Introductory Macroeconomics

Lecture 5: short-run macro, part one

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This Lecture

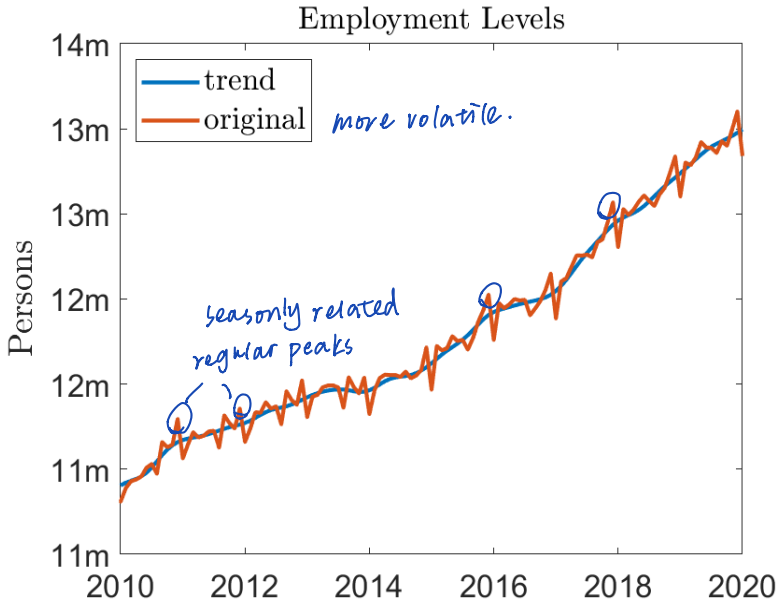
- Beginning of short-run macroeconomics
- Overview of short-run macroeconomics
  - trends vs. cycles
  - potential output and output gaps
  - Okun's law: unemployment and output gaps
  - overview of business cycle theory
- BOFAH chapter 6

Trends vs. Cycles

- Economic variables fluctuate at different frequencies
  - *trends* (long-run)
  - *business cycles* (short-run)
  - *seasonal cycles*
- We usually remove the effects of predictable seasonal cycles and focus on '*seasonally-adjusted*' data

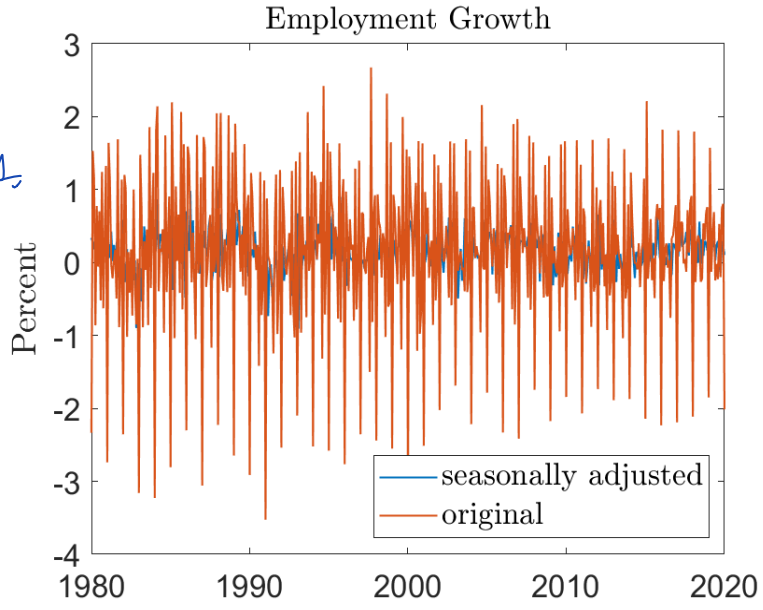
the question that we want to answer is not about seasonal cycles.

