

**JHU ECON 602  
MACROECONOMIC THEORY AND POLICY  
(Fall 2022)**

**Group Assignment 1 (50 points)**

**Due by email ([ploungani@imf.org](mailto:ploungani@imf.org)) by 11 am on Tuesday, Sep. 20.**

- (5 points): On January 27, 2022, U.S. President Biden said: **“The GDP numbers for my first year show that we are finally building an American economy for the 21st Century, with the fastest economic growth in nearly four decades ... And, for the first time in 20 years, our economy grew faster than China’s. This is no accident. My economic strategy** is creating good jobs for Americans, rebuilding our manufacturing, and strengthening our supply chains here at home to help make our companies more competitive”. Do you agree with President Biden’s claim that the fast GDP growth in his first year (i.e., in 2021) is due to his economic strategy? Why or why not?  
<https://www.whitehouse.gov/briefing-room/statements-releases/2022/01/27/president-biden-statement-on-first-year-gdp-growth/>

U.S. President Biden’s economic strategy indeed boost the employment and the U.S. unemployment rate declined from 8.05% to 5.46% for his first year. However, President Biden’s claim that U.S economy grew faster than China’s seemly cannot get supported by economics data. From 2020 to 2021, China’s GDP growth rate is 8.1% while U.S.’s GDP is 5.7%. Besides, the GDP growth volume of China and U.S. are 2.6 trillion dollars and 2.1 trillion. In conclusion, China’s economy grew faster than U.S.’s from 2020 to 2021 based on GDP performance.

*REFERENCES:*

<https://www.statista.com/statistics/263591/gross-domestic-product-gdp-of-the-united-states/>  
<https://www.statista.com/statistics/263770/gross-domestic-product-gdp-of-china/>

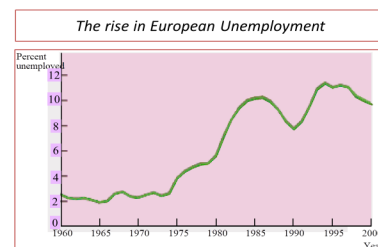
- (5 points): In this week’s class, we will discuss the equation for long-run equilibrium in the labor market:  $s \times E = f \times U$  (assuming that the labor force is fixed). Use this equation to show that the equation for the natural rate of unemployment is  $\left(\frac{U}{L}\right)^* = \frac{s}{s+f}$ .

Given  $s \times E = f \times U$ , we can conclude  $E = \frac{f \times U}{s}$

Since  $L=U+E$ ,  $\frac{U}{L}$  can be written as  $\frac{U}{U+E}$

$$\frac{U}{L} = \frac{U}{U+E} = \frac{U}{U+\frac{f \times U}{s}} = \frac{1}{1+\frac{f \times 1}{s}} = \frac{s}{s+f}$$

- (10 points): Continuing with the question above, use the equation for the natural rate to explain why European unemployment went up between 1975 and 2000. You should think about what might have happened to  $s$  and  $f$  that would lead to the increase in unemployment.



According to the equation above,  $U/L=S/(S+F)$ , we can take the derivative of F and S in this equation ( $dU/dS=F/(S+F)^2$  ;  $dU/dF=-S/(S+F)^2$ ). Then we found that the higher S and lower F will lead to higher Unemployment rate. Therefore, from the mathematical perspective, European unemployment went high and might be caused by the higher S and the lower F.

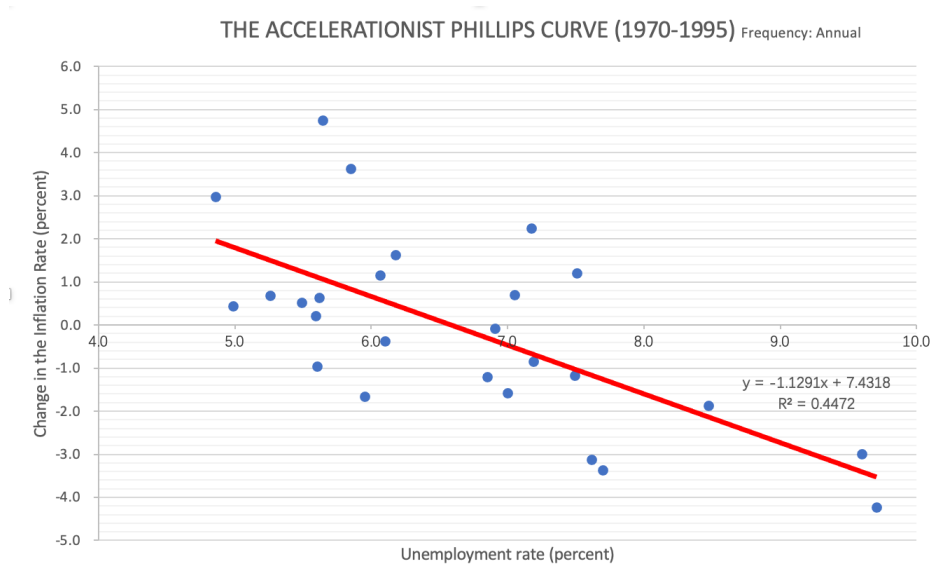
Three reasons:

