

# A BRIEF HISTORY OF MACROECONOMICS

SEPTEMBER 2, 2008

*The Evolution of Macroeconomics: Phase I*

## THE BIRTH OF MACROECONOMICS

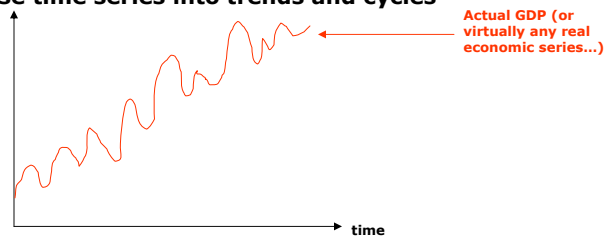
- ❑ **"Macroeconomics"** born as a field during and because of the Great Depression
  - ❑ Idea that government could/should regulate the periodic ups and downs of the economy rose to prominence
  
- ❑ **John Maynard Keynes, *The General Theory of Employment, Interest, and Money* (1936)**
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- ❑ **Burns and Mitchell, *Measuring Business Cycles* (1946)**
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    - ❑ i.e., GDP, consumption, employment, inflation, unemployment rate, etc...

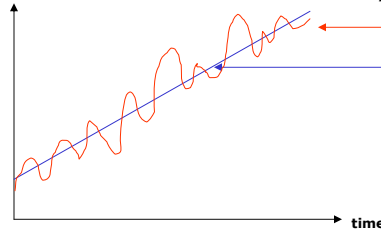
## LONG-RUN GROWTH VS. BUSINESS CYCLES

- ❑ **Decompose time series into trends and cycles**



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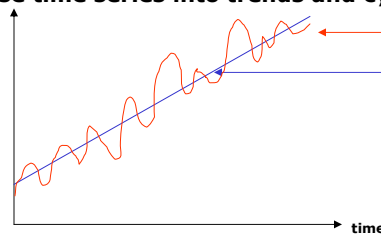
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Actual GDP (or virtually any real economic series...)  
 Long-run trend of GDP  
 -- a linear trend very simple; but can also construct (more nuanced) nonlinear trends (i.e., HP-filtered trend)

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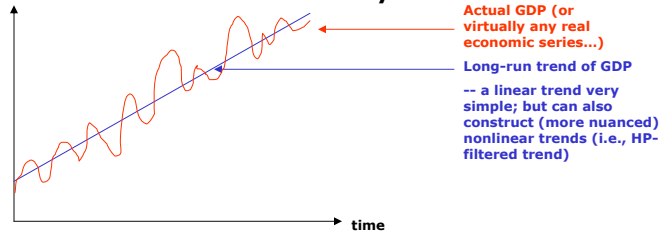


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  - Long-run growth
  - Frequent and sometimes big short-run fluctuations around long-run trend
- Are the short-run fluctuations tightly related to the long-run trend?
  - Conventional view in economics is "no"

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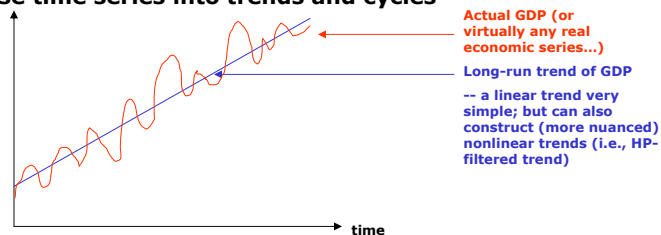
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- Are the short-run fluctuations tightly related to the long-run trend?
  - Conventional view in economics is "no"
  - But (very) recent work provocatively suggests answer may be "yes"
    - Linkage through R&D: R&D typically thought to be a driver 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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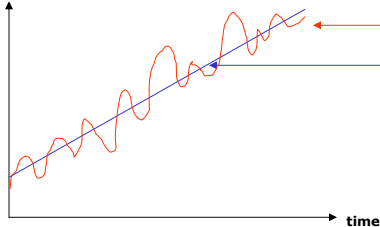
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- Are the short-run fluctuations tightly related to the long-run trend?
  - Conventional view in economics is "no"
- Under the "no" view, a separation of fields
  - Studying the trend (economic growth/development)
  - Studying the fluctuations ("macroeconomics")

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# BUSINESS CYCLES

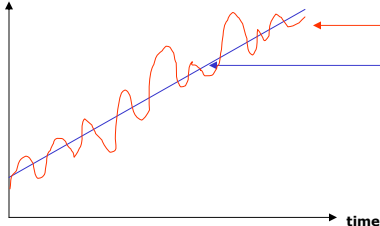
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# BUSINESS CYCLES

□ Decompose time series into trends and cycles



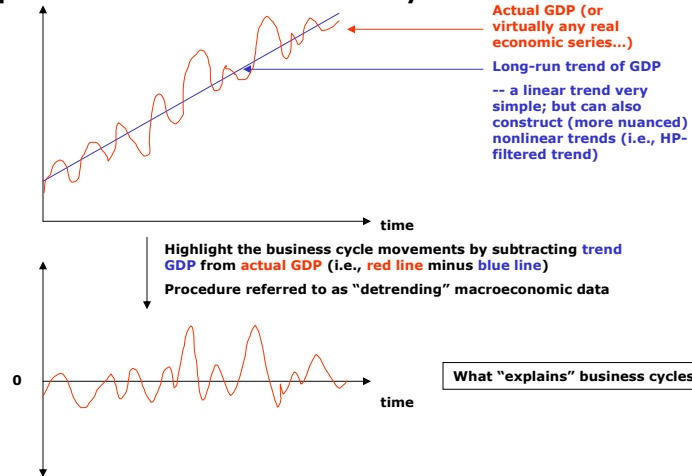
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Long-run trend of GDP  
-- a linear trend very simple; but can also construct (more nuanced) nonlinear trends (i.e., HP-filtered trend)

