

# AP Macroeconomics



## UNIT 1: Basic Economic Concepts

### ESSENTIAL QUESTION

### BIG IDEAS

#### Why is choice the basis of economics?

- **MARKETS (MKT)** Competitive markets bring together buyers and sellers to exchange goods and services for mutual gain. The simple model of supply–demand can be applied in different market contexts.
- **MACROECONOMIC MODELS (MOD)** Macroeconomic models are simplified representations that depict basic economic relationships and can be used to predict and explain how those relationships are affected by economic shocks.

### GUIDING QUESTIONS

#### Content (College Board Learning Objective and Essential Knowledge)

- **LO-MOD.1.A.** Define scarcity and economic resources.
  - **EK-MOD.1.A.1.** Individuals and societies are forced to make choices because most resources are scarce.
- **LO-MOD.1.B. (A)** Define (using graphs as appropriate) the PPC and related terms. **(B)** Explain (using graphs as appropriate) how the PPC illustrates opportunity costs, tradeoffs, inefficiency, efficiency, and economic growth or contraction under various conditions. **(C)** Calculate (using data from PPCs or tables as appropriate) opportunity cost.
  - **EK-MOD.1.B.1.** The PPC is a model used to show the tradeoffs associated with allocating resources. **EK-MOD.1.B.2.** The PPC can be used to illustrate the concepts of scarcity, opportunity cost, efficiency, underutilized resources, and economic growth or contraction. **EK-MOD.1.B.3.** The shape of the PPC depends on whether opportunity costs are constant, increasing, or decreasing. **EK-MOD.1.B.4.** The PPC can shift because of changes in factors of production as well as changes in productivity/technology. **EK-MOD.1.B.5.** Economic growth results in an outward shift of the PPC.
- **LO-MKT.1.A. (A)** Define absolute advantage and comparative advantage. **(B)** Determine (using data from PPCs or tables as appropriate) absolute and comparative advantage.
  - **EK-MKT.1.A.1.** Absolute advantage describes a situation in which an individual, business, or country can produce more of a good or service than any other producer with the same quantity of resources. **EK-MKT.1.A.2.** Comparative advantage describes a situation in which an individual, business, or country can produce a good or service at a lower opportunity cost than another producer.
- **LO-MKT.1.B. (A)** Explain (using data from PPCs or tables as appropriate) how specialization according to comparative advantage with appropriate terms of trade can lead to gains from trade. **(B)** Calculate (using data from PPCs or tables as appropriate) mutually beneficial terms of trade.
  - **EK-MKT.1.B.1.** Production specialization according to comparative advantage results in exchange opportunities that lead to consumption opportunities beyond the PPC. **EK-MKT.1.B.2.** Comparative advantage and opportunity costs determine the terms of trade for exchange under which mutually beneficial trade can occur.
- **LO-MKT.2.A. (A)** Define (using graphs as appropriate) the law of demand. **(B)** Explain (using graphs as

- appropriate) the relationship between the price of a good or service and the quantity demanded.
  - **EK-MKT.2.A.1.** The law of demand states there is an inverse relationship between price and quantity demanded, leading to a downward-sloping demand curve.
- **LO-MKT.2.B.** Explain (using graphs as appropriate) the determinants of demand.
  - **EK-MKT.2.B.1.** Factors that influence consumer demand, such as changes in consumer income, cause the market demand curve to shift.
- **LO-MKT.2.C. (A)** Define (using graphs as appropriate) the law of supply. **(B)** Explain (using graphs as appropriate) the relationship between the price of a good or service and the quantity supplied.
  - **EK-MKT.2.C.1.** The law of supply states there is a positive relationship between price and quantity supplied, leading to an upward-sloping supply curve.
- **LO-MKT.2.D.** Explain (using graphs as appropriate) the determinants of supply.
  - **EK-MKT.2.D.1.** Factors that influence producer supply, such as changes in input prices, cause the market supply curve to shift.
- **LO-MKT.2.E.** Define (using graphs as appropriate) market equilibrium.
  - **EK-MKT.2.E.1.** Equilibrium is achieved at the price at which quantities demanded and supplied are equal.
- **LO-MKT.2.F. (A)** Define a surplus and shortage. **(B)** Explain (using graphs as appropriate) how prices adjust to restore equilibrium in markets that are experiencing imbalances. **(C)** Calculate (using graphs as appropriate) the surplus or shortage in the market experience an imbalance.
  - **EK-MKT.2.F.1.** Whenever markets experience imbalances— creating disequilibrium prices, surpluses, and shortages—market forces drive prices toward equilibrium.
- **LO-MKT.2.G.** Explain (using graphs as appropriate) how changes in demand and supply affect equilibrium price and equilibrium quantity.
  - **EK-MKT.2.G.1.** Changes in the determinants of supply and/ or demand result in a new equilibrium price and quantity.

#### Process (College Board Suggested Skills)

- **1.A.** How do I describe economic concepts, principles, or models?
- **1.C.** How do I identify an economic concept, principle, or model using quantitative data or calculations?
- **4.A.** How do I draw an accurately labeled graph or visual to represent an economic model or market?
- **4.C.** How do I demonstrate the effect of a change in an economic situation on an accurately labeled graph or visual?

#### Reflective (Big Idea Questions)

- BIG IDEA 2 - Markets (MKT)
  - Why do people and countries trade with one another?
  - What determines the market price for a good or service?
- BIG IDEA 3 - Macroeconomic Models (MOD)
  - Why is there no such thing as a free lunch?

## FOCUS STANDARDS

#### Kansas History, Government, and Social Studies Standards

- Standard 1: Choices have consequences.
- Standard 2: Individuals have rights and responsibilities.
- Standard 3: Societies are shaped by the identities, beliefs, and practices of individuals and groups.
- Standard 4: Societies experience continuity and change over time.
- Standard 5: Relationships among people, places, ideas, and environments are dynamic.

