

# 3.4 — The *Dynamic* Benefits of Markets

ECON 306 • Microeconomic Analysis • Spring 2022

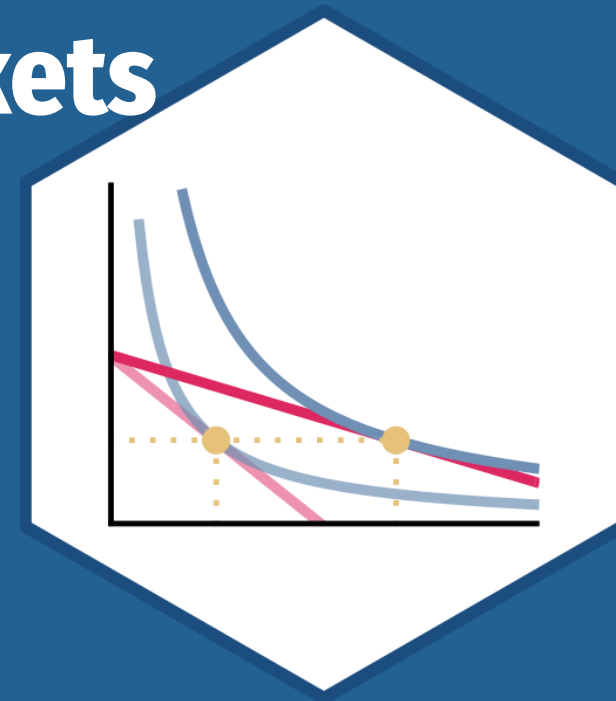
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# Outline



Why Markets Tend to Equilibrate, Redux

The Social Functions of Market Prices

Uncertainty and Profits

# The Model is Not the Reality I



*“All models are wrong, but some are useful.”*

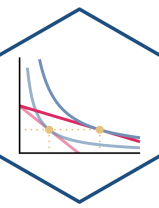
- This course is about economic modeling and formal theory
- Lots of applications beyond this course
- Models help us *understand* reality, but they are *not* reality!
  - Don't mistake the map for the territory itself

# The Model is Not the Reality II



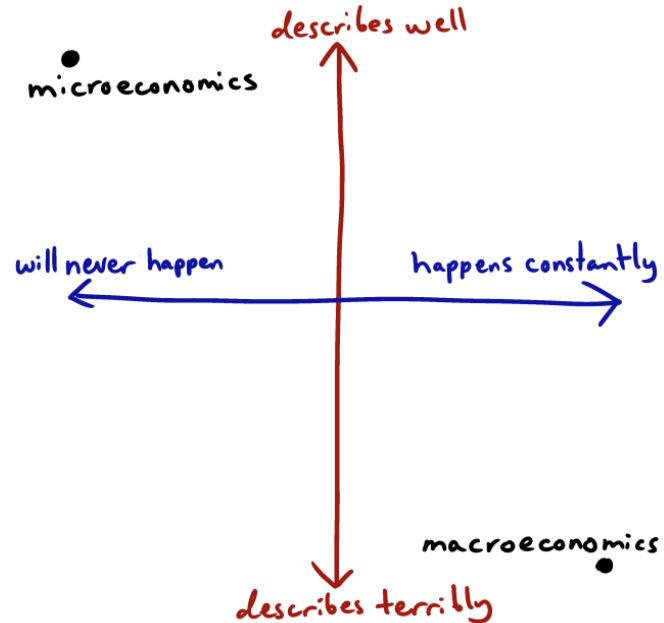
- Our models so far have given us interesting results:
  - Markets reach equilibrium
  - Economic profits are zero in the long run in competitive markets
- Both are **fictional!**
- But the models **still** show us useful insights about how a market economy works
- Some readings in today's readings page to help you understand

