Past-paper walk-through

Public Policy and Economic Growth ▪ 5.7

eXercise

Questions in this set

- 2022 Set 2 Q2
- 2015 Q1

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

2022 Set 2 ▪ Q2

The table below shows macroeconomic data for Country A.

Year	Nominal GDP	GDP Deflator	Population
2020	40,000	100	100
2021	88,000	200	110

Question 2

(a)(i) Calculate each of the following for Country A in year 2021. Show your work.
Real GDP
(a)(ii) Calculate each of the following for Country A in year 2021. Show your work.
Real GDP per capita
(b) Based solely on the data provided, has the standard of living for the average person in Country A increased, decreased, or stayed the same between 2020 and 2021 ? Explain.
(c) How would an increase in government spending on education affect economic growth in Country A? Explain.
(d) Assume that Country A produces consumer goods and capital goods. Draw a correctly labeled production possibilities curve for Country A, and show the effect of the increase in government spending on education on your graph.

Solution 2

(a)(i)

Mark scheme

- Real GDP in 2021 = 44,000. Work: Real GDP = (Nominal GDP ÷ Price Index) × 100 = (88,000 ÷ 200) × 100 = 44,000. 1 point for the correct value (44,000) with work shown. (In the official scoring guidelines this single point is shared with part (a)(ii): both the real GDP and real GDP per capita values are required together for the point.)

Solution 2

(a)(ii)

Mark scheme

- Real GDP per capita in 2021 = 400. Work: Real GDP per Capita = Real GDP ÷ Population = 44,000 ÷ 110 = 400. 1 point for the correct value (400) with work shown. (Shares its official 1 point with part (a)(i); each value is graded here for its own point.)

Solution 2

(b)

Mark scheme

- The standard of living for the average person in Country A has STAYED THE SAME between 2020 and 2021. Explanation: real GDP per capita in Country A did not change from 2020 to 2021 (it remains 400, per the data provided and the value computed in part (a)(ii)) — and real GDP per capita, not nominal GDP or population alone, is the best measure available here of the average person's standard of living. 1 point for stating 'stayed the same' AND explaining via unchanged real GDP per capita.

Solution 2

(c)

Mark scheme

- An increase in government spending on education WILL PROMOTE (increase) economic growth in Country A. Explanation: spending on education increases human capital — the skills, knowledge, and training embodied in workers — which makes the labor force more productive; higher labor productivity increases the economy's potential (long-run) output, i.e., economic growth. 1 point for stating that growth increases AND explaining via human capital and labor productivity.

Solution 2

(d)

Mark scheme

- Draw a correctly labeled production possibilities curve (PPC) graph: axes Capital Goods (vertical) and Consumer Goods (horizontal), with a bowed-out (concave-to-the-origin) curve PPC_1 — 1 point. Second point: show an outward (rightward) shift of the entire curve, from PPC_1 to a new curve PPC_2 lying further from the origin at every point (an arrow from PPC_1 to PPC_2), reflecting the economic growth from the increase in human capital/labor productivity identified in part (c) — 1 point. Total 2 points.

Question 1

2015 ▪ Q1

MACROECONOMICS
Section II
Planning Time—10 minutes
Writing Time—50 minutes

Directions: You have 10 minutes to read all of the questions in this booklet, to sketch graphs, to make notes, and to plan your answers. You will then have 50 minutes to answer all three of the following questions. It is suggested that you spend approximately half your time on the first question and divide the remaining time equally between the next two questions. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. Use a pen with black or dark blue ink.

1. Assume that the United States economy is operating below full employment.

   (a) Draw a correctly labeled graph of long-run aggregate supply, short-run aggregate supply, and aggregate demand, and show each of the following.

Question 1

(i) Current equilibrium output and price level, labeled as Y_1 and PL_1

(ii) Full-employment output, labeled as Y_f

(b) Assume that the Federal Reserve targets a new federal funds rate to reach full employment. Should the Federal Reserve target a higher or lower federal funds rate?

(c) Given the Federal Reserve action you identified in part (b), draw a correctly labeled graph of the money market and show the effect on the nominal interest rate.

(d) The policy makers pursue a fiscal policy rather than the monetary policy in part (b). Assume that the marginal propensity to consume is 0.8 and the value of the recessionary gap is $300 billion.

