Part-2 Chapter-6

Aplia Homework: The Goals of Macroeconomic Policy

**1. Productivity and growth policies**

Consider a small island country whose only industry is printing. The following table presents information about this small economy in two different years.

Complete the table by calculating physical capital per worker and labour productivity.

**Hint**: Recall that productivity is defined as the amount of goods and services a worker can produce per hour. In this problem, measure productivity as the quantity of goods per hour of labour.

| **Year** | **Physical Capital** | **Labour Force** | **Physical Capital per Worker** | **Labour Hours** | **Output** | **Labour Productivity** |
| --- | --- | --- | --- | --- | --- | --- |
| ***(Printing presses)*** | ***(Workers)*** | ***(Printing presses)*** | ***(Hours)*** | ***(Books)*** | ***(Books per hour of labour)*** |
| 2024 | 120 | 60 | \_\_\_\_ | 3,000 | 21,000 | \_\_\_\_ |
| 2025 | 400 | 100 | \_\_\_\_ | 3,500 | 49,000 | \_\_\_\_ |

Based on your calculations, \_\_\_\_\_\_\_ in physical capital per worker from 2024 to 2025 is associated with \_\_\_\_\_\_\_ in labour productivity from 2024 to 2025.

Suppose you're in charge of establishing economic policy for this small island country.

Which of the following policies would lead to greater productivity in the printing industry? Check all that apply.

 Imposing a tax on printing presses

 Encouraging saving by allowing workers to set aside a portion of their earnings in tax-free retirement accounts

 Sharply increasing the interest rate on student loans to people pursuing advanced degrees in printing

 Subsidizing research and development of new printing technologies

**2. The labour force and the unemployment rate**

Consider the following dialog between Latasha, an economics student who currently studies macroeconomics, and Rosa, her teaching assistant.

LATASHA: Hi Rosa, I'm working on my Apia homework and realized that I do not understand the definition of the labour force very well. Does it include discouraged workers?

ROSA: Hi Latasha, the conventional definition of the labour force \_\_\_\_\_\_\_\_ discouraged workers. This is because they \_\_\_\_\_\_\_. Also, be sure not to mistake discouraged workers for part-time workers. The key difference is that the latter \_\_\_\_\_\_\_.

**LATASHA:**I think I understand it now, thank you.

**ROSA:**Let me ask you a question to see if you can apply your knowledge. Consider an economy with 20 full-time workers, 16 part-time workers, 10 workers who have been laid off but are actively looking for a new job, and 3 formerly full-time workers who have been without a job for over a year, failed to find any, and gave up looking. Can you please calculate **the total labour force** and **the unemployment rate** for this economy?

**LATASHA:**The total labour force is \_\_\_\_\_\_ Workers and the unemployment rate is \_\_\_\_\_\_\_\_.

**3. Types of unemployment**

The three people described in the following table are categorized as unemployed by the Bureau of Labour Statistics.

Identify each person in the table as structurally, frictionally, or cyclically unemployed.

| **Unemployment Type** | **Structural** | **Frictional** | **Cyclical** |
| --- | --- | --- | --- |
| Amy just graduated from college and is looking for a full-time position with an investment banking firm. | \_\_\_\_\_ | \_\_\_\_\_ | \_\_\_\_\_ |  |
| Van recently lost his job as a dishwasher. Minimum-wage legislation keeps employers from adding more of the low-skill positions for which he qualifies, so he has been unable to find work. | \_\_\_\_\_ | \_\_\_\_\_ | \_\_\_\_\_ |  |
| Automobile demand has fallen during a recent recession, and Deborah has been laid off from her job on the assembly line. | \_\_\_\_\_\_ | \_\_\_\_\_\_ | \_\_\_\_\_ |  |

The following table shows data on frictional, cyclical, structural, and total unemployment for an economy.



True or False: This economy is currently at full employment.