# The Model is Not the Reality III



## KNOW YOUR BRANCHES OF ECONOMICS:

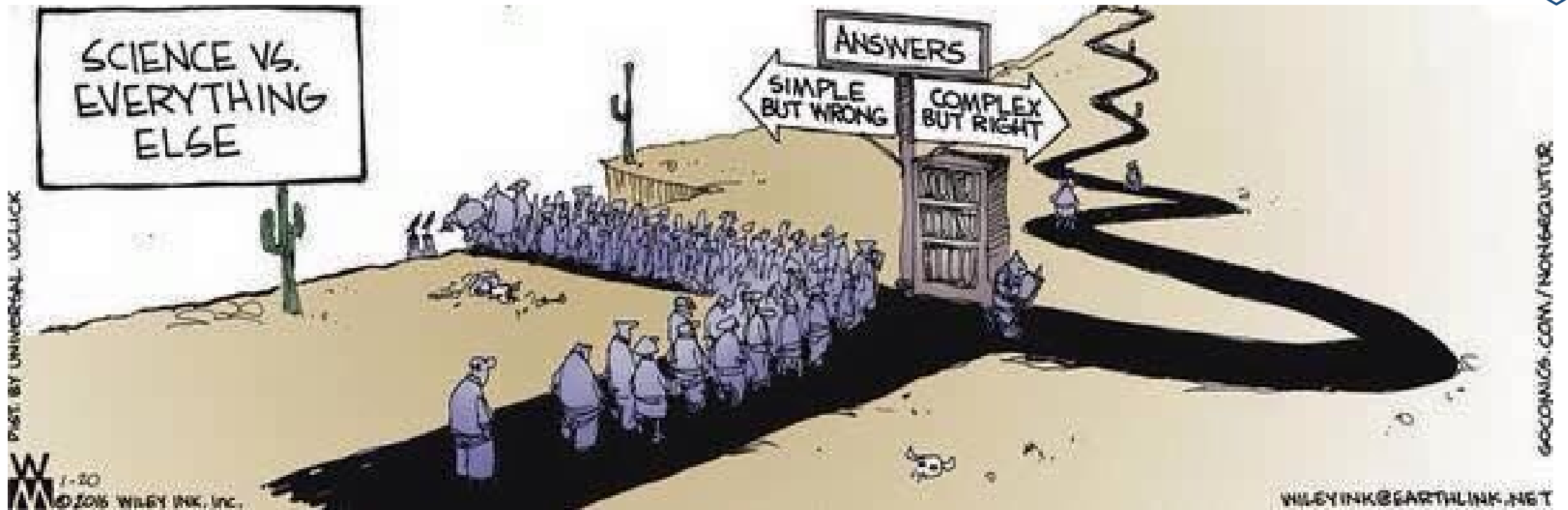
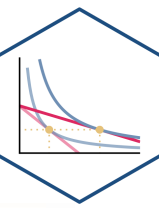
- HOW WELL THEORY DESCRIBES SCENARIOS IT CONSIDERS
- HOW LIKELY THOSE SCENARIOS ARE TO OCCUR IN REALITY

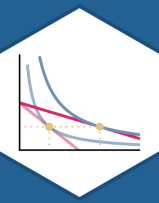


Source: [SMBC](#)

"Shame on the three of you who enjoyed this joke"

# The Model is Not the Reality III



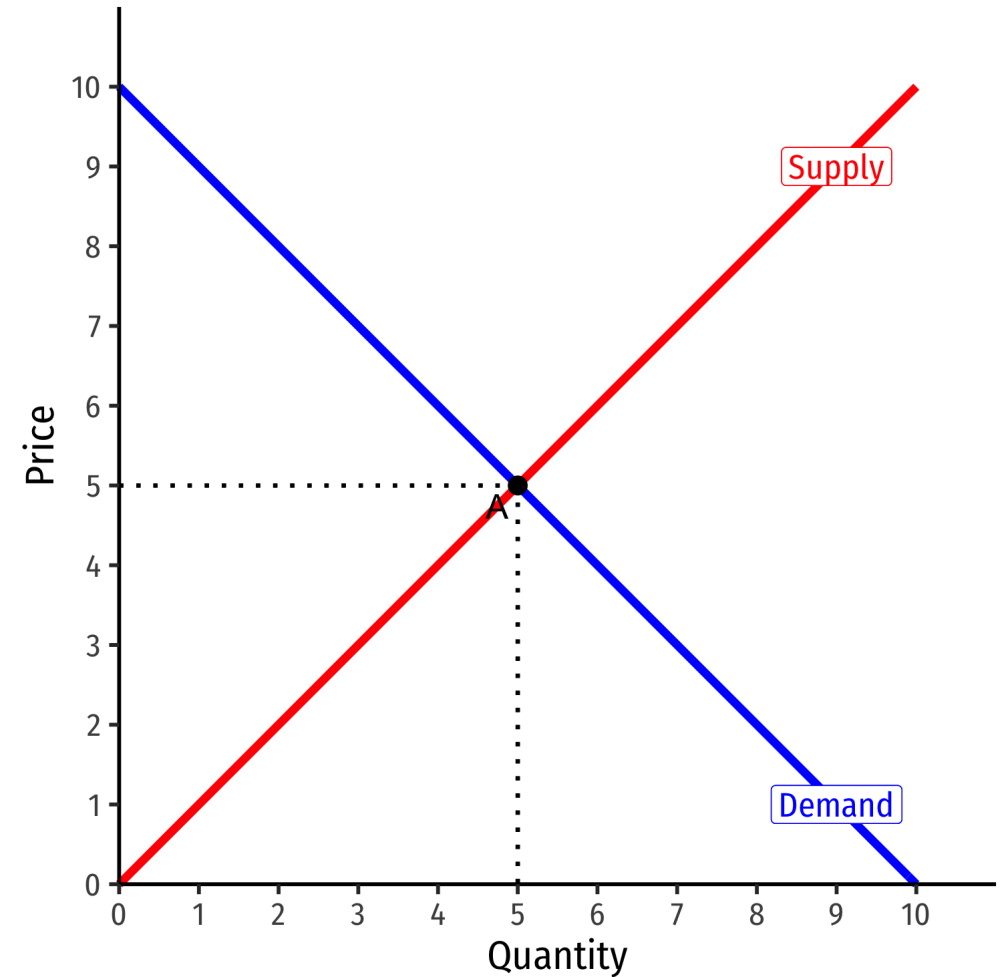


# Why Markets Tend to Equilibrate, Redux

# The Law of One Price I



- **Law of One Price:** *all* units of the *same* good exchanged on the market will tend to have the same market price (the market-clearing price,  $p^*$ )



