

Chief Reader Report on Student Responses: 2022 AP[®] Macroeconomics Set 2 Free-Response Questions

• Number of Students Scored	134,413		
• Number of Readers	203		
• Score Distribution	Exam Score	N	%At
	5	21,990	16.4
	4	26,860	20.0
	3	20,732	15.4
	2	20,330	15.1
	1	44,501	33.1
• Global Mean	2.71		

The following comments on the 2022 free-response questions for AP[®] Macroeconomics were written by the Chief Reader, Samuel Andoh, Professor of Economics, Southern Connecticut State University. They give an overview of each free-response question and of how students performed on the question, including typical student errors. General comments regarding the skills and content that students frequently have the most problems with are included. Some suggestions for improving student preparation in these areas are also provided. Teachers are encouraged to attend a College Board workshop to learn strategies for improving student performance in specific areas.

Question 1

Task: Graph, Calculate, Assert, Explain

Topic: Output Gap in the AD–AS Model, Fiscal Policy, Money Market, Foreign Exchange Market

Max Score: 10

Mean Score: 4.80

What were the responses to this question expected to demonstrate?

The question examined students' understanding of the aggregate demand–aggregate supply (AD–AS) model in an inflationary gap, the effects of fiscal policy, the money market, and the foreign exchange market. Part (a) required students to draw a correctly labeled graph of aggregate demand, short-run aggregate supply, and long-run aggregate supply and show the current equilibrium and the full-employment output. In part (b) students were asked to show the short-run effect of an increase in government spending on their AD–AS graph. In part (c) students were asked to provide the numerical value of the maximum change in real output and household savings as a result of a given increase in government spending. In part (d) students were asked to draw a correctly labeled graph of the money market and show the effect of the change in real output on the nominal interest rate. In part (e), students were asked what will happen to the price of previously issued bonds as a result of the change in the nominal interest rate. In part (f) students were told that the inflation rate in the United States increases relative to the inflation rate in the European Union and were asked to identify and explain what will happen to the demand for dollars and to identify what will happen to the international value of the dollar. In part (g) students were asked whether the Federal Reserve should buy or sell euros and dollars in order to keep the value of the dollar constant in the foreign exchange market.

How well did the responses address the course content related to this question? How well did the responses integrate the skills required on this question?

Part (a) had two points. Eighty-two percent of students earned the first point by drawing a correctly labeled AD–AS graph showing PL_1 and Y_1 at the intersection of the AD and SRAS curves. Sixty-four percent of the students earned the second point by showing a vertical long-run aggregate supply curve to the left of Y_1 and labeling it Y_F .

In part (b) 68% of students earned the point by showing a shift of the AD curve to the right, resulting in an increase in the price level labeled PL_2 and an increase in real GDP labeled Y_2 .

In part (c) 11% of students earned the point by correctly stating that the maximum increase in real output is \$500 billion and the maximum increase in household savings is \$100 billion.

Part (d) had two points. Fifty-eight percent of students earned the first point by drawing a correctly labeled graph of the money market, and 26% of students earned the second point by showing a rightward shift of the money demand curve, resulting in a higher nominal interest.

In part (e) 50% of students correctly stated that the price of previously issued bonds will decrease.

Part (f) had two points. Seven percent of students earned part (f)(i) by stating that the demand for dollars will decrease and explaining that United States goods are relatively more expensive than European goods as a result of the increase in inflation in the United States. Sixty-seven percent of students earned the point in part (f)(ii) by stating that the dollar will depreciate.

In part (g) 60% of students earned the point by correctly asserting that the Federal Reserve should sell the euro and buy the dollar.

What common student misconceptions or gaps in knowledge were seen in the responses to this question?

<i>Common Misconceptions/Knowledge Gaps</i>	<i>Responses that Demonstrate Understanding</i>
Part (a) <ul style="list-style-type: none"> • Incorrect labeling • Incorrectly positioning the LRAS curve to show the output gap 	<ul style="list-style-type: none"> • Drawing a correctly labeled aggregate demand–aggregate supply graph that shows PL_1 and Y_1 at the intersection of AD and SRAS • Showing a vertical LRAS curve to the left of Y_1 and labeling the full-employment output Y_F
Part (b) <ul style="list-style-type: none"> • Incorrect shift • Missing labels 	<ul style="list-style-type: none"> • Showing the short-run effect of the increase in government spending as a rightward shift of the aggregate demand curve, resulting in a higher equilibrium price level and higher equilibrium real output, labeled PL_2 and Y_2 respectively
Part (c) <ul style="list-style-type: none"> • Incorrect change in household savings 	<ul style="list-style-type: none"> • Stating the maximum increase in real output as \$500 billion and the maximum increase in household savings as \$100 billion
Part (d) <ul style="list-style-type: none"> • Shifting the money supply curve rather than the money demand curve • Incorrect or missing labels 	<ul style="list-style-type: none"> • Drawing a correctly labeled graph of the money market • Showing a rightward shift in the money demand curve, resulting in a higher nominal interest rate
Part (e) <ul style="list-style-type: none"> • Stating that the price of previously issued bonds will increase 	<ul style="list-style-type: none"> • Stating that the price of previously issued bonds will decrease
Part (f) <ul style="list-style-type: none"> • Difficulty with the explanation as to why the dollar will depreciate using the change in relative prices 	<ul style="list-style-type: none"> • Stating that the demand for dollars will decrease and explaining that United States goods are relatively more expensive than European goods as a result of the increase in inflation in the United States • Stating that the dollar will depreciate