## DISTRICT-PROVIDED RESOURCES

The resources listed below are district-adopted texts and digital tools aligned to the curriculum. These resources should serve as anchors for unit and lesson design

## KEY LEARNING EXPERIENCES

Key learning experiences are flexible, student-centered activities in which all students will have the opportunity to engage. They support student understanding and serve as models for how to implement the curriculum in meaningful ways.

# AP Macroeconomics

## UNIT 2: Economic Indicators & the Business Cycle



### ESSENTIAL QUESTION

### BIG IDEAS

**How do we best measure the strength of the economy?**

- **ECONOMIC MEASUREMENTS (MEA)** Economists construct measurements to monitor the state of an economy and evaluate its performance over time. Governments, firms, and citizens often use these measurements to help inform policy, business, and personal decisions.

### GUIDING QUESTIONS

#### Content (College Board Learning Objective and Essential Knowledge)

- **LO-MEA.1.A. (A)** Define (using the circular flow diagram as appropriate) how GDP is measured and its components. **(B)** Calculate nominal GDP.
  - **EK-MEA.1.A.1.** GDP is a measure of final output of the economy. **EK-MEA.1.A.2.** GDP as a total flow of income and expenditure can be represented by the circular flow diagram. **EK-MEA.1.A.3.** There are three ways of measuring GDP: the expenditures approach, the income approach, and the value-added approach.
- **LO-MEA.1.B.** Define the limitations of GDP.
  - **EK-MEA.1.B.1.** GDP is a useful indicator of a nation's economic performance, but it has some limitations, such as failing to account for nonmarket transactions.
- **LO-MEA.1.C. (A)** Define the labor force, the unemployment rate, and the labor force participation rate **(B)** Explain how changes in employment and the labor market affect the unemployment rate and the labor force participation rate. **(C)** Calculate the unemployment rate and the labor force participation rate.
  - **EK-MEA.1.C.1.** The unemployment rate is the percentage of the labor force that is out of work. **EK-MEA.1.C.2.** The labor force participation rate is another measure of the labor market activity in an economy. The labor force participation rate is the percentage of the adult population that is in the labor force.
- **LO-MEA.1.D.** Define the limitations of the unemployment rate.
  - **EK-MEA.1.D.1.** The measured unemployment rate is often criticized for understating the level of joblessness because it excludes groups such as discouraged workers and part-time workers.
- **LO-MEA.1.E. (A)** Define the types of unemployment and the natural rate of unemployment. **(B)** Explain changes in the types of unemployment.
  - **EK-MEA.1.E.1.** Economists primarily focus on three types of unemployment: cyclical, frictional, and structural. **EK-MEA.1.E.2.** The natural rate of unemployment is the unemployment rate that would exist when the economy produces full-employment real output. It is equal to the sum of frictional and structural unemployment. **EK-MEA.1.E.3.** The deviation of the actual unemployment rate from the natural rate is cyclical unemployment. **EK-MEA.1.E.4.** The natural rate of unemployment can gradually change over time because of such things as changes in labor force characteristics.
- **LO-MEA.1.F. (A)** Define the consumer price index (CPI), inflation, deflation, disinflation, the inflation rate, and real variables. **(B)** Explain how price indices can be used to calculate the inflation rate and to

compare nominal variables over time periods. **(C)** Calculate the CPI, the inflation rate, and changes in real variables.

- **EK-MEA.1.F.1.** The consumer price index (CPI) measures the change in income a consumer would need in order to maintain the same standard of living over time under a new set of prices as under the original set of prices. **EK-MEA.1.F.2.** The CPI measures the cost of a fixed basket of goods and services in a given year relative to the base year. **EK-MEA.1.F.3.** The inflation rate is determined by calculating the percentage change in a price index, such as CPI or the GDP deflator. **EK-MEA.1.F.4.** Real variables, such as real wages, are the nominal variables deflated by the price level.
- **LO-MEA.1.G.** Define the shortcomings of the CPI as a true measure of inflation.
  - **EK-MEA.1.G.1.** The CPI as a measure of inflation has some shortcomings, such as substitution bias, causing it to overstate the true inflation rate.
- **LO-MEA.1.H.** Explain the costs that unexpected inflation (deflation) imposes on individuals and the economy.
  - **EK-MEA.1.H.1.** Unexpected inflation arbitrarily redistributes wealth from one group of individuals to another group, such as lenders to borrowers.
- **LO-MEA.1.I.** Define nominal GDP and real GDP.
  - **EK-MEA.1.I.1.** Nominal GDP is a measure of how much is spent on output. Real GDP is a measure of how much is produced. **EK-MEA.1.I.2.** Nominal GDP measures aggregate output using current prices. Real GDP measures aggregate output using constant prices, thus removing the effect of changes in the overall price level.
- **LO-MEA.1.J.** Calculate real GDP and the GDP deflator.
  - **EK-MEA.1.J.1.** One way of measuring real GDP is to weigh final goods and services by their prices in a base year. Because this can lead to overstatement of real GDP growth, statistical agencies actually use different methods. **EK-MEA.1.J.2.** Nominal GDP can be converted to real GDP by using the GDP deflator.
- **LO-MEA.2.A. (A)** Define (using graphs and data as appropriate) turning points and phases of the business cycle. **(B)** Explain (using graphs and data as appropriate) turning points and phases of the business cycle.
  - **EK-MEA.2.A.1.** Business cycles are fluctuations in aggregate output and employment because of changes in aggregate supply and/or aggregate demand. **EK-MEA.2.A.2.** The phases of a business cycle are recession and expansion. **EK-MEA.2.A.3.** The turning points of a business cycle are peak and trough. **EK-MEA.2.A.4.** The difference between actual output and potential output is the output gap. **EK-MEA.2.A.5.** Potential output is also called full-employment output. It is the level of GDP where unemployment is equal to the natural rate of unemployment. [See EK MEA-1.E.2]

### Process (College Board Suggested Skills)

- **1.A.** How do I describe economic concepts, principles, or models?
- **1.B.** How do I identify an economic concept, principle, or model illustrated by an example?
- **1.C.** How do I identify an economic concept, principle, or model using quantitative data or calculations?
- **1.D.** How do I describe the similarities, differences, and limitations of economic concepts, principles, or models?
- **2.C.** How do I interpret a specific economic outcome using quantitative data or calculations?
- **3.A.** How do I determine the outcome of an economic situation using economic concepts, principles, or models?

