

A BRIEF HISTORY OF MACROECONOMICS

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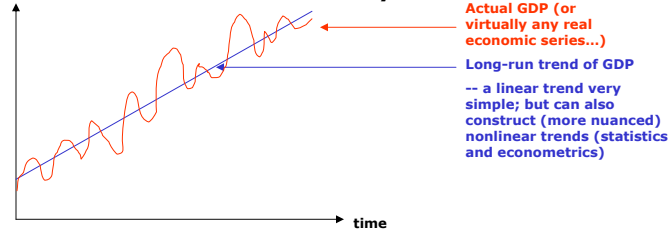
The Evolution of Macroeconomics: Phase I

THE BIRTH OF MACROECONOMICS

- ❑ **“Macroeconomics”** born as a field during and because of the Great Depression
 - ❑ Idea that government could/should regulate the periodic ups and downs of the economy rose to prominence
- ❑ **John Maynard Keynes, *The General Theory of Employment, Interest, and Money* (1936)**
 - ❑ Basic tenet: various “rigidities” in many markets lead to “disequilibria” that can last a long time
- ❑ **Burns and Mitchell, *Measuring Business Cycles* (1946)**
 - ❑ First systematic accounting of the co-movement of various aggregates
 - ❑ i.e., GDP, consumption, employment, inflation, unemployment rate, etc...

LONG-RUN GROWTH VS. BUSINESS CYCLES

□ Decompose time series into trends and cycles



□ Two clear patterns

- Long-run growth

- Frequent and sometimes big short-run fluctuations around long-run trend

□ Are the short-run fluctuations tightly related to the long-run trend?

- Conventional view in economics is "no"

- But (very) recent work provocatively suggests answer may be "yes"

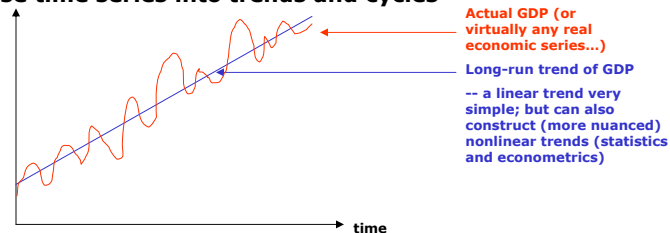
- Linkage through R&D: R&D typically thought to be a driver of long-run growth...but perhaps cyclical fluctuations in R&D themselves have consequences for "business cycles" (much more research needed here...)

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□ Under the "no" view, a separation of fields

- Studying the trend (economic growth/development)

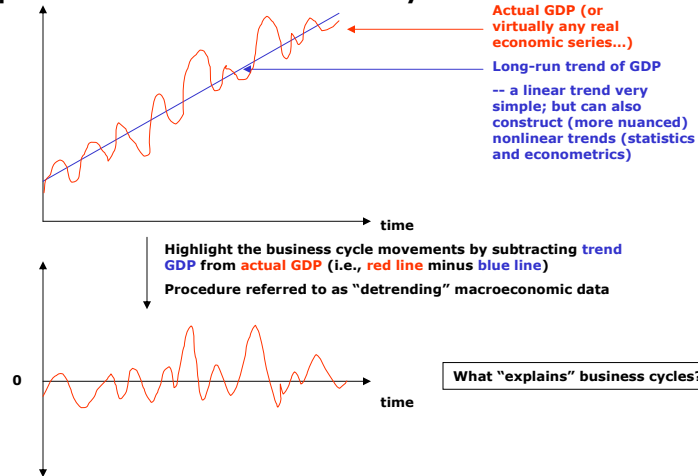
- Studying the fluctuations ("macroeconomics")

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BUSINESS CYCLES

- Decompose time series into trends and cycles



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PRINCIPLES OF KEYNESIAN MACROECONOMICS

- **Basic Tenet:** price rigidities/inflexibilities characterize many goods markets and factor markets
 - "Sticky prices"
- (Many) other rigidities/inflexibilities affect markets' functioning as well...
- ...but price (and wage) rigidities the central tenet
 - More general discussion in Akerlof (2007) essay
- Which types of shocks are the main driver of business cycles?
 - Policy shocks – both monetary policy and fiscal policy
- A basis for policy activism: because of macroeconomic policy's large lever over the economy, when/if other types of shocks affect the economy, monetary and fiscal policy can and should step in to mitigate "recessions/depressions"
- Keynes' *General Theory* just a verbal description of things...

