

# **Chapter 1**

## **An Introduction to Macroeconomics**

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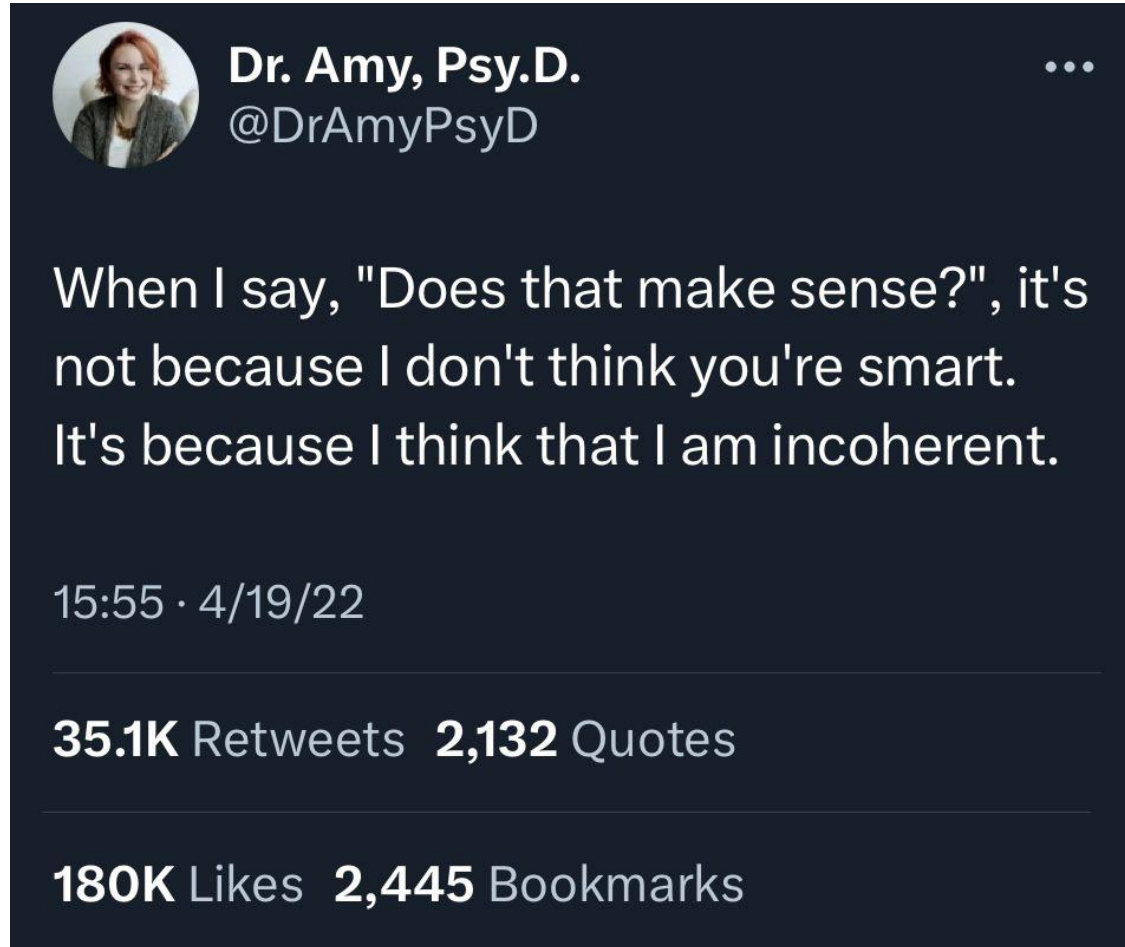
(Colgate University)

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- › *Sorry to be annoying with this, but these did take a long time to make*

# Before we begin...



(Marschall, 2022). When I say cite everything, I mean it!!!!

# What is Economics?

- › **Economics** is the study of the allocation of scarce resources and their production, distribution, and consumption

# What is Economics, Really?

- › Economics is *really* the study of human decision making and how those decisions influence resource allocation
  
- › What are these decisions?
  - They are essentially microeconomics
  - Modern macro is “micro-founded”
  - It is built on microeconomics

# What Does This Mean for Macro?

- › In general, we will study how micro-level decision making moves aggregate variables and prices
- › National output does not make decisions; people do
- › We study how these decisions aggregate to influence things like total output, investment, consumption, etc.
  - Aggregate simply means “to add up”

## Does This Matter?

- › If we want to study aggregate outcomes, why not just look at aggregates directly?
  - Just look at total output before/after an event
- › We can, but this only provides us with a surface level view
  - Can't see what's going on "under the hood"
- › We can only speculate about what is causing any changes