Highlight the business cycle movements by subtracting trend GDP from actual GDP (i.e., red line minus blue line)  
Procedure referred to as "detrending" macroeconomic data



## BUSINESS 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

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- ❑ **Keynes’ General Theory** just a verbal description of things...

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## THE RISE OF MACROECONOMICS

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- ❑ How to **“model”** (i.e., conceptually/rigorously/mathematically think about) business cycles?
  - ❑ **Phase II:** The big macroeconomic 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**
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General idea of Keynesian-inspired macroeconometric models

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

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- **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”**

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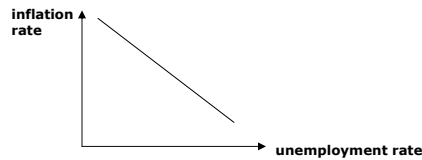
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- An approach to macroeconomic policy-making embodied most succinctly in the view and purported promise of the **Phillips Curve**

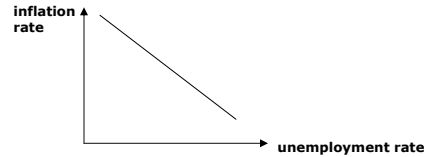
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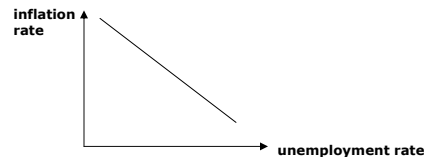
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- Came to be the centerpiece for policy advice...
  - ...for fiscal policy (given forceful voice during the Kennedy administration – CEA populated with future Nobel Laureates Robert Solow, James Tobin, Paul Samuelson...John Kenneth Galbraith a more muted enthusiast of this approach to policy formulation)

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  - ...and eventually for monetary policy
    - Rise of an activist Fed: raising/lowering interest rates to "fine tune" macroeconomic performance

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- **Lucas Critique (1976):** The alpha's themselves should be thought of / modeled as functions of government policy!

## THE LUCAS CRITIQUE

- Crucial inconsistency in Keynesian macroeconometric approach
  - The estimated coefficients (the alpha's) themselves may change if policy (monetary and/or fiscal) changes!
  - In which case the macroeconometric approach *cannot* usefully give policy advice – unless one "knows"/makes assumptions about **how** the alpha's themselves depend on policy...

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  - ❑ The usual Phillips relation “stopped working” even as policy-makers tried harder than ever to exploit it
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- ❑ **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...**

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- ❑ **How to “model” (i.e., conceptually/rigorously/mathematically think about) business cycles?**
  - ❑ **Phase II: The big macroeconometric 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)**

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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"...
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    - 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**

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

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**EXAMPLE**

Period	Output	Capital	Labor	TFP
2004	12.0	16	9	
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2006				
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Suppose alpha = 0.5 for simplicity (U.S. economy: alpha ≈ 0.30)

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  - ❑ 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

**EXAMPLE**

Period	Output	Capital	Labor	TFP
2004	12.0	16	9	1.0
2005	14.4	16	9	
2006				
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Suppose alpha = 0.5 for simplicity (U.S. economy: alpha ≈ 0.30)

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**EXAMPLE**

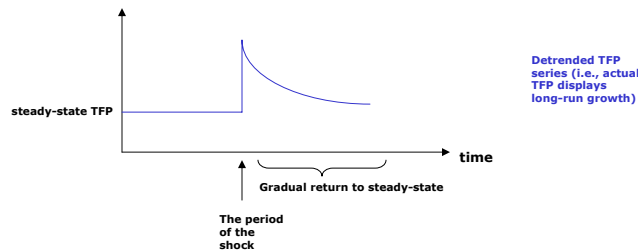
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Productivity improved between 2004 and 2005  
Productivity stagnated between 2005 and 2006  
Productivity declined between 2006 and 2007

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## TFP SHOCKS

- ❑ 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

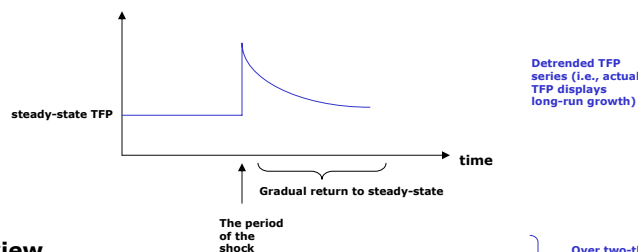


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- ❑ **RBC view**
    - ❑ **Persistent TFP shocks the driver of business cycles**
    - ❑ **NOT policy shocks**
- } Over two-thirds of business-cycle fluctuations driven by TFP shocks

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## 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
  
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- ❑ **A search-theoretic approach to macroeconomics?**
  - ❑ **Beyond a neoclassical view**