Problem Set 3: Okun's Law and Aggregate Output

ECO 1510 · Principles of Macroeconomics | Methodist University

Due: 10/16 by 11:59 pm | Submit via Canvas

This assignment requires the use of FRED data, the supplemental reading assigned: Henry Hazlitt, "The Fetish of Full Employment,", and concepts from the textbook/lectures.

i. You will retrieve data on unemployment, labor force participation, and real GDP from FRED, constructing a graph that illustrates the relationship between labor market conditions and the business cycle
ii. You will use the data to evaluate how the macroeconomy responds to shocks.
iii. Your written responses should demonstrate command of the labor measurements, labor force, and the business cycle structure covered in class

Overview

The relationship between unemployment, labor force participation, and output is central to understanding both business cycles and the limits of stabilization policy we will cover this semester. The recessions visible in your data span three very different episodes with very different causes and policy responses.

Supplemental Reading

Read the required supplemental reading: **Henry Hazlitt, "The Fetish of Full Employment,"** available via the link in your course supplemental reading list. This reading is required and directly supports your response to Question 4.

Hazlitt challenges the assumption that maximizing employment should be treated as the ultimate objective of economic policy. An economy can create additional work by reducing productivity, prohibiting labor-saving technology, duplicating tasks, or requiring more workers to produce the same quantity of output. These policies may increase measured employment, but they do not necessarily make society wealthier.

Hazlitt instead argues that the relevant economic objective is to maximize production relative to the labor and resources required. Employment matters because it is ordinarily the means through which goods and services are produced and income is earned. It should not, however, be confused with production itself.

As you read, consider how Hazlitt's argument applies to the three indicators in your graph. The unemployment rate and employment-population ratio measure labor-market conditions, while real GDP measures production. These indicators usually move together over the business cycle, but they do not measure the same thing or necessarily recover at the same speed.

Data Preparation

Complete the following steps in order. Include your completed graph in your submission as a screenshot or exported image.

1. Go to https://fred.stlouisfed.org/ and search for "Unemployment Rate (UNRATE)." Select Percent, Monthly, Seasonally Adjusted.
2. Under "Edit Lines" change the frequency to "Quarterly" and select "End of Period" as the aggregation method for Line 1.
3. Click "Edit Graph" then "Add Line." Search for "Employment-Population Ratio (EMRATIO)." Select Percent, Monthly, Seasonally Adjusted. Click "Add data series."

4. Under "Edit Lines" change the frequency to "Quarterly" and select "End of Period" as the aggregation method for Line 2.
5. Click "Edit Graph" then "Add Line." Search for "Real Gross Domestic Product (GDPC1)." Select Billions of Chained 2017 Dollars, Quarterly, Seasonally Adjusted Annual Rate. Click "Add data series."
6. Under the "Format" tab, click "customize" for line 3 and choose "Right" for Y-axis position.
7. Change the date range to begin January 1, 2000. Leave the end date as the most recent available data.
8. Download or screenshot your completed graph showing all three series and include it in your submission.

<u>Assignment</u>

Answer each of the following questions in complete sentences. There is no minimum for answers, but minimal effort will not result in maximum credit. If you need further clarification on this, refer to the grading philosophy in the syllabus. Use economic reasoning and terminology from class. Imprecise or purely descriptive answers will not earn full credit.

1. Using your graph, identify two recessions and describe how the unemployment rate, the employment-population ratio, and real GDP each behaved during those periods.

i. Explain the difference between what the unemployment rate and the employment-population ratio each capture
ii. Explain why a person who stops looking for work may cause the unemployment rate to fall without producing an improvement in the employment-population ratio.
iii. Do the two labor-market measures tell the same story during the recessions you selected? Identify a period in which they give noticeably different impressions of labor-market conditions and explain why.

2. The unemployment rate reached 14.8% in April 2020 and recovered to pre-pandemic levels by mid-2022. Using the unemployment taxonomy from class:

i. Explain what type of unemployment dominated the April 2020 spike and why the recovery was faster than in prior recessions

ii. Connect your answer to the nature of the Covid shock and what it implies about the self-correcting mechanism when a large share of unemployment results from a temporary shock rather than a permanent mismatch between workers and jobs?

3. Using Okun's Law:

i. Explain the expected relationship between the output gap and the unemployment rate.

ii. Does your graph appear consistent with Okun's Law over the periods you examined?

iii. Identify one episode where the relationship held clearly and one where the relationship was less straightforward, and explain what might account for the divergence.

4. Hazlitt argues that full employment should not be treated as the ultimate objective of economic policy because employment is a means of producing goods and services rather than an end in itself.

Using your graph and the Hazlitt reading, evaluate the argument:

i. Does the post-2020 recovery show that improvements in employment and improvements in production necessarily occur at the same time and at the same rate? Use the unemployment rate, employment-population ratio, and real GDP as separate evidence.

ii. Explain how an economy could increase employment without a corresponding increase in output or economic welfare.

iii. Conversely, explain how productivity growth could increase output without requiring an equivalent increase in employment.

iv. Take a clear position on whether unemployment, the employment-population ratio, or real GDP provides the most informative measure of recovery from a recession. Your answer should explain what your preferred indicator captures, what it misses, and why the other two indicators remain necessary for evaluating the condition of the economy.

There is no single correct answer. The strongest responses will distinguish carefully between employment, labor-force participation, production, productivity, and economic welfare and will defend a conclusion grounded in both the data and the assigned reading.

Responses that merely describe movements in the graph without explaining the relevant economic mechanisms will receive partial credit at best.

Full credit requires precise use of economic terminology and explicit connection to course concepts. Responses that describe the data without economic explanation will receive partial credit at best.