### Reflective (Big Idea Questions)

- BIG IDEA 1 - Economic Measurements (MEA)
  - How is one person's spending another person's income?

- How do we know if an economy is doing well or poorly?

## FOCUS STANDARDS

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# AP Macroeconomics

## UNIT 3: National Income & Price Determination



### ESSENTIAL QUESTION

### BIG IDEAS

How does the aggregate demand-aggregate supply model help me evaluate the macroeconomy?

- **ECONOMIC MEASUREMENTS (MEA)** Economists construct measurements to monitor the state of an economy and evaluate its performance over time. Governments, firms, and citizens often use these measurements to help inform policy, business, and personal decisions.
- **MARKETS (MKT)** Competitive markets bring together buyers and sellers to exchange goods and services for mutual gain. The simple model of supply–demand can be applied in different market contexts.
- **MACROECONOMIC MODELS (MOD)** Macroeconomic models are simplified representations that depict basic economic relationships and can be used to predict and explain how those relationships are affected by economic shocks.
- **MACROECONOMIC POLICIES (POL)** Government taxation and spending policies and central bank monetary policy can affect an economy’s output, price level, and level of employment, both in the short run and in the long run.

### GUIDING QUESTIONS

#### Content (College Board Learning Objective and Essential Knowledge)

- **LO-MOD.2.A. (A)** Define (using graphs as appropriate) the aggregate demand (AD) curve. **(B)** Explain (using graphs as appropriate) the slope of the AD curve and its determinants.
  - **EK-MOD.2.A.1.** The aggregate demand (AD) curve describes the relationship between the price level and the quantity of goods and services demanded by households (consumption), firms (investment), government (government spending), and the rest of the world (net exports). **EK-MOD.2.A.2.** The negative slope of the AD curve is explained by the real wealth effect, the interest rate effect, and the exchange rate effect. [See EK MKT-3.A.1]. **EK-MOD.2.A.3.** Any change in the components of aggregate demand (consumption, investment, government spending, or net exports) that is not due to changes in the price level leads to a shift of the AD curve.
- **LO-MOD.2.B. (A)** Define the expenditure multiplier, the tax multiplier, the marginal propensity to consume, and the marginal propensity to save. **(B)** Explain how changes in spending and taxes lead to changes in real GDP. **(C)** Calculate how changes in spending and taxes lead to changes in real GDP.
  - **EK-MOD.2.B.1.** A \$1 change to autonomous expenditures leads to further changes in total expenditures and total output. **EK-MOD.2.B.2.** The expenditure multiplier quantifies the size of the change in aggregate demand as a result of a change in any of the components of aggregate demand. **EK-MOD.2.B.3.** The tax multiplier quantifies the size of the change in aggregate demand as a result of a change in taxes. **EK-MOD.2.B.4.** The expenditure multiplier and tax multiplier depend on the marginal propensity to consume. **EK-MOD.2.B.5.** The marginal propensity to consume is the change in consumer spending divided by the change in

disposable income. The sum of the marginal propensity to consume and marginal propensity to save is equal to one.

- **LO-MOD.2.C. (A)** Define (using graphs as appropriate) the short-run aggregate supply (SRAS) curve. **(B)** Explain (using graphs as appropriate) the slope of the SRAS curve and its determinants.
  - **EK-MOD.2.C.1.** The short-run aggregate supply (SRAS) curve describes the relationship between the price level and the quantity of goods and services supplied in an economy.
  - **EK-MOD.2.C.2.** The SRAS curve is upward-sloping because of sticky wages and prices. [See EK MOD-2.E.1].
  - **EK-MOD.2.C.3.** Any factor that causes production costs to change, such as a change in inflationary expectations, will cause the SRAS curve to shift.
- **LO-MOD.2.D.** Explain (using graphs as appropriate) how movement along the SRAS curve implies a relationship between the price level (and inflation) and unemployment.
  - **EK-MOD.2.D.1.** Moving along the SRAS curve, an increase in the price level is associated with an increase in output, which means employment must correspondingly rise. With the labor force held constant, unemployment will fall. So, there is a short-run trade-off between inflation and unemployment. [See EK MOD-3.A.1]
- **LO-MOD.2.E.** Define (using graphs as appropriate) the short run and the long run.
  - **EK-MOD.2.E.1.** In the long run all prices and wages are fully flexible, while in the short run some input prices are fixed. A consequence of flexible long-run prices and wages is the lack of a long-run trade-off between inflation and unemployment.
- **LO-MOD.2.F.** Define (using graphs as appropriate) the long-run aggregate supply (LRAS) curve.
  - **EK-MOD.2.F.1.** The LRAS curve corresponds to the production possibilities curve (PPC) because they both represent maximum sustainable capacity. Maximum sustainable capacity is the total output an economic system will produce over a set period of time if all resources are fully employed. [See LO MOD-2.I].
  - **EK-MOD.2.F.2.** The LRAS curve is vertical at the full-employment level of output because in the long run wages and prices fully adjust.
- **LO-MOD.2.G.** Explain (using graphs as appropriate) the short-run and long-run equilibrium price level and output level.
  - **EK-MOD.2.G.1.** Short-run equilibrium occurs when the aggregate quantity of output demanded and the aggregate quantity of output supplied are equal—i.e., at the intersection of the AD and SRAS curves.
  - **EK-MOD.2.G.2.** Long-run equilibrium occurs when the AD and SRAS curves intersect on the LRAS—i.e., at the full-employment level of real output.
  - **EK-MOD.2.G.3.** The short-run equilibrium output can be at the full-employment level of output, above it, or below it, creating positive (i.e., inflationary) or negative (i.e., recessionary) output gaps.
- **LO-MOD.2.H.** Explain (using graphs as appropriate) the response of output, employment, and the price level to an aggregate demand or aggregate supply shock in the short run.
  - **EK-MOD.2.H.1.** A positive (negative) shock in AD causes output, employment, and the price level to rise (fall) in the short run.
  - **EK-MOD.2.H.2.** A positive (negative) shock in SRAS causes output and employment to rise (fall) and the price level to fall (rise) in the short run.
  - **EK-MOD.2.H.3.** Inflation can be caused by changes in aggregate demand (demand-pull) or aggregate supply (cost-push).
- **LO-MOD.2.I.** Explain (using graphs as appropriate) the response of output, employment, and the price level to an aggregate demand or aggregate supply shock in the long run.
  - **EK-MOD.2.I.1.** In the long run, in the absence of government policy actions, flexible wages and prices will adjust to restore full employment and unemployment will revert to its natural rate after a shock to aggregate demand or short-run aggregate supply. [See EK MEA-1.E.2].
  - **EK-MOD.2.I.2.** Shifts in the long-run aggregate supply curve indicate changes in the full-employment level of output and economic growth.
- **LO-POL-1.A. (A)** Define fiscal policy and related terms. **(B)** Explain (using graphs as appropriate) the short-run effects of a fiscal policy action. **(C)** Calculate the short-run effects of a fiscal policy action.
  - **LO-POL-1.A.1.** Governments implement fiscal policies to achieve macroeconomic goals, such as