Trend vs. Cycle in Employment



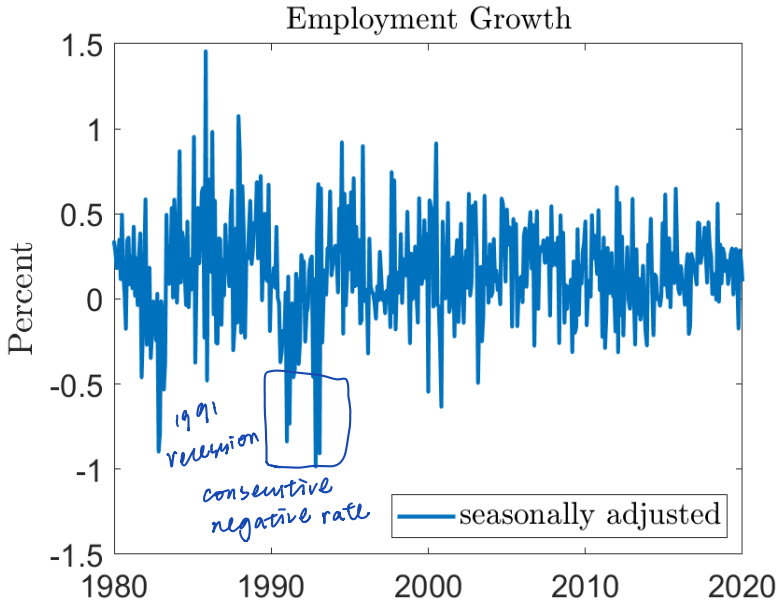
In Raw Data

if no seasonal-adjusted,
cannot discern recession systematically decline.



In Seasonally-Adjusted Data

less volatile

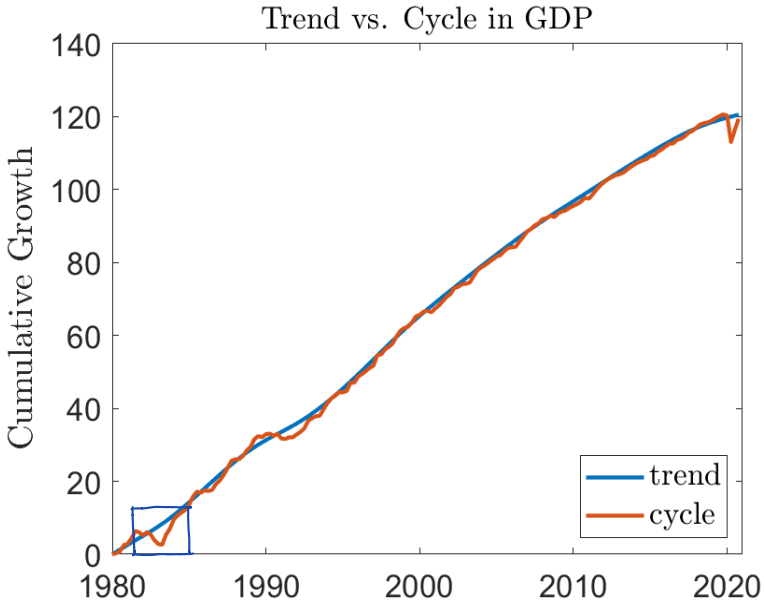


Trends vs. Cycles

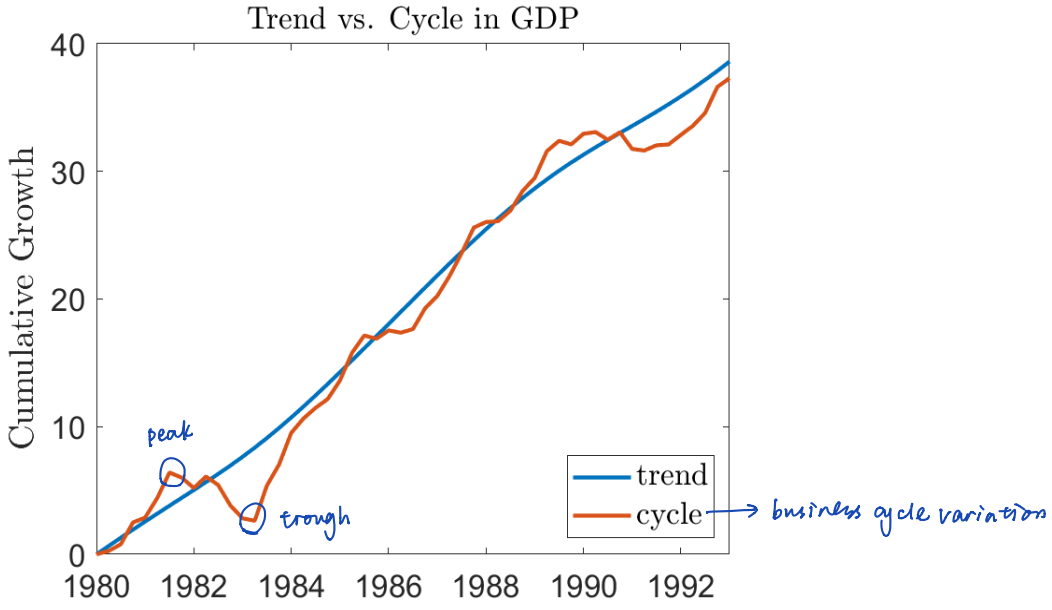
- Terminology
  - *peak*: high-point of economic activity prior to downturn, marks end of *expansion*
  - *trough*: low-point of economic activity prior to upturn, marks end of *contraction*
  - *recession*: often defined as two consecutive quarters of negative real GDP growth

