AGM4367 Economics and Marketing for Engineer

Mini Project

Group #: 11

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State the scope of macroeconomics? How does it differ from microeconomics?

Macroeconomics is the branch of economics that studies the behavior and performance of the economy as a whole. It examines broad aggregates such as gross domestic product (GDP), unemployment, inflation, and economic growth. Macroeconomists also study the factors that affect these aggregates, such as government policies, monetary policy, and fiscal policy.

It varies from microeconomics for the following reasons.

Macroeconomics

- Studies the economy as a whole
- Focuses on broad aggregates such as GDP, unemployment, inflation, and economic growth
- Uses aggregate data
- Examines the factors that affect the overall performance of the economy
- Often used to develop government policies

Microeconomics

- Studies the behavior of individual consumers and firms
- Focuses on individual markets and the interactions between consumers and firms
- Uses individual data
- Examines the factors that determine prices and quantities in individual markets
- Often used to analyze business decisions

② Question

Identify and discuss the key macroeconomic issues related to IT sector in Sri Lanka

One key macroeconmic issue could be the concept of brain-drain, during the past couple of years sri Lanka experienced a net outflow of skilled labor, which represents a loss of valuable human capital.

Brain drain can have a number of negative consequences for the IT sector in less developed countries. It can lead to a shortage of skilled workers, which can make it difficult for IT companies to grow and innovate. It can also deprive less developed countries of the benefits that a thriving IT sector can bring, such as economic growth and job creation.

Another one we could talk about is the **stability of the economy**, specifically in terms of exchange rate. Drastic fluctuations in ER can create uncertainty for IT firms engaged in international trade.

Sri Lanka is currently experiencing high inflation, which is eroding the purchasing power of consumers and businesses. This can lead to a decrease in demand for IT products and services, as well as an increase in the cost of doing business for IT companies.



Download GDP data of Sri Lanka from the Central Bank web site from 2013 to 2022 and answer the following questions based on the data downloaded

② Question

What was the growth rate of nominal GDP between 2013 and 2022?

Growth rate = (Final value - Initial value) / Initial value * 100%

Rs. millions.

Real GDP in 2013 : 7,846,202.44 Nominal GDP in 2013 : 9,592,125.97

Real GDP in 2022 : 12,017,849.12 Nominal GDP in 2022 : 24,147,726.16

Growth rate = (24,147,726.16 - 9,592,125.97) / 9,592,125.97 * 100%

Growth rate = 155.05%

② Question

What was the growth rate of the GDP deflator (inflation) between 2013 and 2022?

Rs. millions.

Nominal / Real ->

 $2013 \rightarrow 9,592,125/7,846,202.44 = 1.22$

 $2022 \rightarrow 24,147,726.16/12,017,849.12 = 2.00$

Growth Rate = 2.00 - 1.22 / 1.22 * 100%

63.9%



What was the real GDP in 2013 measured in 2022 prices?

Rs. millions.

Real GDP in 2013 : 9,592,125.00 / 2.00

4,796,062.50

② Question

What was the real GDP in 2022 measured in 2013 prices?

Rs. millions.

Real GDP in 2022 : 24,147,726.16 / 1.22

19,793,218.16

② Question

Why does growth rate of nominal GDP different from that of real GDP? Explain.

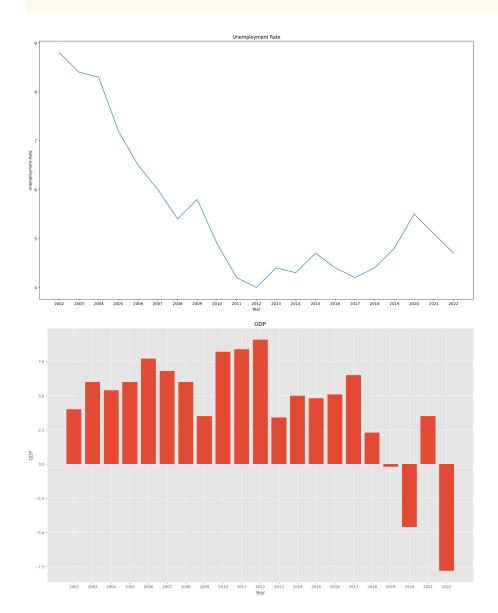
The growth rate of nominal GDP is different from the growth rate of real GDP because nominal GDP is measured in current prices, while real GDP is measured in constant prices. This means that nominal GDP includes the effects of inflation, while real GDP does not.



Use the annual data on unemployment rate and GDP from Annual Reports of Central Bank of Sri Lanka and answer the following

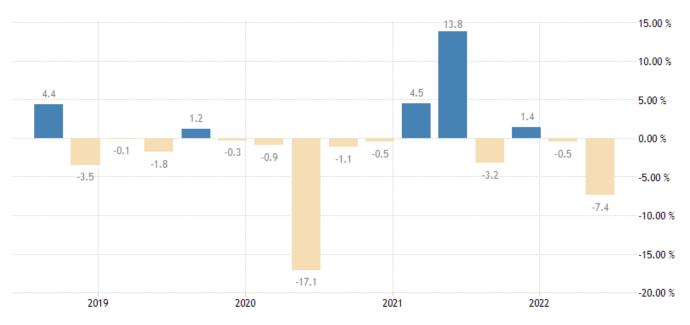
② Question

Plot those to find the relationship between unemployment and GDP for 20 years.