full employment. **LO-POL-1.A.2.** The tools of fiscal policy are government spending and taxes/transfers. **LO-POL-1.A.3.** Changes in government spending affect aggregate demand directly, and changes in taxes/transfers affect aggregate demand indirectly. **LO-POL-1.A.4.** The government spending multiplier is greater than the tax multiplier. **LO-POL-1.A.5.** Expansionary or contractionary fiscal policies are used to restore full employment when the economy is in a negative (i.e., recessionary) or positive (i.e., inflationary) output gap. **LO-POL-1.A.6.** Fiscal policy can influence aggregate demand, real output, and the price level. [See also EK MKT-5.E.2 for the effect on exchange rates.]. **LO-POL-1.A.7.** The AD–AS model is used to demonstrate the short-run effects of fiscal policy.

- **LO-POL-1.B.** Define why there are lags to discretionary fiscal policy.
  - **LO-POL-1.B.1.** In reality, there are lags to discretionary fiscal policy because of factors such as the time it takes to decide on and implement a policy action.
- **LO-POL-1.C. (A)** Define automatic stabilizers. **(B)** Explain how automatic stabilizers moderate business cycles.
  - **LO-POL-1.C.1.** Automatic stabilizers support the economy during recessions and help prevent the economy from being overheated during expansionary periods. **LO-POL-1.C.2.** Tax revenues decrease automatically as GDP falls, preventing consumption and the economy from falling further. **LO-POL-1.C.3.** Tax revenues increase automatically as GDP rises, slowing consumption and preventing the economy from overheating. **LO-POL-1.C.4.** Government policies, institutions, or agencies may also have social service programs whose transfer payments act as automatic stabilizers.

### Process (College Board Suggested Skills)

- **1.A.** How do I describe economic concepts, principles, or models?
- **2.A.** Using economic concepts, principles, or models, how do I explain how a specific economic outcome occurs or what action should be taken in order to achieve a specific economic outcome?
- **3.A.** How do I determine the outcome of an economic situation using economic concepts, principles, or models?
- **3.C.** How do I determine the effect(s) of a change in an economic situation using quantitative data or calculations?
- **4.A.** How do I draw an accurately labeled graph or visual to represent an economic model or market?
- **4.B.** How do I demonstrate your understanding of a specific economic situation on an accurately labeled graph or visual?
- **4.C.** How do I demonstrate the effect of a change in an economic situation on an accurately labeled graph or visual?

### Reflective (Big Idea Questions)

- BIG IDEA 3 - Macroeconomic Models (MOD)
  - How do spending and production decisions made by households, businesses, the government, and the rest of the world affect an economy?
- BIG IDEA 4 - Macroeconomic Policies (POL)
  - How do policy decisions regarding taxation and government spending affect an economy?

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# AP Macroeconomics

## UNIT 4: Financial Sector



### ESSENTIAL QUESTION

### BIG IDEAS

#### How does monetary policy impact the macroeconomy?

- **ECONOMIC MEASUREMENTS (MEA)** Economists construct measurements to monitor the state of an economy and evaluate its performance over time. Governments, firms, and citizens often use these measurements to help inform policy, business, and personal decisions.
- **MARKETS (MKT)** Competitive markets bring together buyers and sellers to exchange goods and services for mutual gain. The simple model of supply–demand can be applied in different market contexts.
- **MACROECONOMIC POLICIES (POL)** Government taxation and spending policies and central bank monetary policy can affect an economy’s output, price level, and level of employment, both in the short run and in the long run.

