

Past-paper walk-through

Automatic Stabilizers ■ 3.9

eXercise

Questions in this set

- 2025 Set 2 Q3
- 2023 Set 2 Q1
- 2021 Set 2 Q3

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 3

2025 Set 2 ■ Q3

Assume that Nepal is in long-run macroeconomic equilibrium and has an open economy.

- (a)(i)** Draw a correctly labeled graph of the aggregate demand, short-run aggregate supply, and long-run aggregate supply curves for Nepal, and show each of the following. The current equilibrium real output and price level, labeled Y_1 and PL_1 , respectively
- (a)(ii)** The full-employment output, labeled Y_F

Question 3

2025 Set 2 ■ Q3

Assume that Nepal is in long-run macroeconomic equilibrium and has an open economy.

(b) Nepal and Thailand are trading partners. Assume that Thailand experiences an increase in real income. On your graph in part A, show the short-run effect of the increase in real income in Thailand on real output and the price level in Nepal, labeling the new short-run equilibrium real output Y_2 and the new short-run equilibrium price level PL_2 .

Question 3

2025 Set 2 ■ Q3

Assume that Nepal is in long-run macroeconomic equilibrium and has an open economy.

(c) Assume that at the short-run equilibrium shown on your graph in part B, Nepal is experiencing a 400 million rupee output gap. Policymakers in Nepal want to use discretionary fiscal policy to return the economy to full employment, and the marginal propensity to consume is 0.75. Calculate the minimum change and state the direction of change in government spending required to completely close the output gap in the short run. Show your work.

Question 3

2025 Set 2 ■ Q3

Assume that Nepal is in long-run macroeconomic equilibrium and has an open economy.

(d) Assume instead that no discretionary policy actions are taken. Explain how automatic stabilizers in the short run would reduce the effect of the change in real output shown on your graph in part B.

Solution 3

(a)(i)

Mark scheme

- Draw a graph with Price Level on the vertical axis and Real GDP on the horizontal axis: a downward-sloping aggregate demand curve AD1 and an upward-sloping short-run aggregate supply curve SRAS1, intersecting at equilibrium price level PL1 and equilibrium real output Y1.

Solution 3

(a)(ii)

Mark scheme

- On the same graph, add a vertical long-run aggregate supply curve (LRAS) at the full-employment output, labeled Y_F , positioned at the same real output as Y_1 (i.e., $Y_1 = Y_F$), showing the economy currently at long-run equilibrium.

Solution 3

(b)

Mark scheme

- On the same graph, shift the aggregate demand curve rightward from AD1 to AD2: the increase in real income in Thailand (a trading partner) increases demand for Nepal's exports, increasing Nepal's net exports and aggregate demand. This raises the new short-run equilibrium real output to Y2 (labeled to the right of $Y1 = Y_F$) and raises the new short-run equilibrium price level to PL2 (labeled above PL1), at the intersection of AD2 and SRAS1.

Solution 3

(c)

Mark scheme

- Spending multiplier = $1 / (1 - \text{MPC}) = 1 / (1 - 0.75) = 4$. Minimum change in government spending = $-(\text{output gap}) / \text{multiplier} = -400 \text{ million rupees} / 4 = -100 \text{ million rupees}$. Because the economy is at $Y_2 > Y_F$ (an inflationary/positive output gap of 400 million rupees, per part B), government spending must **DECREASE** by a minimum of 100 million rupees to close the gap and return output to Y_F .

Solution 3

(d)

Mark scheme

- Without discretionary policy action, automatic stabilizers reduce the effect of the increase in real output shown in part B: as real income (output) rises, tax revenues automatically increase and/or transfer payments automatically decrease. This slows the rate at which disposable income rises, which slows the growth of consumption spending, dampening the rightward shift of aggregate demand and the resulting increase in real GDP and the price level.

Question 1

2023 Set 2 ■ Q1

1. The economy of Northland is in short-run equilibrium with an actual unemployment rate of 7% and an actual inflation rate of 1%. The natural unemployment rate in Northland is 5%.
 - (a) Using the relevant numerical values given, draw a correctly labeled graph of the short-run and long-run Phillips curves. Label the current short-run equilibrium point as X. Plot the relevant numerical values provided on the graph.
 - (b) Is the expected inflation rate greater than, less than, or equal to 1% ? Explain.
 - (c) Assume the marginal propensity to consume is 0.9.
 - (i) If the government decreases income taxes by \$20 billion, calculate the maximum change in aggregate demand. Show your work.
 - (ii) If instead the government increases spending by \$20 billion, calculate the maximum change in aggregate demand. Show your work.
 - (d) On your graph in part (a), show a possible new short-run equilibrium point labeled Z that would result if the government increases spending and there is no change in inflationary expectations.

Question 1

- (e) How would an increase in unemployment compensation affect aggregate demand in the short run? Explain.
- (f) Assume instead the government takes none of the preceding policy actions. (Northland is still in short-run equilibrium; the actual unemployment rate is 7%, the actual inflation rate is 1%, and the natural unemployment rate is 5%.) What will happen to each of the following in the long run?
- (i) The short-run aggregate supply curve. Explain.
 - (ii) The short-run Phillips curve
 - (iii) The actual unemployment rate

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

Solution 1

(a)

Mark scheme

- Graph with Inflation Rate (%) on the vertical axis and Unemployment Rate (%) on the horizontal axis. Point 1: a downward-sloping short-run Phillips curve (SRPC) is drawn and labeled. Point 2: a vertical long-run Phillips curve (LRPC) is drawn at the natural rate of unemployment (5%), and point X is plotted on the SRPC to the right of the LRPC at the actual unemployment rate (7%) and the actual inflation rate (1%).