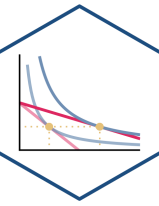


# The Law of One Price II

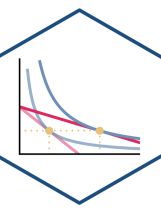


- Consider if there are *multiple* different prices for *same* good:
- **Arbitrage** opportunities: optimizing individuals recognize **profit opportunity**:
  - Buy at low price, resell at high price!
  - There are possible gains from trade or gains from innovation to be had
- **Entrepreneurship**: recognizing profit opportunities and entering a market as a seller to try to capture gains from trade/innovation

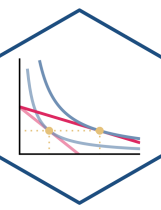
# Arbitrage and Entrepreneurship I



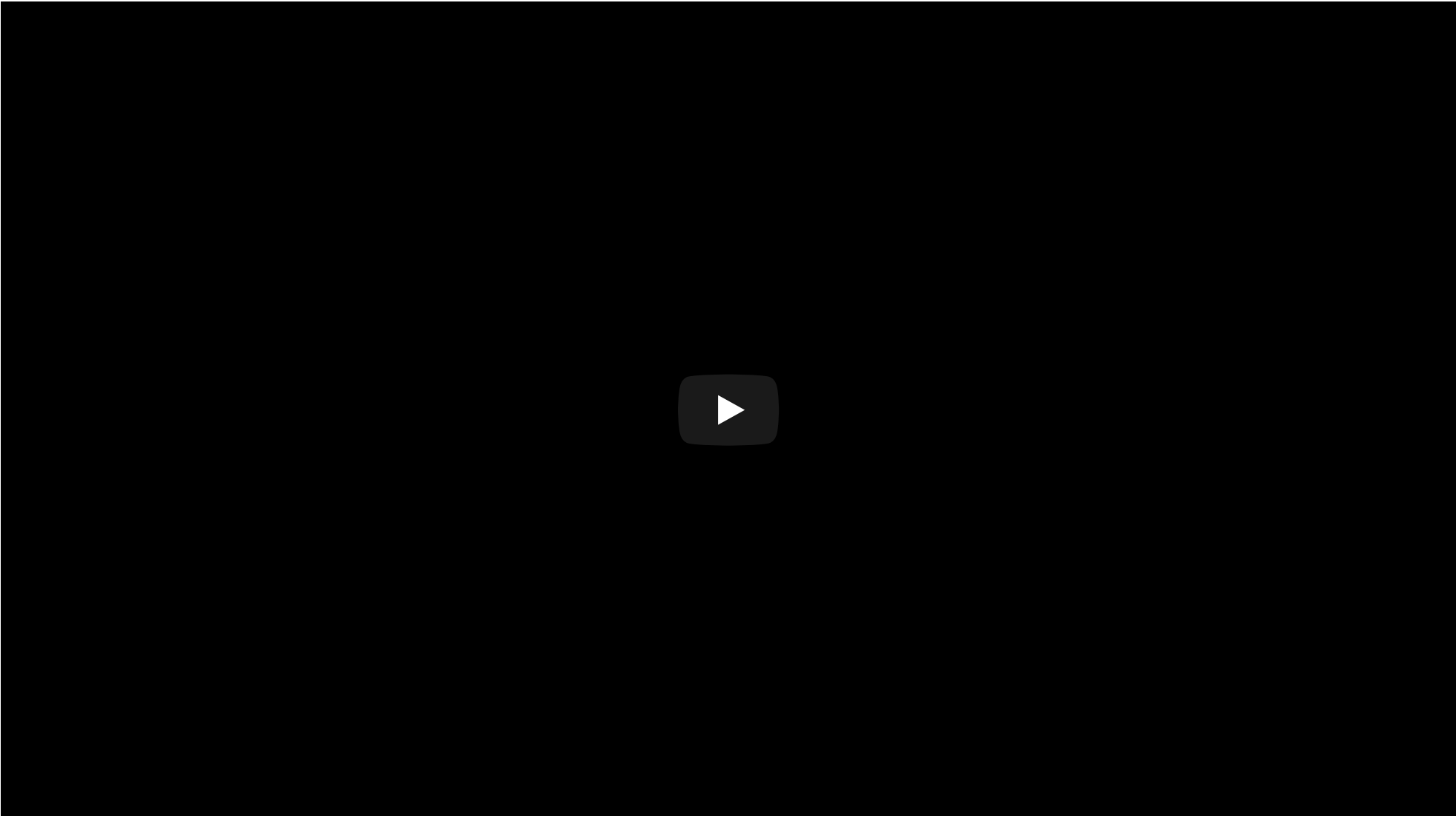
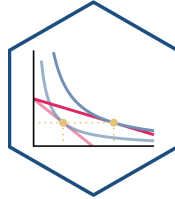
# Arbitrage and Entrepreneurship II



# Arbitrage and Entrepreneurship III



# Uncertainty vs. Risk

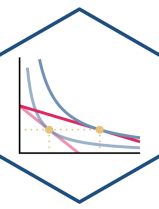


# Uncertainty vs. Risk



- “Known knowns”: perfect information
- “Known unknowns”: risk
  - We know the probability distribution of states that *could* happen
  - We just don't know *which* state will be realized
  - We can estimate probabilities, maximize expected value, minimize variance, etc.