# What do Microfoundations Tell Us?

- › People make decisions to maximize their expected utility
  - Translation: people try their best, given any constraints, to make the choice they think will make them happiest
- › Possible constraints:
  - Budget, time, space, energy, available information
    - › Smoking rates fell when more health information was available
- › These decisions are also **dynamic**; they occur over time
  - Make choices today, based on expected budget tomorrow

# Dynamic Decisions: The Permanent Income Hypothesis

- › People don't spend out of their "current" budget, they spend out of their "Permanent" or "Lifetime" budget
  - People prefer to "smooth" large costs over time
  - Small hits to monthly lifetime budgets vs large hit to current budget
    - › E.g. borrowing to go to college or purchase a house
  - Friedman, Milton. "A Theory of the Consumption Function." Princeton University Press. 1957.
  
- › Similar research on "Life-cycle" work
  - Modigliani, Franco, and Richard Brumberg. "Utility Analysis and the Consumption Function." 1954.

# Research and Policy Implications

- › This has huge consequences for research and policy
- › If we want our models to accurately depict what we're try to study, we need to be mindful of proper microfoundations
  - Something to think about: is it enough for a model to just make accurate predictions, or should it be accurate to the real world?
- › If we want to conduct policy that helps people, we need to be mindful of how they will make decisions

# The Lucas Critique

› What we know:

- People try to make the best choices given constraints
- These choices can change when the constraints change
- These decisions occur over time

› *If policy changes someone's constraints, then we should expect their decisions to change. Moreover, we should be aware of this when forming policy in the first place.*

- Lucas Jr, Robert E. "Econometric policy evaluation: A critique." Carnegie-Rochester conference series on public policy. Vol. 1. North-Holland, 1976.

## An Example with Taxes

- › A country is increasing consumption taxes to raise revenue
  - People expect taxes to go up tomorrow
  - Response: consume more today to avoid higher costs tomorrow
- › With less consumption tomorrow, there is less tax revenue
  - Policy can respond by raising taxes even more to make up the difference...
- › But individuals' decisions will respond again

# Analysis Without Dynamic Responses

- › What would happen if we didn't consider the response to this policy?
- › If previous data says a 1% increase in taxes leads to a 4% increase in revenue, should a 2% increase in taxes lead to an 8% increase?
  - Why or why not?
  - We're looking at percent change, not the level of taxes. Does percent change account for the dynamics we're talking about?

# A Strict Example: Ricardian Equivalence

- › Consider a government trying to boost the economy through spending
- › If people expect an increase in taxes in the future to pay for this, they will spend less now to save for the taxes coming in the future
- › Less household spending offsets government spending. The case where they cancel out is Ricardian Equivalence
  - Ricardo, David. "Essays on the Funding System." 1820.

# Microfoundations Matter

- › Is Ricardian Equivalence strictly true? Probably not
  - But most macroeconomists argue for is the importance of being consistent with micro-behavior
- › Model building will have some type of equilibrium behavior for individuals (competitive, monopolistic, oligopolistic, etc.)
- › Then aggregate results and compare to real-world data

# The [quick] History of Macroeconomics

- › In an ironically recursive way, we can look at the study of macroeconomics as a series of dynamic decisions
- › We update our forecast of the field, which updates our forecasts of the macroeconomy, which updates our forecasts of the field...

# How We Got Here: Classical Economics

- › 1776: Adam Smith – “The Invisible Hand”
  - Smith, Adam. “An Inquiry into the Nature and Causes of the Wealth of Nations.” (1776).
- › 1817: David Ricardo – comparative advantage vs mercantilism
  - Ricardo, David. “On the Principles of Political Economy and Taxation.” (1817).
- › 1870’s: Carl Menger – marginalism and subjective theory of value
  - See also Walras, Marshall, Jevons (economics is “mathematical”)
  - Menger, Carl. “Principles of Economics.” (1871).
  - Jevons, William S. “A General Mathematical Theory of Political Economy. (1862).
  - Marshall, Alfred. “Principles of Economics.” (1890).
- › 1874: Léon Walras – General Equilibrium
  - Walras, Léon. “Elements of Pure Economics.” (1874).

