce resources

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3. Complete markets (minimal transactions costs)
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They drive a wedge between private and social marginal cost, or private and social marginal benefit

The key departures in environmental economics

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	Excludable	Non-Excludable
Rival	Private goods (food)	Common-pool resources (fish, timber)
Non-rival	Club goods (parks, netflix)	Public goods (air, national defense)

Imperfect information

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Without the adequate information, buyers or sellers cannot make the choices in their best interest

Efficiency and equity

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- Perfect price discrimination is also Pareto efficient: producers capture all the surplus but it is maximized

Ecological wealth