

Past-paper walk-through

Costs of Inflation ■ 2.5

eXercise

Questions in this set

- 2024 Set 1 Q2
- 2024 Set 2 Q2
- 2019 Set 1 Q2

Reading the mark scheme

- **B1** a mark that stands on its own – the point is either made or not.
- **M1** a *method* mark: the right approach, even if the number is wrong.
- **A1** an *answer* mark, and it usually needs its M mark first.
- **C1** a working mark on the way to the answer.
- **//** separates answers the examiner accepts equally.
- **ecf** = error carried forward: a later part is marked on your own earlier answer.
- **owtte** = “or words to that effect” – the wording need not match.

Question 2

2024 Set 1 ■ Q2

The table provided shows economic data for the country of Louland. The base year is year 1, and the GDP deflator in year 2 is 115.

	Year 1	Year 2
Nominal GDP	800,000	1,035,000
Population	1,000	1,200

Question 2

- (a) Calculate real GDP in Louland in year 2. Show your work.
- (b) How would the change in real GDP from year 1 to year 2 affect the demand for money and the nominal interest rate in Louland?
- (c) Did the standard of living of the average citizen in Louland increase, decrease, or remain the same from year 1 to year 2? Explain using numbers.
- (d) What was the numerical value of the inflation rate from year 1 to year 2?
- (e) If nominal wages increased by 10% from year 1 to year 2, what happened to the real wages of workers in Louland during this time? Explain.

Solution 2

(a)

Mark scheme

- Real GDP = $(\text{Nominal GDP} \div \text{GDP Deflator}) \times 100 = (1,035,000 \div 115) \times 100 = 900,000$.

Solution 2

(b)

Mark scheme

- Real GDP increased from year 1 to year 2, so the demand for money increases (more transactions require money at each price level). With the money supply unchanged, the money demand curve shifts right, so the nominal interest rate increases.

Solution 2

(c)

Mark scheme

- The standard of living of the average citizen in Louland decreased from year 1 to year 2. Real GDP per capita in year 1 was 800 and real GDP per capita in year 2 was 750 ($750 < 800$), so real output per person fell, indicating a lower standard of living.

Solution 2

(d)

Mark scheme

- The inflation rate from year 1 to year 2 was 15% (the percentage increase in the price level/GDP deflator between the two years).

Solution 2

(e)

Mark scheme

- Real wages decreased. Explanation: nominal wages increased by only 10%, which is less than the 15% inflation rate over the same period ($10\% < 15\%$), so real (inflation-adjusted) wages fell.

Question 2

2024 Set 2 ■ Q2

The table provided shows the quantity and price of food and clothing, the only two goods produced and consumed in the country of Maltrose, in year 1 and year 2. Assume that year 1 is the base year.

	Year 1 Price	Year 1 Quantity	Year 2 Price	Year 2 Quantity
Food	\$10	12	\$13	10
Clothing	\$5	16	\$4	20

Question 2

- (a) Calculate the nominal GDP in year 2. Show your work.
- (b) Calculate the GDP deflator in year 2. Show your work.
- (c) What was the numerical value of the inflation rate from year 1 to year 2?
- (d) Assuming that the expected inflation rate between years 1 and 2 was 3%, were each of the following better off, worse off, or unaffected as a result of the economic conditions between year 1 and year 2?
 - (d)(i) People living on a fixed income
 - (d)(ii) Borrowers with fixed interest-rate loans. Explain.

Solution 2

(a)

Mark scheme

- Nominal GDP_{Year2} = $(\$13 \times 10) + (\$4 \times 20) = \$130 + \$80 = \$210$. Award the point for computing price $\times$ quantity for each good in year 2 and summing to \$210.

Solution 2

(b)

Mark scheme

- $$\begin{aligned} \text{GDP Deflator}_{\text{Year}\backslash,2} &= \frac{\text{Nominal GDP}_{\text{Year}\backslash,2}}{\text{Real GDP}_{\text{Year}\backslash,2}} \times 100 = \\ &= \frac{\$210}{(\$10 \times 10) + (\$5 \times 20)} \times 100 = \\ &= \frac{\$210}{\$200} \times 100 = 105\% \end{aligned}$$

Real GDP values year-2 quantities at year-1 (base-year) prices \$10 and \$5. Award the point for the correct setup and result of 105.