# Uncertainty vs. Risk



- **“Unknown unknowns”**: **uncertainty**
  - We don't even know the probability distribution of states that *could* happen
  - *No model to optimize* in a world of uncertainty!

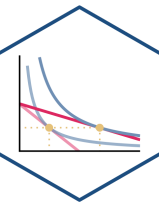
# The Role of Entrepreneurial Judgment



- Under true **uncertainty**, it's not that we can't assign probabilities to each outcome; we do not even have the knowledge necessary to list all possible outcomes!
- Requires **entrepreneurial judgment** to *both*:
  1. estimate possible actions *and*
  2. estimate the likelihood of their success
- **Entrepreneur** is central player, earns pure profits (a residual) for *bearing uncertainty*



# Entrepreneurial Judgment

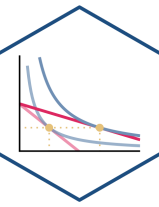


Henry Ford

1863-1947

“If I had asked people what they wanted, they would have said **faster horses.**” - Henry Ford

# Entrepreneurial Judgment



“It's really hard to design products by focus groups. A lot of times, **people don't know what they want until you show it to them.**” - Steve Jobs

# Uncertainty and Entrepreneurship

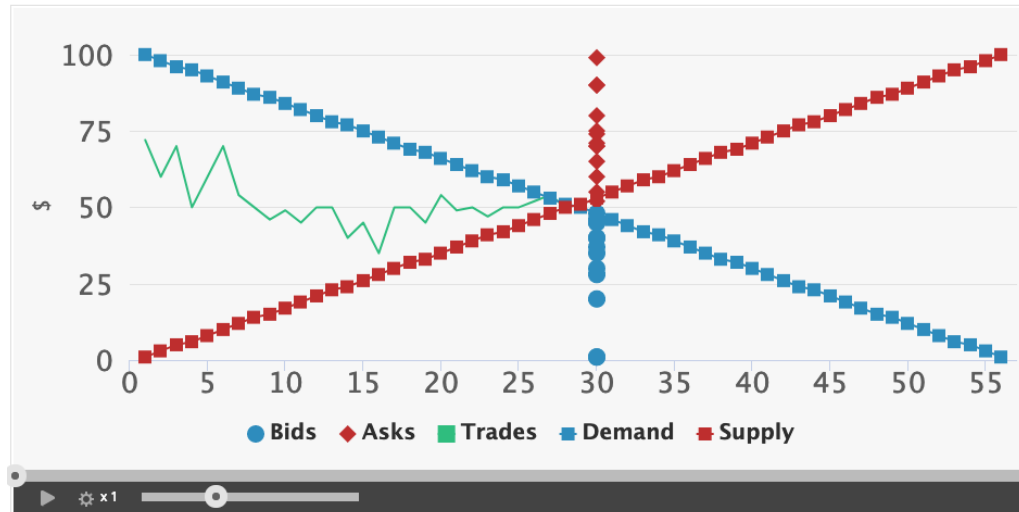
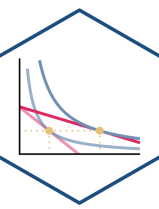


Mark Zuckerberg

1984-

"Why were we the ones to build [Facebook]? We were just students. We had way fewer resources than big companies. If they had focused on this problem, they could have done it. The only answer I can think of is: **we just cared more. While some doubted** that connecting the world was actually important, **we were building**. While others doubted that this would be sustainable, **we were forming lasting connections.**"

# How Markets Get to Equilibrium I



STATS		
TOTAL EARNINGS:	POSSIBLE EARNINGS:	EFFICIENCY
\$ 1243	\$ 1410	88.16%

- Nobody knows “the right price” for things
- Each buyer and seller only know **their own** reservation prices
- Buyers and sellers adjust their bids/asks
- Markets do not *start* competitive, but *become* competitive!
- New entrepreneurs enter to try to capture gains from trade/innovation
- As these gains are exhausted, prices converge to equilibrium

# How Markets Get to Equilibrium II



For more, see Hayek 1945 in [today's readings](#).

- Errors and imperfect information

⇒ multiple prices

⇒ arbitrage opportunities

⇒ entrepreneurship

⇒ correcting mistakes

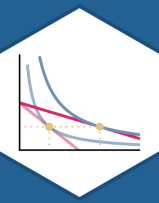
⇒ people update their behavior & expectations

- Markets are **discovery processes** that *discover* the right prices, the optimal uses of resources, and cheapest production methods, none of which can be known in advance!

