

ECO 120: Global Macroeconomics
Homework Practice Problems
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1 Economics, Scarcity, and Production Possibilities

1. What is meant in economics by *scarcity*? Describe something that may be described as not scarce using a common definition of scarcity, but is scarce according to the precise use of the term in economics.
2. Consider the precise definition of economics. Describe whether the following are economic decisions. Describe why or why not.
 - (a) Whether to use a pool of tax dollars to purchase food, clothing, and shelter for those in poverty or to fund business subsidies to encourage increases in production and employment.
 - (b) Whether you should blow your last paycheck on new running shoes or save it for spending during Oktoberfest.
 - (c) What you plan to do this afternoon after classes are done.
 - (d) How much water you plan to drink today.
 - (e) How much of our government's resources should be dedicated to improving air quality.
 - (f) How much clean air you plan on inhaling today.
3. Suppose you win free tickets to a FurLow Riders concert, with back stage passes to meet the band. Is there a cost to attend this event? Describe.
4. Suppose an economy produces two kinds of services, manufactured goods and services, and suppose the law of increasing opportunity costs holds.
 - (a) Draw a production possibilities frontier for this economy.
 - (b) What aspect of the shape illustrates that there is a trade-off to producing more of one of the goods?
 - (c) What aspect of the shape illustrates that there are increasing opportunity costs?
 - (d) Suppose there is an improvement in communication technology that increases labor productivity for both manufactured goods and services. Describe and illustrate the impact on the production possibilities frontier.
 - (e) Suppose there is an improvement in technology for producing manufactured goods. Describe and illustrate the impact on the production possibilities frontier.
 - (f) Suppose poor coordination among economic agents results in unemployment in the manufacturing industry. Describe and illustrate the impact on the production possibilities frontier.
5. Suppose a farmer can produce the following quantities (in bushels) of corn and soybeans:

	A	B	C	D	E	F
Corn	0	5	10	15	20	25
Soybeans	100	90	75	55	30	0

- (a) Compute the marginal opportunity cost for corn for each increase in corn production.
- (b) Compute the marginal opportunity cost for soybeans for each increase in soybean production.
- (c) Is there increasing opportunity costs for corn production? Why or why not?
- (d) Is there increasing opportunity costs for soybean production? Why or why not?

2 Supply and Demand

1. In Summer 2015, Brett Favre was inducted into the Green Bay Packers Hall of Fame. Describe and illustrate the likely impact on the market for Brett Favre autographed memorabilia during this time.
2. Trade negotiations of several countries with Iran is likely to result in an increase in oil production and trade with Iran. Describe and illustrate the impact on the international market for crude oil.
3. People have a higher preference and greater ability to travel for personal vacations during the summer time. Describe and illustrate the impact on the market for hotel accommodations.
4. The price of LCD televisions has fallen since 2010 while the quantity sold increased. Describe what likely caused this to happen, and illustrate the impact on the market for LCD televisions.
5. A 2005 study published in *Health Economics* revealed that stricter policies at colleges and universities against alcohol consumption not only leads to a decrease in alcohol consumption by students, but also a decrease in marijuana usage by students.
 - (a) On the basis of this information, are alcohol and marijuana substitutes or complements?
 - (b) Describe and illustrate the impact that stricter rules and enforcement of alcohol use may have on the local market for marijuana.
6. Farmers in Wisconsin enjoyed one of the best growing climates in summer 2015. Describe and illustrate the impact on the market for locally grown vegetables.
7. Suppose foreign governments give automobile manufacturers tax and subsidy incentives to increase production of automobiles, many of which are exported to the United States and elsewhere in the world. Suppose at the same time there is an increase in average incomes in the United States. Describe and illustrate the impact on the automobile market in the United States.
8. Suppose there is a recent discovery of previously unseen paintings weirdly-shaped people by Pablo Picasso. The discovery leads an increase in the availability of Picasso originals, and also leads to a new excitement by art lovers to purchase Picasso's work. Describe and illustrate the impact on the market for Picasso's paintings.