<p>Part (g)</p> <ul style="list-style-type: none">• Stating that the Federal Reserve should buy the euro and sell the dollar	<ul style="list-style-type: none">• Stating that the Federal Reserve should sell the euro and buy the dollar
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Based on your experience at the AP[®] Reading with student responses, what advice would you offer teachers to help them improve the student performance on the exam?

When students were asked to make assertions, they earned the point; when the assertion was coupled with an explanation, the point became difficult to earn. Such was the case in part (f)(i). Students could assert that the demand for dollars will decrease but could not explain why; only 7% of students earned the point. Emphasize the complete chain of causation behind any change. This will help in exposing faulty reasoning and enable it to be corrected at an early stage. It also helps students to develop analytical skills.

Highlight that in the money market it is the nominal interest rate that determines the demand for money, and that is what is on the vertical axis, not the real interest rate. It might help to emphasize to students that the opportunity cost of holding money is both the *real interest rate* foregone and the decrease in the value of money as a result of *inflation*, hence the nominal interest rate.

What resources would you recommend to teachers to better prepare their students for the content and skill(s) required on this question?

Sign in to AP Classroom to access AP Daily videos and find questions on the topics and skills addressed in this question. AP teachers can assign the short AP Daily videos as homework, warm-ups, lectures, reviews, and more. AP teachers can also use the AP Question Bank in AP Classroom to enable students to practice and get feedback on formative topic questions and past AP Exam questions. Additional resources are available on the Classroom Resources section of the AP Macroeconomics course page.

Question 2

Task: Calculate, Explain, Graph

Topic: Real GDP, Standard of Living, Fiscal Policy and Economic Growth, PPC

Max Score: 5

Mean Score: 2.57

What were the responses to this question expected to demonstrate?

The question examined students' ability to calculate real GDP and real GDP per capita given macroeconomic data and their understanding of the concepts of standard of living and economic growth. Part (a) required students to calculate real GDP and real GDP per capita. In part (b) students were asked to identify and explain whether the standard of living increased, decreased, or remained the same. In part (c) students were asked to identify and explain how an increase in government spending on education would affect economic growth. Finally, in part (d) students were asked to draw a correctly labeled production possibilities curve and show the effect of the increase in government spending on education on the graph.

How well did the responses address the course content related to this question? How well did the responses integrate the skills required on this question?

In part (a) 41% of students earned the point by correctly calculating real GDP, correctly calculating real GDP per capita, and showing their work.

In part (b) 45% of students earned the point by correctly stating that the standard of living for the average person stayed the same and for explaining that real GDP per capita did not change.

In part (c) 26% of students earned the point by correctly stating that an increase in government spending on education will promote economic growth and explaining that human capital will increase, and the labor force will become more productive.

Part (d) had two points. Eighty-three percent of students earned the first point by correctly drawing a graph of the production possibilities curve, and 67% of students earned the second point by showing an outward shift of the production possibilities curve.

What common student misconceptions or gaps in knowledge were seen in the responses to this question?

<i>Common Misconceptions/Knowledge Gaps</i>	<i>Responses that Demonstrate Understanding</i>
Part (a) <ul style="list-style-type: none"> Setting up the real GDP equation as $\text{NGDP} / \text{GDP Deflator}$, instead of $(\text{NGDP} / \text{GDP Deflator}) \times 100$ 	<ul style="list-style-type: none"> Calculating real GDP as 44,000, calculating real GDP per capita as 400, and showing the work
Part (b) <ul style="list-style-type: none"> Not understanding that real GDP per capita measures the standard of living for the average person 	<ul style="list-style-type: none"> Stating that the standard of living for the average person stayed the same and explaining that real GDP per capita did not change
Part (c) <ul style="list-style-type: none"> Explaining the short-run effect of government spending on aggregate demand and real output rather than explaining the long-run effect of government spending on education by connecting the spending on education with an increase in human capital and an increase in labor productivity in the long run 	<ul style="list-style-type: none"> Stating that an increase in government spending on education will promote economic growth and explaining that human capital will increase, and the labor force will become more productive
Part (d) <ul style="list-style-type: none"> Showing a movement along the PPC curve instead of shifting the curve outwards to show growth 	<ul style="list-style-type: none"> Drawing a correctly labeled PPC graph Showing an outward shift of the production possibilities curve

Based on your experience at the AP[®] Reading with student responses, what advice would you offer teachers to help them improve the student performance on the exam?