# How Markets Get to Equilibrium III

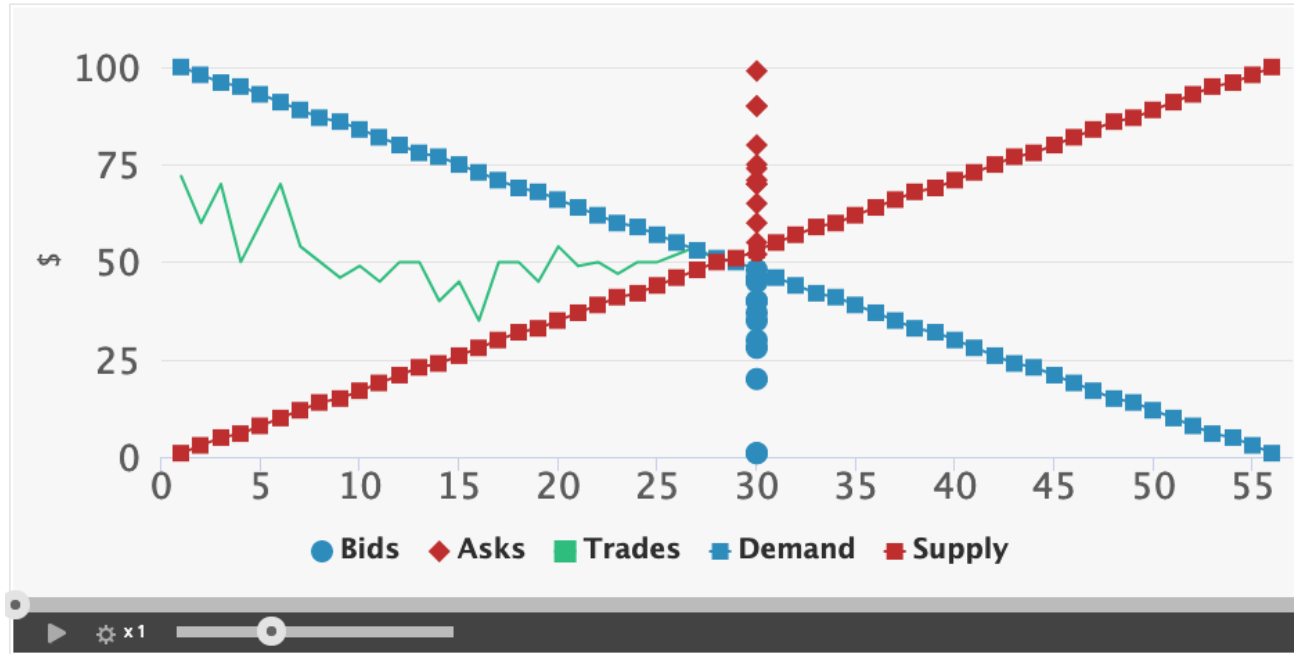
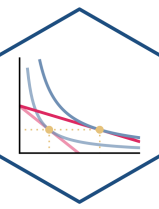


- Economy as a **cat**-and-**mouse** game between:
  - **Mouse**: preferences, technologies, alternative uses of resources
  - **Cat**: market prices, least-cost technologies
- **Cat** always chasing **mouse**
  - **Mouse** *always* moving
  - Any time **cat** hasn't caught **mouse**: profit opportunities
- **IF mouse** *froze*, market would rest at equilibrium



# The Social Functions of Market Prices

# Prices are Signals I



## STATS

TOTAL EARNINGS:

**\$ 1243**

POSSIBLE EARNINGS:

**\$ 1410**

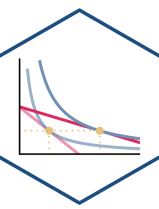
EFFICIENCY

**88.16%**





# Prices are Signals II



- **Markets are social *processes* that generate information via prices**
- **Prices are never “given”**, prices **emerge** dynamically from negotiation and market decisions of entrepreneurs and consumers
- **Competition:** is a **discovery process** which *discovers* what consumer preferences are and what technologies are lowest cost, and how to allocate resources accordingly

For more, see Hayek 1945 in [today's readings](#).

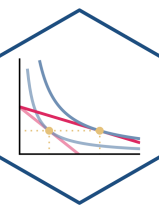
# The Social Functions of Prices I



A relatively high price:

- **Conveys information:** good is relatively scarce
- **Creates incentives for:**
  - **Buyers:** conserve use of this good, seek substitutes
  - **Sellers:** produce more of this good
  - **Entrepreneurs:** find substitutes and innovations to satisfy this unmet need