Solution 2

(c)

Mark scheme

- With the GDP deflator equal to 100 in the base year (year 1) and 105 in year 2, the inflation rate from year 1 to year 2 is $\frac{105 - 100}{100} \times 100\% = 5\%$.

Solution 2

(d)

Mark scheme

- Stem only — asks whether (i) people on a fixed income and (ii) borrowers with fixed-rate loans were better off, worse off, or unaffected, given actual inflation of 5% versus an expected inflation rate of 3%. Scored in (d)(i) and (d)(ii) below.

Solution 2

(d)(i)

Mark scheme

- People living on a fixed income were worse off. Actual inflation (5%) exceeded expected inflation (3%), so the real purchasing power of their fixed nominal income fell by more than they had anticipated.

Solution 2

(d)(ii)

Mark scheme

- Borrowers with fixed interest-rate loans were better off. Explanation: because actual inflation (5%) exceeded expected inflation (3%), the real interest rate they ended up paying (nominal rate minus actual inflation) was lower than the real rate they had expected (nominal rate minus expected inflation), so the real value/burden of their fixed debt payments decreased by more than expected.

Question 2

2019 Set 1 ■ Q2

Assume the expected inflation rate in a country is 3%, the current unemployment rate is 6%, and the natural rate of unemployment is 4%.

(a) Draw a correctly labeled graph of the short-run and long-run Phillips curves. Label the current short-run equilibrium as point X and plot the numerical values above on the graph.

(b) Is the actual inflation rate greater than, less than, or equal to the expected inflation rate of 3%?

(c) Assume loans were made taking into account the expected inflation rate of 3%. Will lenders be better off or worse off after they realize the actual inflation rate identified in part (b)? Explain.

Question 2

(d) Based on the relationship between the actual and the expected inflation rates identified in part (a), what will happen to the natural rate of unemployment in the long run?

Solution 2

(a) Mark scheme

- Draw a downward-sloping short-run Phillips curve (SRPC) with Inflation Rate (%) on the vertical axis and Unemployment Rate (%) on the horizontal axis (1 point for the correctly labeled SRPC). Add a vertical long-run Phillips curve (LRPC) at the natural rate of unemployment, 4%; since the expected inflation rate is 3%, the SRPC must cross the LRPC at (4%, 3%). Plot the current short-run equilibrium as point X on the SRPC at the current unemployment rate of 6% (to the right of the LRPC, since $6\% > 4\%$), which lies below the 3% inflation level. 1 point for correctly drawing the vertical LRPC at 4% with X plotted on the SRPC to the right of the LRPC at unemployment = 6%, and for labeling the given values (3%

Solution 2

expected inflation where SRPC meets the LRPC, natural rate 4%, current unemployment 6%).

Solution 2

(b)

Mark scheme

- The actual inflation rate is LESS THAN the expected inflation rate of 3%. Because the current unemployment rate (6%) is above the natural rate of unemployment (4%), point X lies to the right of the LRPC on the downward-sloping SRPC, which is anchored to cross the LRPC at the expected inflation rate (3%) when unemployment equals the natural rate. Moving right along the SRPC (higher unemployment) corresponds to lower inflation, so the actual inflation rate at X is below 3%. 1 point for stating that the actual inflation rate is less than the expected rate (3%).

Solution 2

(c) Mark scheme

- Lenders will be BETTER OFF. Loans were priced assuming 3% expected inflation, but the actual inflation rate turned out to be lower than 3% (from part b). Since actual inflation eroded the purchasing power of money less than lenders anticipated, the real value of the loan repayments lenders receive is higher than expected. Equivalently, by the Fisher equation ($\text{real interest rate} = \text{nominal interest rate} - \text{inflation rate}$), a lower-than-expected actual inflation rate means the ex-post real interest rate earned by lenders is higher than the real rate they expected when the loan was made. 1 point for stating lenders are better off, with the real-value-of-repayment or Fisher-equation explanation.

Solution 2

(d) Mark scheme

- The natural rate of unemployment will NOT change in the long run. The natural rate is determined by structural and frictional factors in the labor market (e.g., labor market institutions, search frictions, minimum wage, unionization), not by the temporary gap between actual and expected inflation. Once expectations adjust to the actual inflation rate, the short-run Phillips curve shifts so that unemployment returns to the same natural rate (4%); only the inflation rate differs in the new long-run equilibrium, not the natural rate itself. 1 point for stating the natural rate of unemployment remains unchanged in the long run.