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THE RISE OF MACROECONOMICS

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 - ❑ First systematic accounting of the co-movement of various aggregates
 - ❑ i.e., GDP, consumption, employment, inflation, unemployment rate, etc...
- ❑ How to **“model”** (i.e., conceptually/rigorously/mathematically think about) business cycles?
 - ❑ Phase II: The big macroeconometric models

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THE GLORY DAYS OF MACROECONOMICS

- ❑ **Big “Keynesian macroeconometric” models prominent by the 1960’s, led by**
 - ❑ Kennedy’s Council of Economic Advisers (Solow, Tobin, Samuelson)
 - ❑ MIT/Penn/Federal Reserve Board
 - ❑ ISLM and AS/AD model (Hicks, 1937) the conceptual core

General idea of Keynesian-inspired macroeconometric models

$$x_{1t} = \alpha_0 x_{2t} + \alpha_1 x_{3t} + \alpha_2 x_{3t} + \dots$$

$$x_{2t} = \alpha_3 x_{1t} + \alpha_4 x_{3t} + \alpha_5 x_{4t} + \dots$$

⋮

$$x_{136t} = \alpha_{5987} x_{1t} + \alpha_{5988} x_{13t} + \alpha_{5989} x_{69t} + \dots$$

It’s all about estimating the alpha terms...

Dozens or hundreds of variables and equations, some of which describe how policy affects the economy

Say x_3 and x_{13} are policy variables

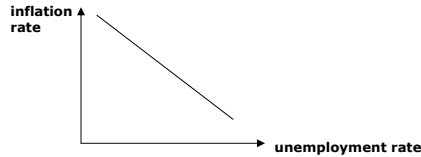
- ❑ **Statistical relationships between various macro variables**
- ❑ **Basic approach: estimate (econometrically) these equations and use them for policy advice**
 - ❑ In particular: estimate all the alpha coefficients using historical data and posit that this is *how* the macroeconomy “works”
- ❑ **An approach to macroeconomic policy-making embodied most succinctly in the view and purported promise of the Phillips Curve**

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THE PHILLIPS CURVE

- A seemingly stable, predictable relationship between an economy's inflation rate and unemployment rate



- Came to be the centerpiece of the Keynesian macroeconomic agenda
- Came to be the centerpiece for policy advice...
 - ...for fiscal policy (given forceful voice during the Kennedy administration – CEA populated with future Nobel Laureates Robert Solow, James Tobin, Paul Samuelson...John Kenneth Galbraith a more muted enthusiast of this approach to policy formulation)
 - ...and eventually for monetary policy
 - Rise of an activist Fed: raising/lowering interest rates to “fine tune” macroeconomic performance

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THE FALL OF MACROECONOMICS

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General idea of Keynesian-inspired macroeconomic models
One of these equations is the Phillips Curve

$$x_{1t} = \alpha_0 x_{2t} + \alpha_1 x_{3t} + \alpha_2 x_{3t} + \dots$$

$$x_{2t} = \alpha_3 x_{1t} + \alpha_4 x_{3t} + \alpha_5 x_{4t} + \dots$$

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Dozens or hundreds of variables and equations, some of which describe how policy affects the economy

Say x_3 and x_{13} are policy variables

- Became widely used for policy-making...
- ...until they stopped “working” in the 1970’s
 - Amidst a high-inflation environment (U.S. inflation between 15-20% in second half of 1970’s), sparked by OPEC oil embargoes
- Lucas Critique (1976): The alpha’s themselves should be thought of / modeled as functions of government policy!

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THE LUCAS CRITIQUE

- ❑ **Crucial inconsistency in Keynesian macroeconomic approach**
 - ❑ **The estimated coefficients (the alpha's) themselves may change if policy (monetary and/or fiscal) changes!**
 - ❑ In which case the macroeconomic approach *cannot* usefully give policy advice – unless one “knows”/makes assumptions about **how** the alpha's themselves depend on policy...
- ❑ **Discovered in the 1970's amidst world-wide macroeconomic turbulence induced (seemingly...) by the two oil crises**
 - ❑ The usual Phillips relation “stopped working” even as policy-makers tried harder than ever to exploit it
 - ❑ Led to breakdown of existing macroeconomic theory and opened the door for a complete re-thinking of the basic tenets of macroeconomics
- ❑ **Keynesian macroeconomic models are *not economic models***
 - ❑ Merely a statistical description of historical events
 - ❑ Economics: the study of how incentives influence behavior of individuals/market participants
 - ❑ **A damning criticism of the entire macroeconomics profession...**

This “problem” was always present, but didn't reveal itself until the 1970's

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 - ❑ **Phase II: The big macroeconomic models**
 - ❑ **Death knell spelled by the devastating Lucas Critique**
 - ❑ **Phase III: Microeconomic foundations and DGE modeling**