# How We Got Here: Keynesian Revolution

- › 1936: John M. Keynes – “The General Theory”
  - Written during Great Depression
  - Keynes, John M. “The General Theory of Employment, Interest and Money.” (1936).
- › Prices are **sticky**; they take time to adjust
  - Wage stickiness prolongs unemployment
- › Government intervention can help:
  - Raise taxes/cut spending in good times to build funds
  - Lower taxes/raise spending in bad times to help unemployment

# How We Got Here: Neoclassical Synthesis

- › WWII – 1970: Consensus that in the short-run, Keynesian analysis was correct. In the long-run, markets equilibrate
  - John Hicks and Alvin Hansen: IS-LM
    - › Hicks, John R. "Mr. Keynes and the "classics"; a suggested interpretation." *Econometrica: journal of the Econometric Society* (1937): 147-159.
    - › Hansen, Alvin. "Monetary Theory and Fiscal Policy." (1947).
  - Paul A. Samuelson: Modern basis for mathematical economics
    - › Samuelson, Paul A. "Foundations of Economic Analysis." *Harvard University Press* (1947).
  - Robert Solow: Long-run growth
    - › Solow, Robert M. "A contribution to the theory of economic growth." *The quarterly journal of economics* 70.1 (1956): 65-94.

# How We Got Here: Monetarism

- › 1960 – 1990: “Inflation is always and everywhere a monetary phenomenon”
  - Milton Friedman and Anna Schwartz
    - › Friedman, Milton, and Anna Jacobson Schwartz. "A Monetary History of the United States, 1867-1960." (1963).
    - › Friedman, Milton. "A Theoretical Framework for Monetary Analysis." *Journal of Political Economy* 78.2 (1970): 193-238.
- › Revival of the Quantity Theory of Money and impact on inflation and expectations of inflation
  - Something Keynes thought of as second-order
  - Very popular during high inflation episodes of the 1970s

# Today: Real Business Cycle Theory

- › 1976 – today: Focus on real frictions causing changes to **relative prices**
  - Price of one good in terms of another
  - Assumes people view trade-offs in that sense
  - Rational expectations about future values
  
- › Began with Lucas Critique; driven by Kydland and Prescott
  - Kydland, Finn E., and Edward C. Prescott. "Time to build and aggregate fluctuations." *Econometrica: Journal of the Econometric Society* (1982): 1345-1370.
  - Prescott, Edward C. "Theory ahead of business-cycle measurement." *Carnegie-Rochester conference series on public policy*. Vol. 25. North-Holland, 1986.
  - King, Robert G., Charles I. Plosser, and Sergio T. Rebelo. "Production, growth and business cycles: I. The basic neoclassical model." *Journal of monetary Economics* 21.2-3 (1988): 195-232.

# Today: New Keynesian Economics

## › 1970s – today: Merging expectations with price stickiness

- Fischer, Stanley. "Long-term contracts, rational expectations, and the optimal money supply rule." *Journal of political economy* 85.1 (1977): 191-205.
- Rotemberg, Julio J. "Monopolistic price adjustment and aggregate output." *The Review of Economic Studies* 49.4 (1982): 517-531.
- Calvo, Guillermo A. "Staggered prices in a utility-maximizing framework." *Journal of monetary Economics* 12.3 (1983): 383-398.