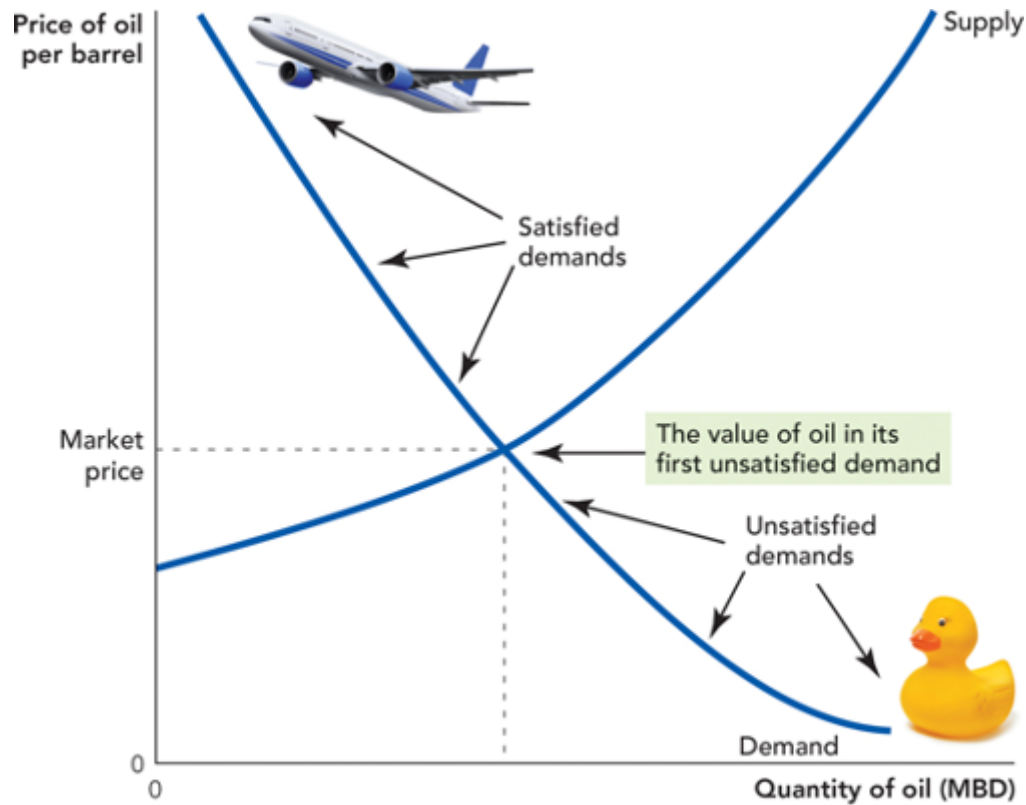
# The Social Functions of Prices II



A relatively low price

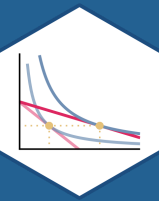
- **Conveys information:** good is relatively abundant
- **Creates incentives for:**
  - **Buyers:** substitute away from expensive goods towards this good
  - **Sellers:** Produce less of this good, talents better served elsewhere
  - **Entrepreneurs:** talents better served elsewhere: find more severe unmet needs

# The Social Functions of Prices III



(Top photo: ssuaphotos/Shutterstock)  
(Bottom: Lew Robertson/Corbis)

- Prices tell us how to allocate scarce resources among competing uses
- Think of diminishing marginal utility:
  - allocate scarce good to highest-valued use first
  - as supply becomes more plentiful (price falls), can allocate more units of the good to lower-valued uses (higher-valued uses already satisfied)



# Uncertainty and Profits



# Uncertainty, Tacit Information, and Profit I



- **Economic theory:** in a perfectly competitive market, in the long run, economic profit  $\rightarrow$  to zero
- **Real world:** there *are* often economic profits
- Our blackboard models assume perfect information
- In reality we have to deal with **uncertainty**



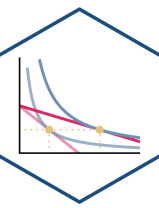
# Uncertainty, Tacit Information, and Profit II



- Imperfect information: mispricing and multiple prices → arbitrage/profit opportunities
  - Some people recognize opportunities (\$20 bills) that others do not see
- **In a world of certainty, there would be no profit**
  - The model world of perfect competition is a fictional world of certainty
  - The real world, *because* it's uncertain, *has* profit opportunities!