### GUIDING QUESTIONS

#### Content (College Board Learning Objective and Essential Knowledge)

- **LO-MEA.3.A. (A)** Define the principal attributes—liquidity, rate of return, and risk— associated with various classes of financial assets, including money. **(B)** Explain the relationship between the price of previously issued bonds and interest rates.
  - **EK-MEA-3.A.1.** The most liquid forms of money are cash and demand deposits. **EK-MEA-3.A.2.** Other financial assets people can hold in place of the most liquid forms of money include bonds (interest-bearing assets) and stocks (equity). **EK-MEA-3.A.3.** The price of previously issued bonds and interest rates on bonds are inversely related. **EK-MEA-3.A.4.** The opportunity cost of holding money is the interest that could have been earned from holding other financial assets such as bonds.
- **LO-MEA.3.B. (A)** Define the nominal and real interest rate. **(B)** Explain the relationship between changes in nominal interest rates, expected inflation, and real interest rates. **(C)** Calculate the nominal and real interest rate.
  - **EK-MEA-3.B.1.** A nominal interest rate is the rate of interest paid for a loan, unadjusted for inflation. **EK-MEA-3.B.2.** Lenders and borrowers establish nominal interest rates as the sum of their expected real interest rate and expected inflation. **EK-MEA-3.B.3.** A real interest rate can be calculated in hindsight by subtracting the actual inflation rate from the nominal interest rate.
- **LO-MEA.3.C. (A)** Define money and its functions. **(B)** Calculate (using data as appropriate) measures of money
  - **EK-MEA-3.C.1.** Money is any asset that is accepted as a means of payment. **EK-MEA-3.C.2.** Money serves as a medium of exchange, unit of account, and store of value. **EK-MEA-3.C.3.** The money supply is measured using monetary aggregates designated as M1 and M2. **EK-MEA-3.C.4.** The monetary base (often labeled as M0 or MB) includes currency in circulation and bank reserves.
- **LO-POL.2.A. (A)** Define key terms related to the banking system and the expansion of the money

supply. **(B)** Explain how the banking system creates and expands the money supply. **(C)** Calculate (using data and balance sheets as appropriate) the effects of changes in the banking system.

- **EK-POL.2.A.1.** Depository institutions (such as commercial banks) organize their assets and liabilities on balance sheets. **EK-POL.2.A.2.** Depository institutions operate using fractional reserve banking. **EK-POL.2.A.3.** Banks' reserves are divided into required reserves and excess reserves. **EK-POL.2.A.4.** Excess reserves are the basis of expansion of the money supply by the banking system. **EK-POL.2.A.5.** The money multiplier is the ratio of the money supply to the monetary base. **EK-POL.2.A.6.** The size of expansion of the money supply depends on the money multiplier. **EK-POL.2.A.7.** The maximum value of the money multiplier can be calculated as the reciprocal of the required reserve ratio. **EK-POL.2.A.8.** The amount predicted by the simple money multiplier may be overstated because it does not take into account a bank's desire to hold excess reserves or the public holding more currency.
- **LO-MKT.3.A. (A)** Define (using graphs as appropriate) the money market, money demand, and money supply. **(B)** Explain (using graphs as appropriate) the relationship between the nominal interest rate and the quantity of money demanded (supplied).
  - **EK-MKT.3.A.1.** The demand for money shows the inverse relationship between the nominal interest rate and the quantity of money people want to hold. **EK-MKT.3.A.2.** Given a monetary base determined by a country's central bank, money supply is independent of the nominal interest rate.
- **LO-MKT.3.B.** Define (using graphs as appropriate) equilibrium in the money market.
  - **EK-MKT.3.B.1.** In the money market, equilibrium is achieved when the nominal interest rate is such that the quantities demanded and supplied of money are equal.
- **LO-MKT.3.C.** Explain (using graphs as appropriate) how nominal interest rates adjust to restore equilibrium in the money market.
  - **EK-MKT.3.C.1.** Disequilibrium nominal interest rates create surpluses and shortages in the money market. Market forces drive nominal interest rates toward equilibrium.
- **LO-MKT.3.D. (A)** Explain (using graphs as appropriate) the determinants of demand and supply in the money market. **(B)** Explain (using graphs as appropriate) how changes in demand and supply in the money market affect the equilibrium nominal interest rate.
  - **EK-MKT.3.D.1.** Factors that shift the demand for money, such as changes in the price level, and supply of money, such as monetary policy, change the equilibrium nominal interest rate.
- **LO-POL.1.D. (A)** Define monetary policy and related terms. **(B)** Explain (using graphs as appropriate) the shortrun effects of a monetary policy action. **(C)** Calculate (using data and balance sheets as appropriate) the effects of a monetary policy action.
  - **EK-POL.1.D.1.** Central banks implement monetary policies to achieve macroeconomic goals, such as price stability. **EK-POL.1.D.2.** The tools of monetary policy may include the central bank's discount rate and other administered interest rates (e.g., interest on reserves), open market operations, and the required reserve ratio. The tools used and the way in which they are implemented differ between economies that have limited reserves in their banking system and economies that have ample reserves in their banking system. (The banking system in the United States has ample reserves, and the Federal Reserve's key policy tool is interest on reserves.) **EK-POL.1.D.3.** When the central bank conducts an openmarket purchase (sale), reserves increase (decrease), thereby increasing (decreasing) the monetary base. **EK-POL.1.D.4.** When the central bank conducts an openmarket purchase (sale) in an economy with limited reserves, the effect on the money supply is greater than the effect on the monetary base because of the money multiplier. **EK-POL.1.D.5.** Many central banks carry out policy to hit a target range for an overnight interbank lending rate, sometimes referred to as the central bank's policy rate. (In the United States, this is the federal funds rate.) **EK-POL.1.D.6.** Central banks can influence the nominal interest rate in the short run, which in turn will affect investment and consumption. [See also EK MKT-5.G.2 for the influence on net capital inflows.]

In an economy with limited reserves, the central bank can influence the nominal interest rate by changing the money supply. In an economy with ample reserves, changes in the money supply do not effectively change the nominal interest rate; instead, the central bank can influence the nominal interest rate by changing its administered interest rates. **EK-POL.1.D.7.** Expansionary or contractionary monetary policies are used to restore full employment when the economy is in a negative (i.e., recessionary) or positive (i.e., inflationary) output gap. **EK-POL.1.D.8.** Monetary policy can influence interest rates, aggregate demand, real output, and the price level. [See also EK MKT-5.E.3 for the effect on exchange rates.]. **EK-POL.1.D.9.** A money market model, a reserve market model, and/or the AD–AS model may be used to demonstrate the short-run effects of monetary policy.