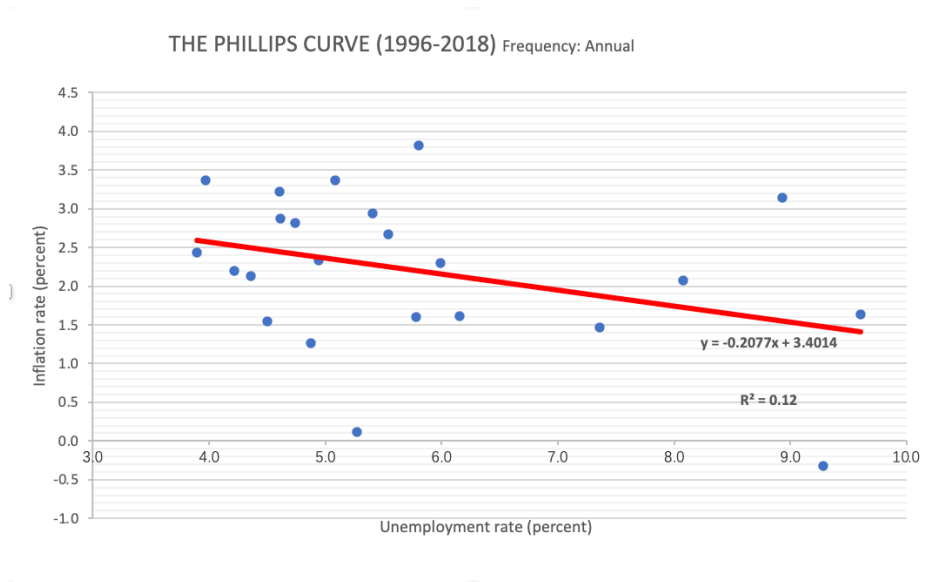
In 1973 there was a severe economic crisis caused by the first Oil Crisis. After the outbreak of the economic crisis, Europe adopted a tightening of fiscal and monetary policies. All of these have led to a cooling of the European job market and a continued rise in unemployment. That is, increasing S and decreasing F.

Second in Europe's high-welfare social security system. Europe's high welfare policy provides large unemployment benefits, which reduces income inequality, but also reduces people's motivation to look for jobs. That is, decreasing F and increasing S.

Third, the United States and Japan are more competitive with Europe in manufacturing. Developing countries such as China undertake many low-end industries. This has taken traditional European jobs and led to the rise of Separation rate of Europe.

- (10 points): Download data from FRED (<https://fred.stlouisfed.org/>) on the U.S. inflation rate (CPIAUCSL) and the unemployment rate (UNRATE). Estimate the accelerationist Phillips Curve for the period 1970 to 1995 and the Phillips Curve from 1996 to 2018. Please copy the two charts into the Word documents (and attach a separate EXCEL sheet to show your work).





Note: Change in the inflation rate and inflation rate are both based on CPI.

- (20 points): Draft the monetary policy decision that the U.S. Federal Reserve will release on Sep. 21, 2022. Your statement should look like this:

<https://www.federalreserve.gov/newsevents/pressreleases/monetary20220727a.htm>

September 20, 2022

## Federal Reserve issues FOMC statement

For release at 2:00 p.m. EDT

Overall economic activity appears to slightly weaken in the recent months. The third quarter of advance estimate output continues to decline slightly compared to the second quarter. The unemployment rate rose slightly between July and August compared to previous months. Nonetheless, the inflation rate declined softly compared to previous months, while it keeps at a relative high level.

The supply and demand imbalances related to the global pandemic and the Russo-Ukrainian War are creating additional upward pressure on the global inflation and are weighting on global economic activity. As energy commodities supply tensions in Europe escalate, a significant decline in energy supplies continues to push up European energy prices. The Committee is highly attentive to inflation risks and domestic energy commodities price movement.

The Committee seeks to achieve maximum employment and inflation at the rate of 2 percent over the longer run. In support of these goals, the Committee decided to raise the target range for the federal funds rate to 2-1/2 to 2-3/4 percent and anticipates that ongoing increases in the target range will be appropriate. In addition, the Committee will continue reducing its holdings of Treasury securities and agency debt and agency mortgage-backed securities, as described in the Plans for Reducing the Size of the Federal Reserve's Balance Sheet that were issued in May. The Committee is strongly committed to returning inflation to its 2 percent objective.

In assessing the appropriate stance of monetary policy, the Committee will continue to monitor the implications of incoming information for the economic outlook. The Committee would be prepared to adjust the stance of monetary policy as appropriate if risks emerge that could impede the attainment of

the Committee's goals. The Committee's assessments will take into account a wide range of information, including readings on public health, labor market conditions, inflation pressures and inflation expectations, and financial and international developments.

Voting for the monetary policy action were Jerome H. Powell, Chair; John C. Williams, Vice Chair; Michael S. Barr; Michelle W. Bowman; Lael Brainard; James Bullard; Susan M. Collins; Lisa D. Cook; Esther L. George; Philip N. Jefferson; Loretta J. Mester; and Christopher J. Waller.