Teachers should consider having students practice doing more calculations. Teachers should also spend time emphasizing the factors that drive economic growth in the long run; in this question many students only considered the short-run effects of greater spending on education with no explanation of the gains in human capital and productivity that result in growth in the long run.

What resources would you recommend to teachers to better prepare their students for the content and skill(s) required on this question?

Sign in to AP Classroom to access AP Daily videos and find questions on the topics and skills addressed in this question. AP teachers can assign the short AP Daily videos as homework, warm-ups, lectures, reviews, and more. AP teachers can also use the AP Question Bank in AP Classroom to enable students to practice and get feedback on formative topic questions and past AP Exam questions. Additional resources are available on the Classroom Resources section of the AP Macroeconomics course page.

Question 3

Task: Assert, Graph, Explain

Topic: Government Debt, Fiscal Policy, Loanable Funds Market, and the Effect of Real Interest Rate Changes

Max Score: 5

Mean Score: 2.05

What were the responses to this question expected to demonstrate?

The question examined students' understanding of the impact of fiscal policy on government debt and the loanable funds market, and the resulting short- and long-run effects of a change in the real interest rate. Part (a) required students to identify one specific policy action the government could take to reduce the national debt. In part (b) students were asked to draw a correctly labeled graph of the loanable funds market and show the effect of the fiscal policy action identified in part (a) on the real interest rate. In part (c) students were asked to identify and explain what would happen to aggregate demand in the short run and potential real output as a result of the change in the real interest rate.

How well did the responses address the course content related to this question? How well did the responses integrate the skills required on this question?

In part (a) 77% of students earned the point by correctly stating that the government can increase taxes, decrease spending, or increase transfer payments.

Part (b) had two points. Fifty-seven percent of students earned the first point by drawing a correctly labeled graph of the loanable funds market, and 33% of students earned the second point by showing a rightward shift of the supply of loanable funds curve or a leftward shift of the demand for loanable funds curve, resulting in a decrease in the real interest rate.

Part (c) had two points. Thirty-eight percent of students earned the point in part (c)(i) by correctly stating that aggregate demand will increase and explaining that interest-sensitive spending (consumption, investment, or net exports) will increase. Twelve percent of students earned the point in part (c)(ii) by stating that potential real output will increase and explaining that the decrease in the real interest rate means the cost of borrowing has decreased, which increases investment spending in plant and equipment and increases capital formation.

What common student misconceptions or gaps in knowledge were seen in the responses to this question?

<i>Common Misconceptions/Knowledge Gaps</i>	<i>Responses that Demonstrate Understanding</i>
Part (a) <ul style="list-style-type: none">• Providing a monetary policy action rather than a fiscal policy action	<ul style="list-style-type: none">• Stating that the government can increase taxes, decrease spending, or increase transfer payments

<p>Part (b)</p> <ul style="list-style-type: none"> Confusion between the money market and the loanable funds market as evidenced by improper labeling of the axes: nominal interest rate rather than real interest rate on the vertical axis, “y” on the horizontal axis 	<ul style="list-style-type: none"> Drawing a correctly labeled graph of the loanable funds market Showing a rightward shift of the supply of loanable funds curve or a leftward shift of the demand for loanable funds curve, resulting in a decrease in the real interest rate
<p>Part (c)</p> <ul style="list-style-type: none"> Not providing the reason for the increase in AD as an increase in interest-sensitive spending Not correctly linking the increased investment spending to increased capital accumulation 	<ul style="list-style-type: none"> Stating that aggregate demand will increase and explaining that interest-sensitive spending (consumption, investment, or net exports) will increase Stating that potential real output will increase and explaining that the decrease in the real interest rate means the cost of borrowing has decreased, which increases investment spending in plant and equipment and increases capital formation

Based on your experience at the AP® Reading with student responses, what advice would you offer teachers to help them improve the student performance on the exam?

The most commonly missed point on this question was the point in part (c)(ii) which asked students to identify and explain what will happen to potential real output as a result of a decrease in the real interest rate. Responses often did not make the connection between the increase in investment spending and an increase in capital formation that makes the change in potential real output possible. Emphasize the chain of causation behind any change as in part (c)(ii). This will help in exposing faulty reasoning and enable this misunderstanding to be corrected at an early stage. It also helps students to develop their analytical skills. Also, spend some time emphasizing with students that the cost of money is the nominal interest rate, and the cost of loanable funds is the real interest rate.

What resources would you recommend to teachers to better prepare their students for the content and skill(s) required on this question?

Sign in to AP Classroom to access AP Daily videos and find questions on the topics and skills addressed in this question. AP teachers can assign the short AP Daily videos as homework, warm-ups, lectures, reviews, and more. AP teachers can also use the AP Question Bank in AP Classroom to enable students to practice and get feedback on formative topic questions and past AP Exam questions. Additional resources are available on the Classroom Resources section of the AP Macroeconomics course page.