- **LO-POL.1.E.** Define why there are lags to monetary policy.
  - **EK-POL.1.E.1.** In reality, there are lags to monetary policy caused by the time it takes to recognize a problem in the economy and the time it takes the economy to adjust to the policy action.
- **LO-MKT.4.A. (A)** Define (using graphs as appropriate) the loanable funds market, demand for loanable funds, and supply of loanable funds. **(B)** Explain (using graphs as appropriate) the relationship between the real interest rate and the quantity of loanable funds demanded (supplied).
  - **EK-MKT.4.A.1.** The loanable funds market describes the behavior of savers and borrowers
  - **EK-MKT.4.A.2.** The demand for loanable funds shows the inverse relationship between real interest rates and the quantity demanded of loanable funds. **EK-MKT.4.A.3.** The supply of loanable funds shows the positive relationship between real interest rates and the quantity supplied of loanable funds.
- **LO-MKT.4.B.** Define national savings in both a closed and an open economy.
  - **EK-MKT.4.B.1.** In the absence of international borrowing and lending, national savings is the sum of public savings and private savings.
  - **EK-MKT.4.B.2.** For an open economy, investment equals national savings plus net capital inflow.
- **LO-MKT.4.C.** Define (using graphs as appropriate) equilibrium in the loanable funds market.
  - **EK-MKT.4.C.1.** In the loanable funds market, equilibrium is achieved when the real interest rate is such that the quantities demanded and supplied of loanable funds are equal.
- **LO-MKT.4.D.** Explain (using graphs as appropriate) how real interest rates adjust to restore equilibrium in the loanable funds market.
  - **EK-MKT.4.D.1.** Disequilibrium real interest rates create surpluses and shortages in the loanable funds market. Market forces drive real interest rates toward equilibrium.
- **LO-MKT.4.E. (A)** Explain (using graphs as appropriate) the determinants of demand and supply in the loanable funds market. **(B)** Explain (using graphs as appropriate) how changes in demand and supply in the loanable funds market affect the equilibrium real interest rate and equilibrium quantity of loanable funds.
  - **EK-MKT.4.E.1.** The loanable funds market can be used to show the effects of government spending, taxes, and borrowing on interest rates.
  - **EK-MKT.4.E.2.** Factors that shift the demand (such as an investment tax credit) and supply (such as changes in saving behavior) of loanable funds change the equilibrium interest rate and the equilibrium quantity of funds.

### Process (College Board Suggested Skills)

- **1.A.** How do I describe economic concepts, principles, or models?
- **1.B.** How do I identify an economic concept, principle, or model illustrated by an example.
- **1.D.** How do I describe the similarities, differences, and limitations of economic concepts, principles, or models?
- **2.A.** Using economic concepts, principles, or models, how do I explain how a specific economic

- outcome occurs or what action should be taken in order to achieve a specific economic outcome?
- **3.C.** How do I determine the effect(s) of a change in an economic situation using quantitative data or calculations?
  - **4.A.** How do I draw an accurately labeled graph or visual to represent an economic model or market?
  - **4.C.** How do I demonstrate the effect of a change in an economic situation on an accurately labeled graph or visual?

### **Reflective (Big Idea Questions)**

- BIG IDEA 1 - Economic Measurements (MEA)
  - What is money?
- BIG IDEA 2 - Markets (MKT)
  - How is the price of money determined?
- BIG IDEA 4 - Macroeconomic Policies (POL)
  - How do banks create money?
  - How do the actions of a country's central bank affect financial decision making and the economy?

## **FOCUS STANDARDS**

### **Kansas History, Government, and Social Studies Standards**

- Standard 1: Choices have consequences.
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- Standard 4: Societies experience continuity and change over time.
- Standard 5: Relationships among people, places, ideas, and environments are dynamic.

## **DISTRICT-PROVIDED RESOURCES**

The resources listed below are district-adopted texts and digital tools aligned to the curriculum. These resources should serve as anchors for unit and lesson design

## **KEY LEARNING EXPERIENCES**

Key learning experiences are flexible, student-centered activities in which all students will have the opportunity to engage. They support student understanding and serve as models for how to implement the curriculum in meaningful ways.

# AP Macroeconomics



## UNIT 5: Long-Run Consequences of Stabilization Policies

### ESSENTIAL QUESTION

### BIG IDEAS

**What are the long run implications of policy actions?**

- **ECONOMIC MEASUREMENTS (MEA)** Economists construct measurements to monitor the state of an economy and evaluate its performance over time. Governments, firms, and citizens often use these measurements to help inform policy, business, and personal decisions.
- **MACROECONOMIC MODELS (MOD)** Macroeconomic models are simplified representations that depict basic economic relationships and can be used to predict and explain how those relationships are affected by economic shocks.
- **MACROECONOMIC POLICIES (POL)** Government taxation and spending policies and central bank monetary policy can affect an economy's output, price level, and level of employment, both in the short run and in the long run.

### GUIDING QUESTIONS

#### Content (College Board Learning Objective and Essential Knowledge)

- **LO-POL.1.F.** Explain (using graphs as appropriate) the effects of combined fiscal and monetary policy actions.
  - **EK-POL.1.F.1.** A combination of expansionary or contractionary fiscal and monetary policies may be used to restore full employment when the economy is in a negative (i.e., recessionary) or positive (i.e., inflationary) output gap. **EK-POL.1.F.2.** A combination of fiscal and monetary policies can influence aggregate demand, real output, the price level, and interest rates. [For additional details on fiscal and monetary policy actions and how to demonstrate their effects graphically, see LO POL-1.A and LO POL-1.D.]
- **LO-MOD.3.A. (A)** Define (using graphs as appropriate) the short-run Phillips curve and the long-run Phillips curve. **(B)** Explain (using graphs as appropriate) short-run and long-run equilibrium in the Phillips curve model.
  - **EK-MOD.3.A.1.** The short-run trade-off between inflation and unemployment can be illustrated by the downward-sloping short-run Phillips curve (SRPC). **EK-MOD.3.A.2.** An economy is always operating somewhere along the SRPC. **EK-MOD.3.A.3.** The long-run relationship between inflation and unemployment can be illustrated by the long-run Phillips curve (LRPC), which is vertical at the natural rate of unemployment. **EK-MOD.3.A.4.** Long-run equilibrium corresponds to the intersection of the SRPC and the LRPC. **EK-MOD.3.A.5.** Points to the left of long-run equilibrium represent inflationary gaps, while points to the right of long-run equilibrium represent recessionary gaps.
- **LO-MOD.3.B.** Explain (using graphs as appropriate) the response of unemployment and inflation in the short run and in the long run.
  - **EK-MOD.3.B.1.** Demand shocks correspond to movement along the SRPC. **EK-MOD.3.B.2.** Supply shocks correspond to shifts of the SRPC. **EK-MOD.3.B.3.** Factors that cause the natural rate of unemployment to change will cause the LRPC to shift.