# Uncertainty, Tacit Information, and Profit III

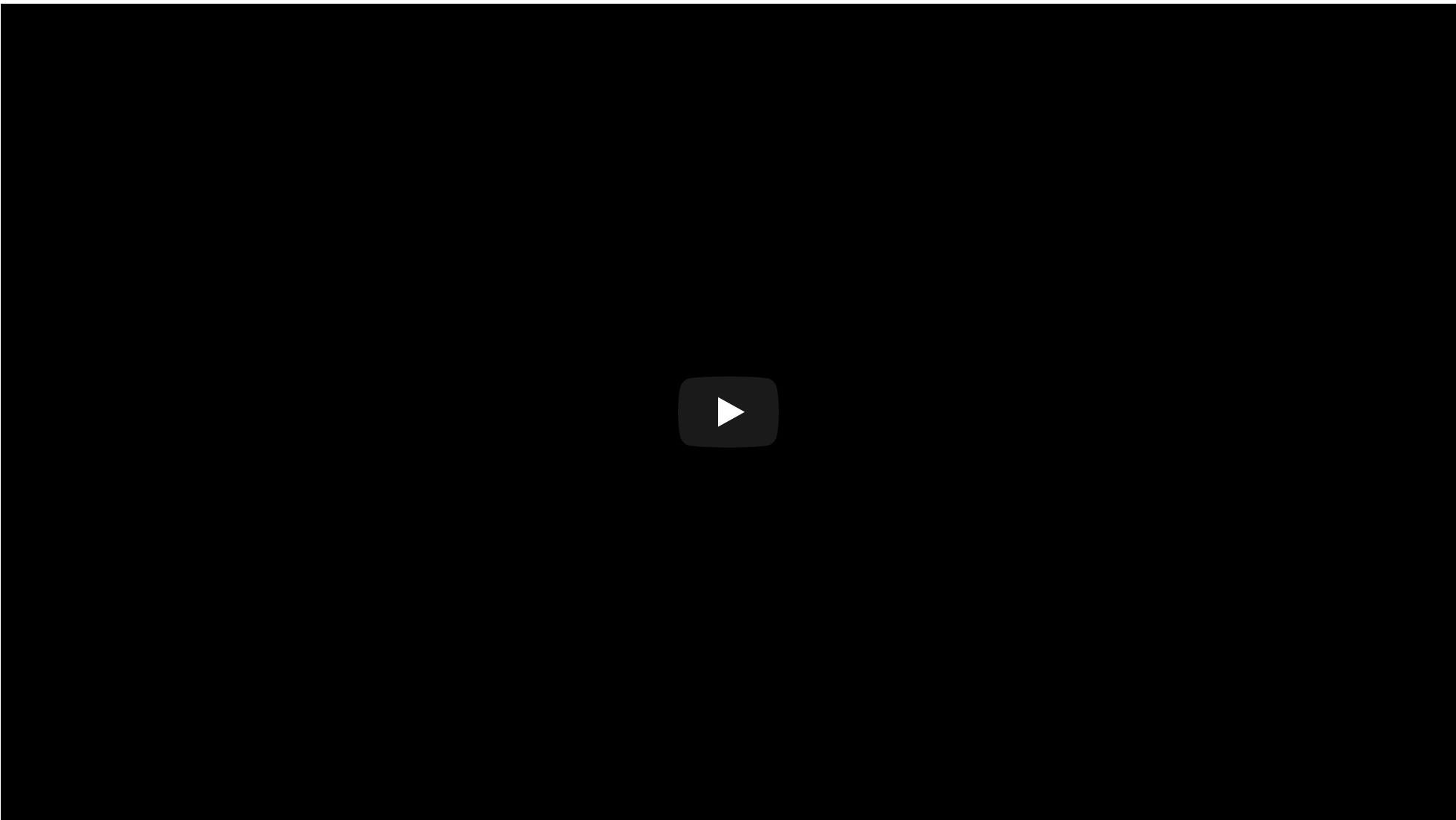
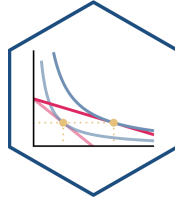


- Firms don't actually *maximize* profits 😬, just a convenient assumption!
  - In a world of uncertainty (unlike mere risk), there's no way to *maximize* anything!
- Real world is *not* a mere constrained maximization problem!
- Better to think in **evolutionary** terms:
  - Firms that *best* adapt to market circumstances will *survive* and earn profit...whether by skill & talent or just dumb luck!

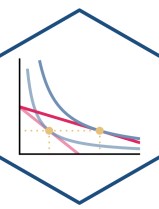




# Uncertainty, Tacit Information, and Profit IV

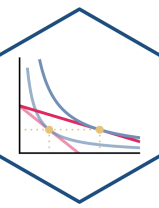


# Reminder: Profits and Entrepreneurship



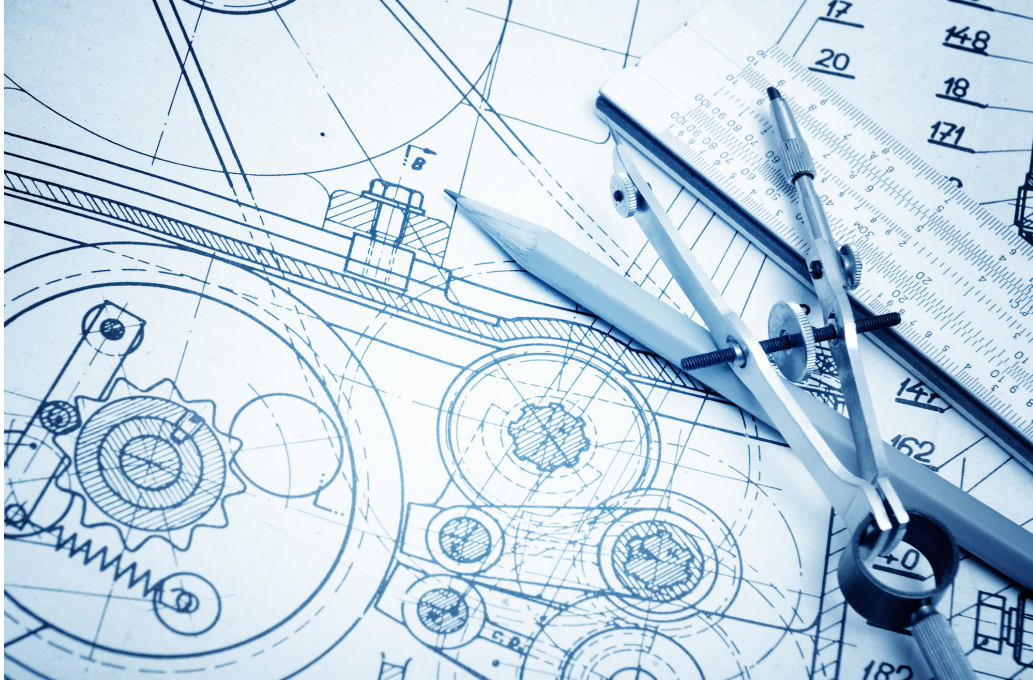
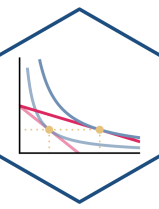
- In markets, production faces **profit-test**:
  - **Is consumer's willingness to pay > opportunity cost of inputs?**
- Profits are an indication that **value is being created for society**
- Losses are an indication that **value is being destroyed for society**
- Survival for sellers in markets *requires* firms continually create value and earn profits or die