 True

 False

**4. The effects of inflation**

Suppose Specific Automakers is considering signing a long-term contract with the union representing its workers. Specific Automakers and the union both agree that real wages should increase by 3%. Inflation is expected to be 6%, so they agree on a 9% nominal wage increase.

Now, suppose inflation turns out to be lower than expected, coming in at 5%. This would \_\_\_\_\_\_\_ the union and \_\_\_\_\_\_\_ Specific Automakers because the real wage increase would now be **\_\_\_\_\_\_\_**.

**5. Interest, inflation, and purchasing power**

Suppose Rina is a sports fan and buys only baseball caps. Rina deposits $3,000 in a bank account that pays an annual nominal interest rate of 5%. Assume this interest rate is fixed—that is, it won't change over time. At the time of her deposit, a baseball cap is priced at $10.00.

Initially, the purchasing power of Rina's $3,000 deposit is \_\_\_\_\_\_\_ baseball caps.

For each of the annual inflation rates given in the following table, first determine the new price of a baseball cap, assuming it rises at the rate of inflation. Then enter the corresponding purchasing power of Rina's deposit after one year in the first row of the table for each inflation rate. Finally, enter the value for the real interest rate at each of the given inflation rates*.*

**Hint**: Round your answers in the first row down to the nearest baseball cap. For example, if you find that the deposit will cover 20.7 baseball caps, you would round the purchasing power down to 20 baseball caps under the assumption that Rina will not buy seven-tenths of a baseball cap.

|  | **Annual Inflation Rate** |
| --- | --- |
| **0%** | **5%** | **8%** |
| **Number of Caps Rina Can Purchase after One Year** | **\_\_\_\_\_**  | **\_\_\_\_\_**  | **\_\_\_\_\_**  |
| **Real Interest Rate** | \_\_\_\_\_ | \_\_\_\_\_ | \_\_\_\_\_ |

When the rate of inflation is less than the interest rate on Rina's deposit, the purchasing power of her deposit \_\_\_\_\_\_\_ over the course of the year.

**6. Unanticipated changes in the rate of inflation**

Initially, Kate earns a salary of $300 per year and Hubert earns a salary of $200 per year. Kate lends Hubert $100 for one year at an annual interest rate of 16% with the expectation that the rate of inflation will be 12% during the one-year life of the loan. At the end of the year, Hubert makes good on the loan by paying Kate $116. Consider how the loan repayment affects Kate and Hubert under the following scenarios.

**Scenario 1**: Suppose all prices and salaries rise by 12% (as expected) over the course of the year. In the following table, find Kate's and Hubert's new salaries after the 12% increase, and then calculate the $116 payment as a percentage of their new salaries. (**Hint**: Remember that Kate's salary is her income from work and that it does not include the loan payment from Hubert.)

| **Value of Kate's new salary after one year** | **The $116 payment as a percentage of Kate's new salary** | **Value of Hubert's new salary after one year** | **The $116 payment as a percentage of Hubert's new salary** |
| --- | --- | --- | --- |
| **\_\_\_\_\_\_\_**  |  \_\_\_\_\_\_\_   |  \_\_\_\_\_\_\_   |  \_\_\_\_\_\_\_ |

**Scenario 2**: Consider an unanticipated decrease in the rate of inflation. The rise in prices and salaries turns out to be 2% over the course of the year rather than 12%. In the following table, find Kate's and Hubert's new salaries after the 2% increase, and then calculate the $116 payment as a percentage of their new salaries.

| **Value of Kate's new salary after one year** | **The $116 payment as a percentage of Kate's new salary** | **Value of Hubert's new salary after one year** | **The $116 payment as a percentage of Hubert's new salary** |
| --- | --- | --- | --- |
| **\_\_\_\_\_\_\_**  |  \_\_\_\_\_\_\_   |  \_\_\_\_\_\_\_   |  \_\_\_\_\_\_\_\_ |

An unanticipated decrease in the rate of inflation benefits \_\_\_\_\_\_\_\_ and harms \_\_\_\_\_\_\_\_.