- **LO-POL.3.A. (A)** Explain (using graphs as appropriate) how inflation is a monetary phenomenon. **(B)** Define the quantity theory of money. **(C)** Calculate the money supply, velocity, the price level, and real output using the quantity theory of money
  - **EK-POL.3.A.1.** Inflation (deflation) results from increasing (decreasing) the money supply at too rapid of a rate for a sustained period of time. **EK-POL.3.A.2.** When the economy is at full employment, changes in the money supply have no effect on real output in the long run. **EK-POL.3.A.3.** In the long run, the growth rate of the money supply determines the growth rate of the price level (inflation rate) according to the quantity theory of money.
- **LO-POL.3.B. (A)** Define the government budget surplus (deficit) and national debt. **(B)** Explain the issues involved with the burden of the national debt.
  - **EK-POL.3.B.1.** The government budget surplus (deficit) is the difference between tax revenues and government purchases plus transfer payments in a given year. **EK-POL.3.B.2.** A government adds to the national debt when it runs a budget deficit. **EK-POL.3.B.3.** A government must pay interest on its accumulated debt, thus increasing the national debt and increasingly forgoing using those funds for alternative uses. [See also LO POL-3.C on crowding out.]
- **LO-POL.3.C. (A)** Define crowding out. **(B)** Explain (using graphs as appropriate) how fiscal policy may cause crowding out.
  - **EK-POL.3.C.1.** When a government is in budget deficit, it typically borrows to finance its spending. **EK-POL.3.C.2.** A loanable funds market model can be used to show the effect of government borrowing on the equilibrium real interest rate and the resulting crowding out of private investment. [See MKT-4]. **EK-POL.3.C.3.** Crowding out refers to the adverse effect of increased government borrowing, which leads to decreased levels of interest-sensitive private sector spending in the short run. **EK-POL.3.C.4.** A potential long-run impact of crowding out is a lower rate of physical capital accumulation and less economic growth as a result.
- **LO-MEA.2.B. (A)** Define measures and determinants of economic growth. **(B)** Explain (using graphs and data as appropriate) the determinants of economic growth. **(C)** Calculate (using graphs and data as appropriate) per capita GDP and economic growth.
  - **EK-MEA.2.B.1.** Economic growth can be measured as the growth rate in real GDP per capita over time. **EK-MEA.2.B.2.** Aggregate employment and aggregate output are directly related because firms need to employ more workers in order to produce more output, holding other factors constant. This is captured by the aggregate production function. **EK-MEA.2.B.3.** Output per employed worker is a measure of average labor productivity. **EK-MEA.2.B.4.** Productivity is determined by the level of technology and physical and human capital per worker. **EK-MEA.2.B.5.** The aggregate production function shows that output per capita is positively related to both physical and human capital per capita.
- **LO-MOD.1.C.** Explain (using graphs as appropriate) how the PPC is related to the long-run aggregate supply (LRAS) curve.
  - **EK-MOD.1.C.1.** An outward shift in the PPC is analogous to a rightward shift of the long-run aggregate supply curve. [See LO MOD-2.].
- **LO-POL.4.A. (A)** Explain (using graphs as appropriate) public policies aimed at influencing long-run economic growth. **(B)** Define supply-side fiscal policies.
  - **EK-POL.4.A.1.** Public policies that impact productivity and labor force participation affect real GDP per capita and economic growth. **EK-POL.4.A.2.** Government policies that invest in infrastructure and technology affect growth. **EK-POL.4.A.3.** Supply-side fiscal policies affect aggregate demand, aggregate supply, and potential output in the short run and long run by influencing incentives that affect household and business economic behavior.

### Process (College Board Suggested Skills)

- **2.A.** Using economic concepts, principles, or models, how do I explain how a specific economic



- outcome occurs or what action should be taken in order to achieve a specific economic outcome?
- **2.B.** Using economic concepts, principles, or models, how do I explain how a specific economic outcome occurs when there are multiple contributing variables or what multiple actions should be taken in order to achieve a specific economic outcome?
  - **3.A.** How do I determine the outcome of an economic situation using economic concepts, principles, or models?
  - **3.B.** How do I determine the effect(s) of one or more changes on other economic markets?
  - **4.B.** How do I demonstrate your understanding of a specific economic situation on an accurately labeled graph or visual?

### **Reflective (Big Idea Questions)**

- BIG IDEA 1 - Economic Measurements (MEA)
  - How does an economy grow?
- BIG IDEA 3 - Macroeconomic Models (MOD)
  - What is the relationship between inflation and unemployment?
- BIG IDEA 4 - Macroeconomic Policies (POL)
  - How do monetary and fiscal policies affect the economy in the long run?

## **FOCUS STANDARDS**

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- Standard 5: Relationships among people, places, ideas, and environments are dynamic.