⇒ In general, consider recession as a broader downturn

Trend vs. Cycle in GDP



Trend vs. Cycle in GDP



Potential Output Y_t^*

- *Potential output* or *natural output*: amount of output produced when using resources at 'normal rate'

  ⊗ not the maximum amount of output ⇓ use all labours & resources. but not everyone choose to work

- Reflects underlying supply-side factors:
  - labour, physical capital, technology, etc
- Denote potential output by Y_t^*
- Actual output Y_t can be above or below Y_t^*

Output Gap

- *Output gap* is the percentage deviation between actual output Y_t and potential output Y_t^*, that is

$$\text{Output Gap}_t = \frac{Y_t - Y_t^*}{Y_t^*} \times 100$$

- When $Y_t > Y_t^*$, i.e., output gap is positive — produce more output
- When $Y_t < Y_t^*$, i.e., output gap is negative
- Note: expansion from trough: $\Delta Y_t > 0$ but $Y_t < Y_t^*$ where we define the growth rate of output as ΔY_t — output still below potential

Unemployment

- Similarly let u_t^* denote the *natural rate of unemployment* ⇒ not directly observed.
- Rate of unemployment we would expect when the economy is operating at Y_t^*
- Gap between actual unemployment u_t and natural unemployment u_t^* is a measure of *cyclical unemployment*
- Estimating u_t^* one of the most controversial topics in macro

Okun's Law

- Cyclical unemployment is *negatively associated* with output gap
- Unemployment higher than normal when output less than normal
- For example

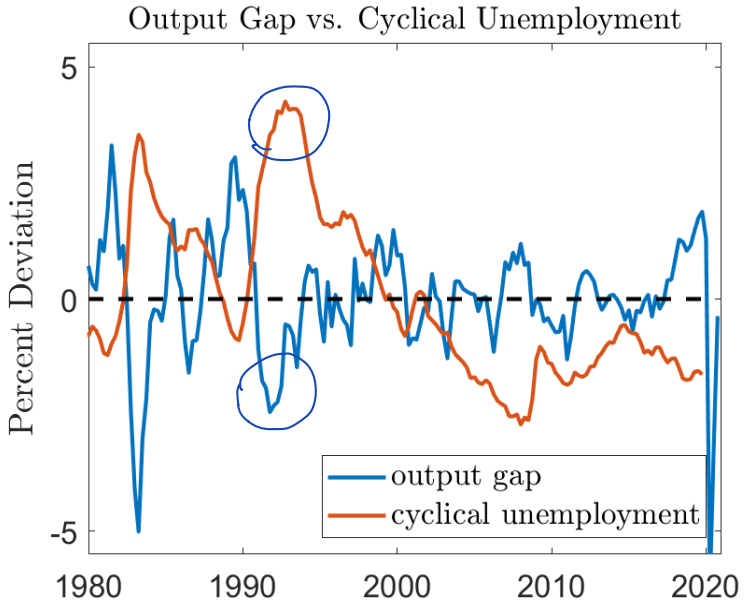
$$\frac{Y_t - Y_t^*}{Y_t^*} \times 100 = -\beta\,(u_t - u_t^*)$$

larger β reflect stronger relationship

output gap

+ output gap → unemployment is below natural rate of unemployment

Okun's Law in Levels



Discussion

- Some important theoretical questions to address
  - what causes fluctuations in output over time?
  - what causes fluctuations in potential output?
  - what causes fluctuations in output gap?

what is the main fluctuations

- Related important measurement issues
  - natural output Y_t^*, natural unemployment u_t^* not directly observed
  - need some method to estimate them

Business Cycle Theory

Business Cycle Theory

- What do we want from a theory of business cycles?
- A conceptual framework that identifies key

  (i) *shocks* hitting the economy

  (global demand shocks, terms of trade shocks, productivity shocks, confidence shocks, unexpected changes in policy, . . .)