(i) If the government changes its spending without changing taxes to eliminate the recessionary gap, calculate the minimum required change in government spending.

(ii) If the government changes taxes without changing government spending to eliminate the recessionary gap, will the minimum required change in taxes be greater than, smaller than, or equal to the minimum required change in government spending in part (d)(i) ? Explain.

(e) Assume the government lowers income tax rates to eliminate the recessionary gap. Will each of the following increase, decrease, or stay the same?

Question 1

(i) Aggregate demand. Explain.

(ii) Long-run aggregate supply. Explain.

Solution 1

(a)

Mark scheme

- Setup/instruction for the graph — no separate credit. Draw axes with Price Level (vertical) and Real GDP (horizontal); a downward-sloping AD curve and an upward-sloping SRAS curve. Credit for this graph is earned via parts (a)(i) (initial equilibrium labels Y_1, PL_1) and (a)(ii) (LRAS placement) below.

Solution 1

(a)(i)

Mark scheme

- Label the initial equilibrium — where AD intersects SRAS — as Y_1 on the real-GDP axis and PL_1 on the price-level axis. One point is earned for a correctly labeled graph showing AD, SRAS, Y_1, and PL_1.

Solution 1

(a)(ii)

Mark scheme

- Draw a vertical long-run aggregate supply (LRAS) curve at Y_f, positioned to the right of Y_1 (the economy starts in a recessionary gap, so $Y_1 < Y_f$). One point is earned for drawing a vertical LRAS at Y_f to the right of Y_1.

Solution 1

(b)

Mark scheme

- The Federal Reserve should target a LOWER federal funds rate. A lower target rate is expansionary monetary policy, needed to close the recessionary gap ($Y_1 < Y_f$) and move the economy toward full employment. One point is earned for stating 'lower.'

Solution 1

(c)

Mark scheme

- Draw a correctly labeled money market graph: vertical axis = nominal interest rate, horizontal axis = quantity of money, with a downward-sloping money demand (MD) curve and vertical money supply curves MS_1/MS_2. To lower the federal funds rate, the Fed increases the money supply — shift MS_1 right to MS_2 (from M_1 to M_2), lowering the nominal interest rate from r_1 to r_2. One point for a correctly labeled graph; one point for shifting money supply right and showing the resulting decrease in the nominal interest rate.

Solution 1

(d)

Mark scheme

- Setup only — no separate credit. Given: MPC $= 0.8$ (so MPS $= 0.2$) and a recessionary gap of \$300 billion. These numbers are used in parts (d)(i) and (d)(ii) below.

(d)(i)

Mark scheme

- Spending multiplier $= 1/MPS = 1/0.2 = 5$. Minimum required change in government spending $=$ recessionary gap $\div$ spending multiplier $= \$300$ billion$/5 = \$\mathbf{60}$ billion. One point is earned for this calculation.

Solution 1

(d)(ii)

Mark scheme

- The minimum required change in taxes will be GREATER than the minimum required change in government spending from part (d)(i). Explanation: the tax multiplier $= MPC/MPS = 0.8/0.2 = 4$ is smaller in magnitude than the government-spending multiplier $= 1/MPS = 1/0.2 = 5$, because part of the initial increase in disposable income from a tax cut is saved rather than spent — only the MPC share is spent — so a larger tax cut than spending increase is needed to close the same gap. One point for stating 'greater than'; one point for this multiplier explanation.

Solution 1

(e)

Mark scheme

- Setup only — the government lowers income tax rates to eliminate the recessionary gap; effects on (e)(i) aggregate demand and (e)(ii) long-run aggregate supply are graded separately below.

Solution 1

(e)(i)

Mark scheme

- Aggregate demand will INCREASE. Explanation: lower income tax rates raise households' disposable income, which increases consumption and/or investment, shifting AD to the right. One point is earned for stating AD increases with this explanation.

Solution 1

(e)(ii)

Mark scheme

- Long-run aggregate supply — any ONE of the following earns the point: (1) LRAS stays the SAME, because lowering income taxes raises consumption/investment (demand-side) but does not change the economy's inputs (labor, capital, technology, resources); OR (2) LRAS INCREASES in the long run, because lower taxes raise savings and investment in physical capital, or increase incentives to work; OR (3) LRAS DECREASES in the long run, because lower taxes cause crowding out of private investment. One point is earned for stating and explaining any one of these three positions.