## **DISTRICT-PROVIDED RESOURCES**

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## **KEY LEARNING EXPERIENCES**

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# AP Macroeconomics

## UNIT 6: Open Economy - International Trade & Finance



### ESSENTIAL QUESTION

### BIG IDEAS

#### What is an open economy?

- **ECONOMIC MEASUREMENTS (MEA)** Economists construct measurements to monitor the state of an economy and evaluate its performance over time. Governments, firms, and citizens often use these measurements to help inform policy, business, and personal decisions.
- **MARKETS (MKT)** Competitive markets bring together buyers and sellers to exchange goods and services for mutual gain. The simple model of supply–demand can be applied in different market contexts.

### GUIDING QUESTIONS

#### Content (College Board Learning Objective and Essential Knowledge)

- **LO-MEA.4.A. (A)** Define the current account (CA), the capital and financial account (CFA), and the balance of payments (BOP). **(B)** Explain how changes in the components of the CA and CFA affect a country's BOP. **(C)** Calculate the CA, the CFA, and the BOP.
  - **EK-MEA.4.A.1.** The current account (CA) records net exports, net income from abroad, and net unilateral transfers. **EK-MEA.4.A.2.** The CA is not always balanced; it may show a surplus or a deficit. A nation's balance of trade (i.e., net exports) is part of the current account and may also show a surplus or a deficit. **EK-MEA.4.A.3.** The capital and financial account (CFA) records financial capital transfers and purchases and sales of assets between countries. **EK-MEA.4.A.4.** The CFA is not always balanced; it may show a surplus (financial capital inflow) or a deficit (financial capital outflow). **EK-MEA.4.A.5.** The balance of payments (BOP) is an accounting system that records a country's international transactions for a particular time period. It consists of the CA and the CFA. **EK-MEA.4.A.6.** Any transaction that causes money to flow into a country is a credit to its BOP account, and any transaction that causes money to flow out is a debit. The sum of all credit entries should match the sum of all debit entries ( $CA+CFA=0$ ).
- **LO-MKT.5.A. (A)** Define the exchange rate, currency appreciation, and currency depreciation. **(B)** Explain how currencies are valued relative to one another. **(C)** Calculate the value of one currency relative to another.
  - **EK-MKT.5.A.1.** In the foreign exchange market, one currency is exchanged for another; the price of one currency in terms of the other is the exchange rate. **EK-MKT.5.A.2.** If one currency becomes more valuable in terms of the other, it is said to appreciate. If one currency becomes less valuable in terms of the other, it is said to depreciate.
- **LO-MKT.5.B. (A)** Define the foreign exchange market, demand for currency, and supply of currency. **(B)** Explain (using graphs as appropriate) the relationship between the exchange rate and the quantity of currency demanded (supplied).
  - **EK-MKT.5.B.1.** The demand for a currency in a foreign exchange market arises from the demand for the country's goods, services, and financial assets and shows the inverse relationship between the exchange rate and the quantity demanded of a currency. **EK-MKT.5.B.2.** The supply of a currency in a foreign exchange market arises from making

payments in other currencies and shows the positive relationship between the exchange rate and the quantity supplied of a currency.

- **LO-MKT.5.C.** Define (using graphs as appropriate) the equilibrium exchange rate.
  - **EK-MKT.5.C.1.** In the foreign exchange market, equilibrium is achieved when the exchange rate is such that the quantities demanded and supplied of the currency are equal.
- **LO-MKT.5.D.** Explain (using graphs as appropriate) how exchange rates adjust to restore equilibrium in the foreign exchange market.
  - **EK-MKT.5.D.1.** Disequilibrium exchange rates create surpluses and shortages in the foreign exchange market. Market forces drive exchange rates toward equilibrium.
- **LO-MKT.5.E. (A)** Explain (using graphs as appropriate) the determinants of currency demand and supply. **(B)** Explain (using graphs as appropriate) how changes in demand and supply in the foreign exchange market affect the equilibrium exchange rate.
  - **EK-MKT.5.E.1.** Factors that shift the demand for a currency (such as the demand for that country's goods, services, or assets) and the supply of a currency (such as tariffs or quotas on the other country's goods and services) change the equilibrium exchange rate. **EK-MKT.5.E.2.** Fiscal policy can influence aggregate demand, real output, the price level, and exchange rates. **EK-MKT.5.E.3.** Monetary policy can influence aggregate demand, real output, the price level, and interest rates, and thereby affect exchange rates.
- **LO-MKT.5.F.** Explain (using graphs as appropriate) how changes in the value of a currency can lead to changes in a country's net exports and aggregate demand.
  - **EK-MKT.5.F.1.** Factors that cause a currency to appreciate cause that country's exports to decrease and its imports to increase. As a result, net exports will decrease. **EK-MKT.5.F.2.** Factors that cause a currency to depreciate cause that country's exports to increase and its imports to decrease. As a result, net exports will increase. [See EK MOD-2.A.3 and EK MOD-2.H.1 for explanations of the effect of changes in net exports on aggregate demand and the resulting effects on output, employment, and the price level.]
- **LO-MKT.5.G.** Explain (using graphs as appropriate) how differences in real interest rates across countries affect financial capital flows, foreign exchange markets, and loanable funds markets.
  - **EK-MKT.5.G.1.** In an open economy, differences in real interest rates across countries change the relative values of domestic and foreign assets. Financial capital will flow toward the country with the relatively higher interest rate. [See EK MKT-4.E.2 and EK MEA-4.A.6 for explanations of the impact on the loanable funds market and on net exports.]. **EK-MKT.5.G.2.** Central banks can influence the domestic interest rate in the short run, which in turn will affect net capital inflows.

### Process (College Board Suggested Skills)

- **1.A.** How do I describe economic concepts, principles, or models?
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- **3.A.** How do I determine the outcome of an economic situation using economic concepts, principles, or models?
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- **4.C.** How do I demonstrate the effect of a change in an economic situation on an accurately labeled graph or visual?

### Reflective (Big Idea Questions)

- BIG IDEA 1 - Economic Measurements (MEA)
  - Why does the balance of payments balance?
- BIG IDEA 2 - Markets (MKT)
  - Why does the price of one nation's currency relative to another nation's currency change?

- How do changes in the value of a country's currency affect that country's economy?

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