  and

  (ii) *propagation mechanisms*

  that transmit shocks to the rest of the economy

- Such a framework then provides a way to evaluate the pros and cons of various kinds of policy (e.g., *monetary policy*, *fiscal policy*)

Two Main Theoretical Approaches

- *Classical* (pre-1930s) business cycle theory
  - key idea: Say's Law: '*supply creates its own demand*'
    - not possible to have economy-wide lack of demand
    - business cycles driven by fluctuations in aggregate supply
  - key policy conclusion: markets operate well, interventions counter-productive

development in potential output generate demand

price just declare price market, labour market, financial market

demand reflects supply

- *Keynesian* business cycle theory
  - key idea: Say's Law need not prevail *at macro level*
    - can have economy-wide market failure due to lack of demand
    - business cycles driven by fluctuations in aggregate demand (e.g., confidence, '*animal spirits*' of investors)
  - key policy conclusion: interventions can stabilise business cycle fluctuations by stabilising aggregate demand

may prevail at micro level in particular market

undesirable

→ if households and firms are confident about the future they will spend and invest more today.

if pessimistic ⇒ save and postpone investment

confidence / expectation effects as shift in exogeneous component of

investment demand and consumption demand.

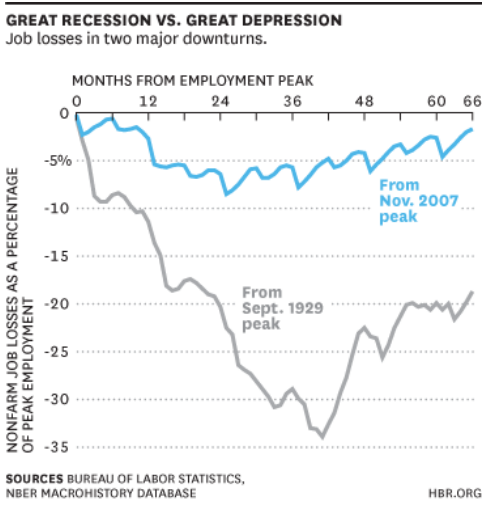
Keynes's General Theory (1936)

- Written against background of the Great Depression (1929–1939)
- Unemployment over 20% in many countries. Widespread deflation
- Classical theory did not provide useful policy recommendations
- Macroeconomics as a distinct field emerges from this set of debates
- Almost immediately economists began working out attempts at *synthesising* Keynesian and classical ideas
  - Hicks (1937) 'Mr. Keynes and the Classics'
  - waves of 'Neoclassical economics' (1950s-1960s), 'New Classical economics' (1970s-1980s) , 'New Keynesian economics' (1990s-) etc

Great Recession (GFC) vs. Great Depression

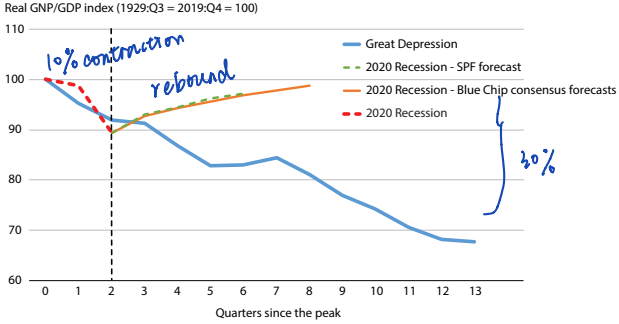
short contraction

substantial recession



Great Lockdown vs. Great Depression

Figure 1
Real GNP/GDP



NOTE: SPF, Survey of Professional Forecasters. The dashed vertical line indicates the start of forecast data for the 2020 recession.
SOURCE: Balke and Gordon (1986); FRED, Federal Reserve Bank of St. Louis; Haver Analytics*; Federal Reserve Bank of Philadelphia; and author's calculations

Two Approaches to Teaching This Debate

(1) Start with supply-oriented classical approach, long-run macro.
Then turn to demand-oriented short-run (more Keynesian) macro

or

(2) Start with demand-oriented Keynesian approach, short-run macro.
Then turn to supply-oriented long-run (more Classical) macro

We will follow approach (2)

We will also consider an intermediate approach that puts equal emphasis on demand and supply (*the AD-AS model*)

Next Lecture

- Keynesian macroeconomics
  - determinants of aggregate expenditure
  - role of government expenditure
  - Keynesian cross
- BOFAH chapter 7