## › Elements of imperfect competition and coordination failures of the market

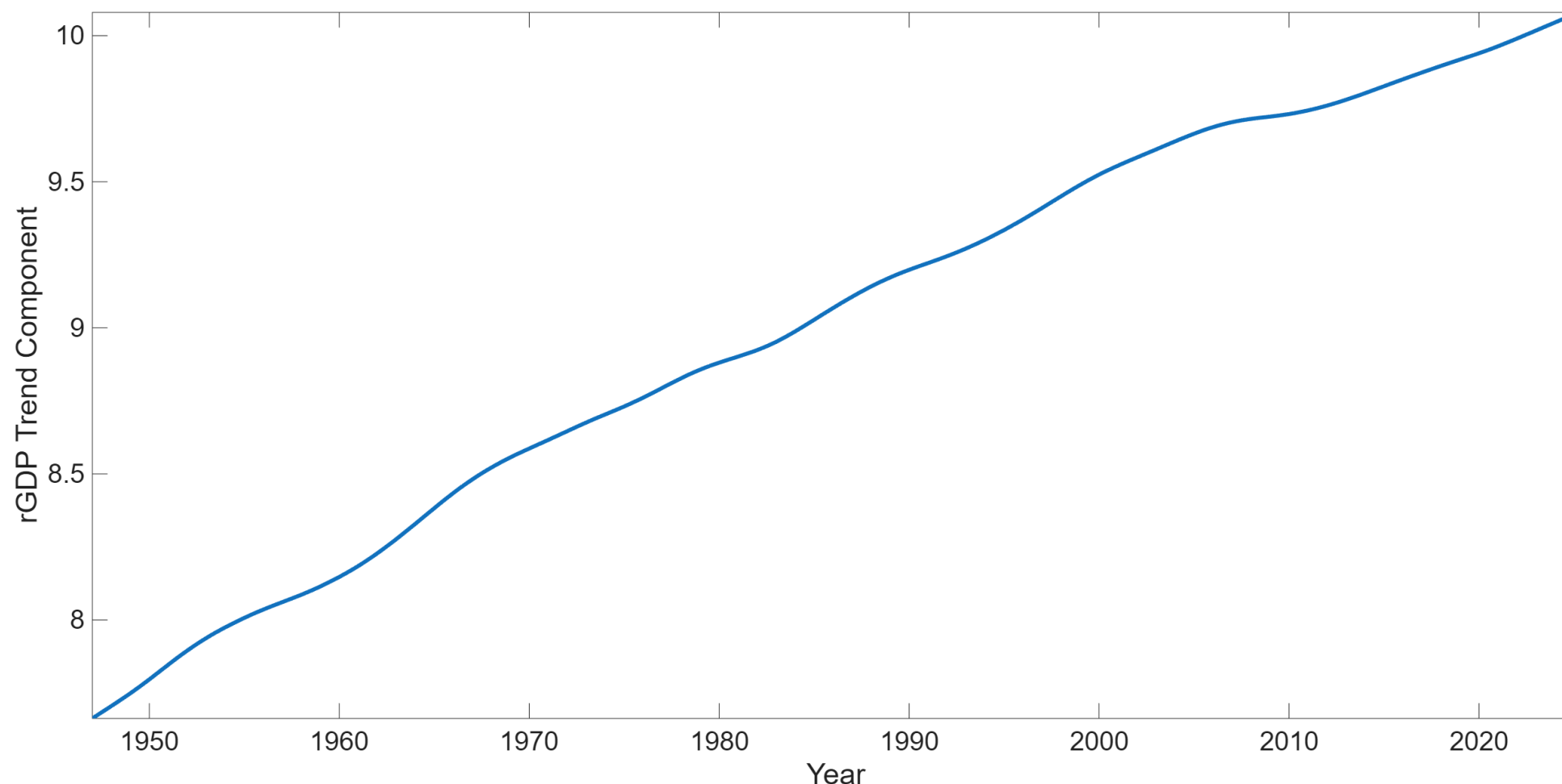
- Diamond, Peter A. "Aggregate demand management in search equilibrium." *Journal of political Economy* 90.5 (1982): 881-894.