Solution 1

(b)

Mark scheme

- The expected inflation rate is greater than 1%. Explanation: the actual unemployment rate (7%) is greater than the natural rate of unemployment (5%) — equivalently, the economy is in a recession/below full employment — which places the economy on the SRPC to the right of the LRPC, a position that occurs only when expected inflation exceeds the actual inflation rate (1%).

Solution 1

(c)(i)

Mark scheme

- Maximum $\Delta AD = -\$20 \text{ billion} \times \frac{-0.9}{1-0.9} = -\$20 \text{ billion} \times (-9) = \180 billion . The tax multiplier is $-\text{MPC}/(1-\text{MPC}) = -9$; a \$20 billion decrease in taxes raises aggregate demand by a maximum of \$180 billion. Full work (multiplier + arithmetic) is required for the point.

Solution 1

(c)(ii)

Mark scheme

- Maximum $\Delta AD = \$20 \text{ billion} \times \frac{1}{1-0.9} = \$20 \text{ billion} \times 10 = \200 billion . The spending multiplier is $1/(1-MPC) = 10$; a \$20 billion increase in government spending raises aggregate demand by a maximum of \$200 billion. Full work (multiplier + arithmetic) is required for the point.

Solution 1

(d)

Mark scheme

- On the same SRPC used in part (a), plot point Z to the left of point X (a lower unemployment rate and a higher inflation rate than X), reflecting the increase in aggregate demand from the expansionary fiscal policy in part (c), with no change in inflationary expectations.

Solution 1

(e)

Mark scheme

- Aggregate demand would increase. Explanation: an increase in unemployment compensation raises households' disposable income, which increases consumption spending — a component of aggregate demand.

Solution 1

(f)(i)

Mark scheme

- The short-run aggregate supply curve will shift to the right. Explanation: as the economy self-corrects from the recessionary gap (actual unemployment $7\% >$ natural rate 5%), input prices (e.g., nominal wages) and/or inflationary expectations decrease, lowering production costs and shifting SRAS rightward.

Solution 1

(f)(ii)

Mark scheme

- The short-run Phillips curve will shift to the left (inward), reflecting the fall in inflationary expectations and/or input prices as the economy self-corrects toward long-run equilibrium.

(f)(iii)

Mark scheme

- The actual unemployment rate will decrease, moving back toward the natural rate of unemployment (5%) as the self-correcting economy returns to long-run equilibrium.

Question 3

2021 Set 2 ■ Q3

The government budget of the country of Geeland is currently balanced. The government budget is composed of tax revenues (T), transfer payments (TR), and government spending (G).

(a)(i) Assume the economy moves into a recession and there is no discretionary policy action.

Will the government budget move into a deficit or a surplus in the short run? Explain using the appropriate components of the government budget identified above.

(a)(ii) Assume the economy moves into a recession and there is no discretionary policy action.

Based on your answer to part (a)(i), what will happen to the government debt?

(b) Based on your answer to part (a)(i), identify one specific fiscal policy action that will balance the budget.

Question 3

(c) How will the fiscal policy action from part (b) affect the actual unemployment rate in the short run? Explain.

(d) Did the government efforts to maintain a balanced budget make Geeland's recession more severe or less severe in the short run? Explain.

Solution 3

(a)(i)

Mark scheme

- The government budget will move into DEFICIT in the short run.
Explanation: during the recession, tax revenues (T) will DECREASE (lower incomes and spending mean less tax collected) while transfer payments (TR) will INCREASE (more unemployment/welfare benefits paid out as automatic stabilizers kick in); both push the budget toward deficit. 1 point for stating deficit AND explaining via T decreasing and TR increasing.

Solution 3

(a)(ii)

Mark scheme

- Government debt will INCREASE, since the government must borrow to finance the budget deficit identified in part (a)(i) — debt is the accumulated stock of past (and current) deficits. 1 point.

Solution 3

(b)

Mark scheme

- Identify one specific fiscal policy action that would balance the budget during the recession: an INCREASE in taxes, or a DECREASE in government spending. 1 point for correctly identifying either action.

Solution 3

(c)

Mark scheme

- The actual unemployment rate will INCREASE in the short run. Explanation: the contractionary fiscal policy from part (b) (a tax increase or spending cut) will DECREASE aggregate demand, which decreases real output — and lower real output is associated with higher (actual) unemployment. 1 point for stating increase AND giving this AD/real-output explanation.

Solution 3

(d)

Mark scheme

- The government's efforts to maintain a balanced budget made Geeland's recession MORE SEVERE in the short run. Explanation: to keep the budget balanced during a recession, the government had to implement contractionary fiscal policy (raise taxes or cut spending), which further decreased aggregate demand (and real output), worsening the downturn instead of letting automatic stabilizers run a deficit. (Equivalently acceptable: explaining that the balanced-budget effort decreased real output/aggregate demand and increased unemployment.) 1 point.