**7. Inflation and interest rates**

The following table shows the average nominal interest rates on six-month Treasury bills (indicating the amount of interest paid by the U.S. government when it issues debt) between 1971 and 1975. The table also shows the inflation rate for the years 1971 to 1975. (All rates are rounded to the nearest tenth of a percent.)



On the following graph, use the orange points (square symbol) to plot the **nominal** interest rates for the years 1971 to 1975. Next, use the green points (triangle symbol) to plot the **real** interest rates for those years.

**Note**: Plot your points in the order in which you would like them connected. Line segments will connect the points automatically.

According to the table, in which year did buyers of six-month Treasury bills receive the highest real return on their investment?

 1971

 1972

 1973

 1974

 1975

**8. Calculating inflation using a simple price index**

Consider a fictional price index, the College Student Price Index (CSPI), based on a typical college student’s annual purchases. Suppose the following table shows information on the market basket for the CSPI and the prices of each of the goods in 2010, 2011, and 2012.

The cost of each item in the basket and the total cost of the basket are shown for 2010. Assume the quantity of each item in the basket does not change in 2011 and 2012.

*Perform these same calculations for 2011 and 2012, and enter the results in the following table.*

|  | **Quantity in Basket** | **2010** | **2011** | **2012** |
| --- | --- | --- | --- | --- |
| **Price** | **Cost** | **Price** | **Cost** | **Price** | **Cost** |
| ***(Dollars)*** | ***(Dollars)*** | ***(Dollars)*** | ***(Dollars)*** | ***(Dollars)*** | ***(Dollars)*** |
| **Notebooks** | 15 | 2 | 30 | 5 | \_\_\_\_ | 8 | \_\_\_\_ |
| **Calculators** | 1 | 70 | 70 | 100 | \_\_\_\_ | 130 | \_\_\_\_ |
| **Large coffees** | 250 | 2 | 500 | 2 | \_\_\_\_ | 2 | \_\_\_\_ |
| **Energy drinks** | 50 | 2 | 100 | 4 | \_\_\_\_ | 6 | \_\_\_\_ |
| **Textbooks** | 10 | 120 | 1,200 | 150 | \_\_\_\_ | 180 | \_\_\_\_ |
| **Total cost** |  |  | 1,900 |  | \_\_\_\_\_ |  | \_\_\_\_\_ |
| **Price index** |  |  | 100 |  | \_\_\_\_\_ |  | \_\_\_\_\_ |

Suppose the base year for this price index is 2010.

In the last row of the table, calculate and enter the value of the CSPI for the remaining years.

Between 2010 and 2011, the CSPI increased by \_\_\_\_\_\_\_. Between 2011 and 2012, the CSPI increased by \_\_\_\_\_\_\_.

**9. Alternative price indexes**

Because there isn't one single measure of inflation, the government and researchers use a variety of methods to get the most balanced picture of how prices fluctuate in the economy. Two of the most commonly used price indexes are the consumer price index (CPI) and the GDP deflator.

The GDP deflator for this year is calculated by dividing the \_\_\_\_\_\_\_\_\_\_ using \_\_\_\_\_\_\_\_\_\_by the \_\_\_\_\_\_\_\_\_\_ using the \_\_\_\_\_\_\_\_\_\_\_ and multiplying by 100. However, the CPI reflects only the prices of all goods and services \_\_\_\_\_\_\_\_\_\_.

Indicate whether the price change described in each scenario may affect the GDP deflator or the CPI for the United States. Check all that apply.

| **Scenario** | **Shows up in the...** |
| --- | --- |
| **GDP Deflator** | **CPI** |
| A decrease in the price of a Chinese-made car that is popular among U.S. consumers | \_\_\_\_\_ | \_\_\_\_ |  |
| An increase in the price of a Tree wood handsaw, a popular chainsaw manufactured by Harvest wood Equipment in Bottleneck Springs, Arkansas | \_\_\_\_\_ | \_\_\_\_ |  |