## › **New Neoclassical Synthesis:** Real Business Cycle Theory + New Keynesian Economics

- What we'll study this semester

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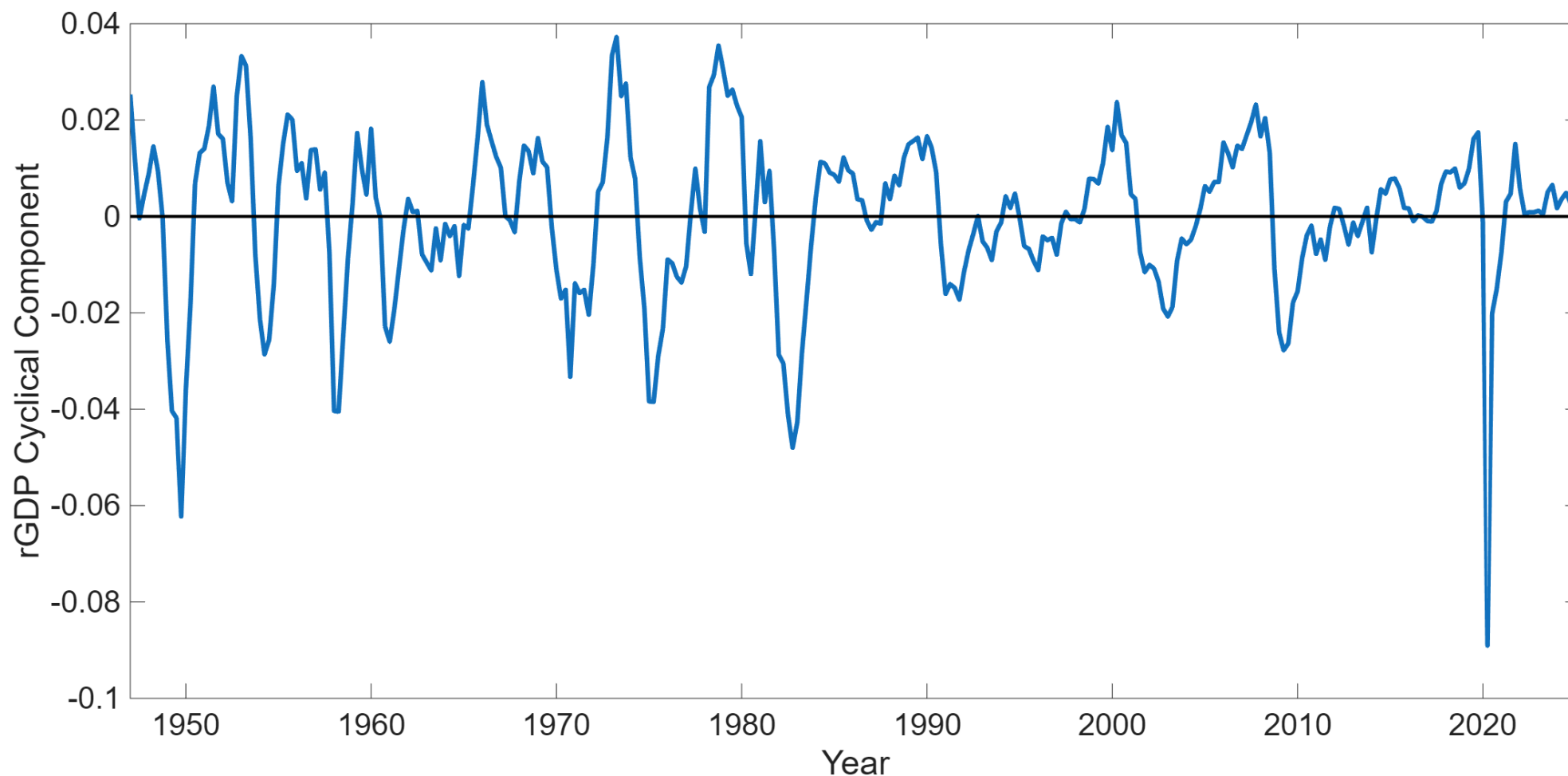
# Today: In the Long Run, Markets Clear,...



HP filtered data of log of quarterly U.S. real GDP (chained 2017 dollars, seasonally adjusted annual rate);  
 $\lambda=1600$ . Data: Real Gross Domestic Product (BEA, 2026)

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## ...but in the Short Run, Frictions Matter



HP filtered data of log of quarterly U.S. real GDP (chained 2017 dollars, seasonally adjusted annual rate);  
 $\lambda=1600$ . Data: Real Gross Domestic Product (BEA, 2026)

# Alternative Approaches (not covered)

- › Socialist economics:
  - Abba Lerner
  - Oscar Lange
- › Laissez-faire:
  - Friedrich Hayek
  - Ludwig von Mises
- › Debates about Economic Calculation:
  - Do markets accurately tell us how people value resources?
  - If not, what can?

# Beyond the Stock Market and Production

- › Four decades of topics not traditionally thought of as Economics:
- › Reparations and Racial Wealth Dynasties
  - Boerma, Job, and Loukas Karabarbounis. "Reparations and persistent racial wealth gaps." *NBER Macroeconomics Annual* 37.1 (2023): 171-221.
- › Traffic congestion's impact on birth weights (*fan favorite*)
  - Currie, Janet, and Reed Walker. "Traffic congestion and infant health: Evidence from E-ZPass." *American Economic Journal: Applied Economics* 3.1 (2011): 65-90.
- › Moneyball, viewed through economics
  - Hakes, Jahn K., and Raymond D. Sauer. "An economic evaluation of the Moneyball hypothesis." *Journal of Economic Perspectives* 20.3 (2006): 173-185.
- › Experiments on how people perceive fairness under uncertainty
  - Kagel, John H., Chung Kim, and Donald Moser. "Fairness in ultimatum games with asymmetric information and asymmetric payoffs." *Games and Economic Behavior* 13.1 (1996): 100-110.

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18. Marshall, Alfred. "Principles of Economics." (1890).
19. Marschall, Amy, Psy.D. [@DrAmyPsyD]. "When I say, "Does that make sense?", it's not because I don't think you're smart. It's because I think that I am incoherent." Twitter, 19 April 2022, 15:55, <https://x.com/DrAmyPsyD/status/1516505722313396227>.
20. Menger, Carl. "Principles of Economics." (1871).
21. Modigliani, Franco, and Richard Brumberg. "Utility Analysis and the Consumption Function." 1954.
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30. Walras, Léon. "Elements of Pure Economics." (1874).