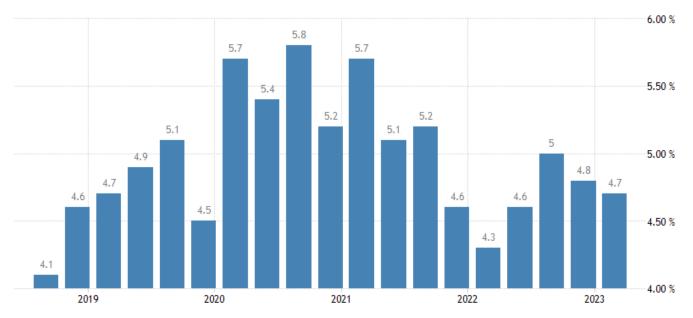


② Question

Plot the rate of change of unemployment and quarterly change in GDP using quarterly data for 5 years' time.



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② Question

Do you see any relationship? Explain Okun's law with these data?

Okun's Law is an economic principle that illustrates the inverse connection between a country's GDP growth rate and its unemployment rate. It posits that when the economy is expanding, leading to positive GDP growth, unemployment tends to decrease. Conversely, during economic contractions or recessions, characterized by negative GDP growth, unemployment tends to rise. The precise relationship between GDP growth and unemployment is not always a one-to-one correlation and can vary depending on factors such as the country's economic structure, labor market dynamics, and government policies.

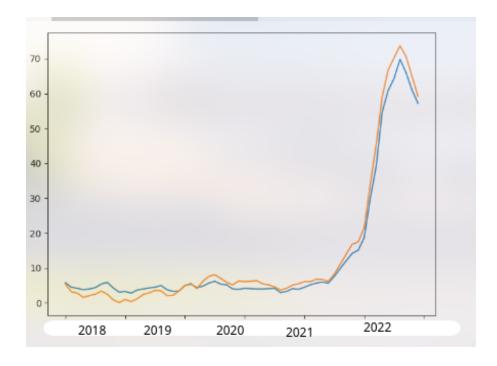
The graph shows that unemployment was relatively low when the GDP growth rate was high, and unemployment was relatively high when the GDP growth rate was low. For example, in 2017, when the GDP growth rate was 5.8%, the unemployment rate was 4.4%. In 2020, when the GDP growth rate contracted by 3.6%, the unemployment rate rose to 6.4%.

In the context of the Sri Lankan economy as an example:

- 1. If the GDP growth rate increases by 1%, and Okun's Law holds true with a coefficient of -0.5, this implies that the unemployment rate may decrease by 0.5%. Essentially, economic growth generates job opportunities and absorbs some of the unemployed labor force.
- 2. Conversely, if the GDP growth rate decreases by 1%, and 0kun's Law is applicable with a coefficient of +0.5, this suggests that the unemployment rate might increase by 0.5%. In this scenario, economic contraction leads to a reduction in job opportunities, resulting in an uptick in unemployment.

② Question

Describe patterns and trends of inflation using CCPI and NCPI for the last 5 years (2018 to 2022). Use the data from Central Bank Annual reports.



1. 2018 to 2019:

- In 2018, both CCPI and NCPI saw relatively low inflation rates, with Y-o-Y headline inflation hovering around 3% to 4%. Core inflation was slightly lower.
- In 2019, inflation gradually picked up, reaching around 5% to 6% by the end of the year for both indices.

2. 2020:

- In 2020, inflation rates in Sri Lanka experienced significant fluctuations. At the beginning of the year, inflation was around 5% for both indices.
- However, as the year progressed, inflation started to increase, especially in the NCPI, which reached around 8% by mid-year.
- These inflation spikes were partly driven by the economic impact of the COVID-19 pandemic.

3. 2021:

- Inflation accelerated significantly in 2021. Both CCPI and NCPI saw Y-o-Y headline inflation rates exceeding 10% by mid-year.
- Core inflation also increased but remained slightly lower than headline inflation, indicating that some of the inflation was driven by factors like food and energy prices.

4. 2022:

- Inflation continued to rise in 2022, reaching very high levels by the middle of the year.
- The Y-o-Y headline inflation rate exceeded 60% for both CCPI and NCPI, indicating a severe inflationary period.
- Core inflation also surged but was somewhat lower than headline inflation, suggesting that some of the inflationary pressures may have been due to temporary factors.

Months	ССРІ						
	2018	2019	2020	2021	2022		
January	5.8	3.7	5.7	3.0	14.2		
February	4.5	4.0	6.2	3.3	15.1		
March	4.2	4.3	5.4	4.1	18.7		
April	3.8	4.5	4.2	3.9	29.8		
May	4.0	5.0	4.0	4.5	39.1		
June	4.4	3.8	3.9	5.2	54.6		
July	5.4	3.3	4.2	5.7	60.8		
August	5.9	3.4	4.1	6.0	64.3		
September	4.3	5.0	4.0	5.7	69.8		
October	3.1	5.4	4.0	6.0	66.0		
November	3.3	4.4	4.1	5.7	61.0		
December	2.8	4.8	4.2	7.6	57.2		

Months	NCPI						
	2018	2019	2020	2021	2022		
January	5.4	1.2	7.6	3.7	16.8		
February	3.2	2.4	8.1	4.2	17.5		
March	2.8	2.9	7.0	5.1	21.5		
April	1.6	3.6	5.9	5.5	33.8		
May	2.1	3.5	5.2	6.1	45.3		
June	2.5	2.1	6.3	6.1	58.9		
July	3.4	2.2	6.1	6.8	66.7		
August	2.5	3.4	6.2	6.7	70.2		
September	0.9	5.0	6.4	6.2	73.7		
October	0.1	5.6	5.5	8.3	70.6		
November	1.0	4.1	5.2	11.1	65.0		
December	0.4	6.2	4.6	14.0	59.2		