# Why We Need Prices, Profits, and Losses I



- People often confuse the **economic problem** with a **technological problem**
- **Technological problem:** how to allocate scarce resources to accomplish a particular goal
  - e.g. buy the right combination of goods to maximize utility
  - e.g. buy the right combination of inputs and produce output to maximize profits
  - given stable prices, preferences, and technologies, **a computer can solve this problem**

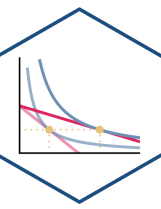
# Why We Need Prices, Profits, and Losses II



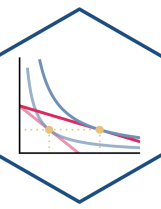
- **Economic calculation problem:** how to determine which of the infinite technologically-feasible options are *economically* viable?
- **How to best make use of dispersed knowledge to coordinate conflicting plans of individuals for their own ends?**
- ONLY can be **discovered** through competition, prices, profits & losses

For more, see Hayek 1945 in [today's readings](#).

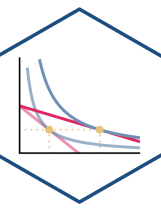
# What if there Were No Prices? I



# What if there Were No Prices? II

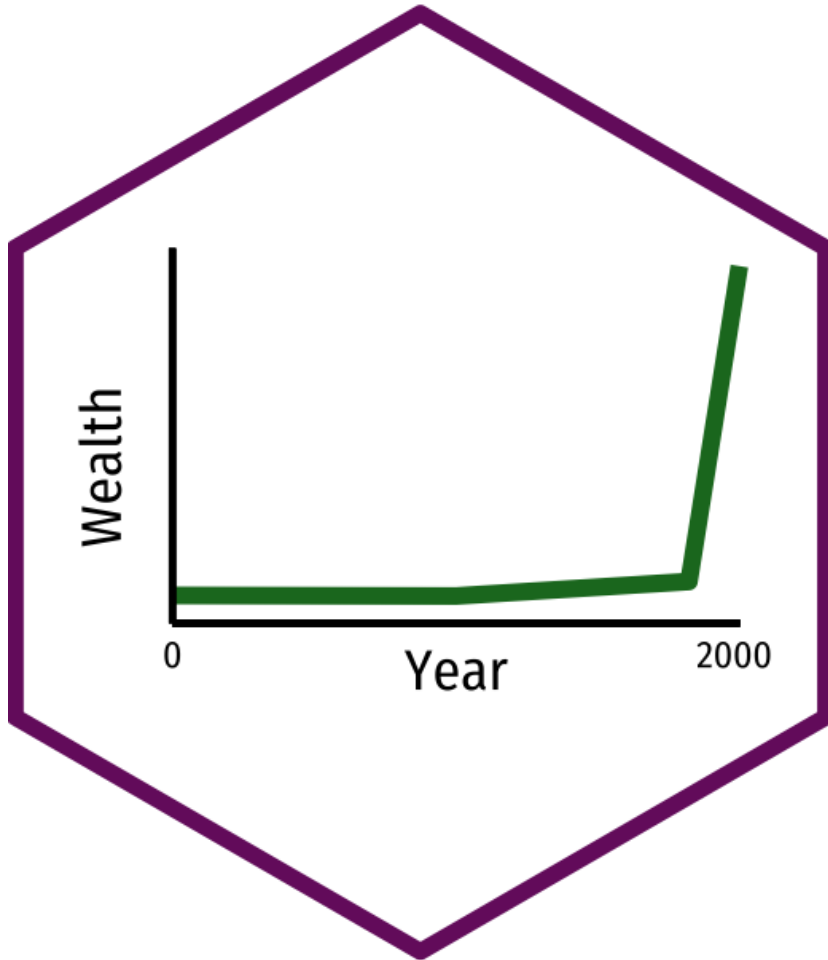
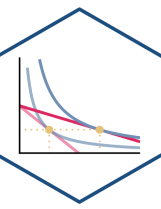


# For More On The Socialist Calculation Debate



See lesson 4.2 in my History of Economic Thought Course: [The Socialist Calculation Debate](#)

# And How Did The Soviet Union “Work” For So Long?



See lesson 12 in my Economics of Development Course: [Russia and the Post-Communist Transition](#)