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THE REBIRTH OF MACROECONOMICS

- ❑ **Kydland and Prescott (1982)**
 - ❑ A **dynamic general equilibrium (DGE)** view of business cycles
 - ❑ A "real" business cycle (RBC)
 - ❑ TFP shocks the driving force, not policy shocks
 - ❑ Business cycles are efficient and "natural"...
 - ❑ ...so macroeconomic policy aimed at stabilizing cycles is unimportant/misguided

- ❑ **An economic theory, not a statistical theory**
 - ❑ **Building blocks**
 - ❑ Consumer preferences (utility functions)
 - ❑ Production technology (the microeconomics of how firms produce goods)
 - ❑ Interactions through markets (goods, labor, and financial markets)
 - ❑ The "alpha's" are functions of policy variables (if policy variables present in the model)...
 - ❑ ...thus immune to Lucas Critique

PRINCIPLES OF RBC MACROECONOMICS

- ❑ **Basic Tenets**
 - ❑ Markets operate (nearly) perfectly competitively
 - ❑ Price rigidities/inflexibilities are not very important – **conceptual break from Keynesian principles**
 - ❑ Model the economic interactions, not merely the statistical relationships – **methodological break from Keynesian principles**

- ❑ **Which types of shocks are the main driver of business cycles?**
 - ❑ **TFP shocks (not policy – another conceptual break from Keynesianism)**

- ❑ **How to measure TFP? As a "residual," using the Cobb-Douglas production function** $output_t = A_t f(k_t, n_t) = A_t k_t^\alpha n_t^{1-\alpha}$

↙ What's "left over" after accounting for what we can account for

PRINCIPLES OF RBC MACROECONOMICS

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EXAMPLE

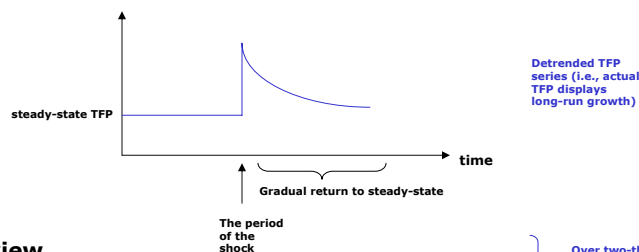
Period	Output	Capital	Labor	TFP
2004	12.0	16	9	1.0
2005	14.4	16	9	1.2
2006	19.2	16	16	1.2
2007	17.6	16	16	1.1

Suppose alpha = 0.5 for simplicity (U.S. economy: alpha ≈ 0.30)

Productivity improved between 2004 and 2005
 Productivity stagnated between 2005 and 2006
 Productivity declined between 2006 and 2007

PRINCIPLES OF RBC MACROECONOMICS

- ❑ **Shocks to TFP are persistent**
 - ❑ Once A_t rises unexpectedly, TFP tends to stay elevated for multiple periods
 - ❑ Example: If $A_{2000} > A_{1999}$, then A_{2001} is likely to be higher than A_{1999} as well, **but not as large as A_{2000}**
 - ❑ A slowly-dampening time-profile of TFP



- ❑ **RBC view**
 - ❑ **Persistent TFP shocks the driver of business cycles**
 - ❑ **NOT policy shocks**
- Over two-thirds of business-cycle fluctuations driven by TFP shocks

WHERE IS MACROECONOMICS TODAY?

- ❑ **Keynesian Macroeconomics**
 - ❑ **Ideology:** Price rigidities/"sticky prices"
 - ❑ **Policy stance:** policy (fiscal and monetary) of crucial importance for macroeconomic performance
 - ❑ **Methodology:** econometric/statistical modeling

- ❑ **RBC Macroeconomics**
 - ❑ **Ideology:** Prices are not rigid or "sticky"
 - ❑ **Policy stance:** policy (neither fiscal nor monetary) not important for macroeconomic performance
 - ❑ **Methodology:** dynamic general equilibrium modeling

- ❑ **New Keynesian Macroeconomics**
 - ❑ **Ideology:** Price rigidities/"sticky prices" ← Empirical evidence still EXTREMELY mixed on this
 - ❑ **Policy stance:** policy (fiscal and monetary) of crucial importance for macroeconomic performance
 - ❑ **Methodology:** dynamic general equilibrium modeling ← The enduring imprint of the RBC revolution

- ❑ **A central issue in macroeconomics: monetary neutrality?**
 - ❑ Does monetary policy have any important effects on the *real* economy?