3 Foreign Exchange Markets

1. On August 4, 2015, the U.S. Dollar / Mexican Peso exchange rate was $1 \text{ USD} = 16.30 \text{ MXN}$.
 - (a) Suppose a Mexican person is bidding 30 USD on an item on Ebay. What will be the price in Mexican pesos?
 - (b) Suppose a U.S. person is traveling in Cancun, Mexico, and hotel room costs 350 MXN. What is the cost in U.S. dollars?
 - (c) On July 5, 2015, the U.S. Dollar / Mexican Peso exchange rate was $1 \text{ USD} = 15.79 \text{ MXN}$. From July 2015 to August 2015, did the U.S. Dollar appreciate or depreciate against the Mexican Peso? Did the Mexican Peso appreciate or depreciate against the U.S. Dollar?
2. Suppose the People's Bank of China, China's central bank, increases the supply of Chinese Yuan to stimulate the Chinese economy, which leaves Chinese people and companies with more Yuan to make purchases and loans. Describe and illustrate the impact on the exchange rate between the U.S. Dollar (USD) (the U.S. is a major trading partner with China) and the Chinese Yuan (CNY).
3. Suppose there is an increase in interest rates in the United States, but no change in interest rates in countries that are members of the European Monetary Union. Describe and illustrate the impact on the U.S. Dollar / Euro exchange rate.
4. Suppose there is new international trade agreement that reduces trade restrictions between the United States and Australia, and that this primarily results in an increase in demand among Americans for Australian produced goods. Describe and illustrate the impact on the exchange rate between U.S. Dollars (USD) and Australian Dollars (AUD).

5. Suppose currency traders expect that there will be an appreciation of the U.S. dollar (USD) against the Japanese Yen (JPY). Describe and illustrate the immediate impact this can have on the exchange rate between U.S. Dollars and Japanese Yen.
6. China and Japan are major trading partners. Suppose that Chinese stocks and bonds have fallen in value and are expected to continue doing so. Describe and illustrate the impact on the exchange rate between Japanese Yen (JPY) and the Chinese Yuan (CNY).

4 Measuring Output, Employment, and Inflation

1. Explain whether the value of each transaction is explicitly counted when computing Gross Domestic Product:
 - (a) The purchase of wheat from grain distributor by a bakery.
 - (b) The purchase of an aircraft carrier by the federal government.
 - (c) The purchase of an air plane by Delta Airlines.
 - (d) The purchase of steel by Boeing to produce air planes.
 - (e) The purchase of paper by a paper distribution company.
 - (f) The purchase of paper by a student that is back-to-school shopping.
 - (g) The purchase of stock in Apple by a financial firm.
 - (h) The purchase of stock in Apple by an individual investor.
 - (i) The purchase of an automobile by an individual consumer.
 - (j) An automobile loan taken by an individual consumer through a local bank.
2. Why is nominal GDP a poor measure for total production when comparing one year to another? What is a better measure? Why?
3. Suppose the following represents production and prices of an economy that produces only textbooks and hamburgers:

	2014 Statistics		2015 Statistics	
	Price	Quantity	Price	Quantity
Textbooks	\$150	8	\$155	9
Hamburgers	\$4.50	900	\$5.00	950

- (a) Compute nominal GDP for 2014 and 2015.
 - (b) Use 2015 as a base year and compute real GDP for 2014 and 2015.
 - (c) Use 2015 as a base year and compute the price level for 2014 and 2015 using the GDP deflator.
 - (d) Use 2015 as a base year and compute the growth rate of production from 2014 to 2015.
 - (e) What is the rate of inflation from 2014 to 2015 using the GDP deflator?
 - (f) Suppose you earned \$10 / hour in 2014 flipping burgers at a fast food restaurant. You were given a raise to \$10.70 / hour in 2015. Compute the real wage in each year using the GDP deflator. In which year did you earn more in terms of purchasing power?
 - (g) Use 2015 as a base year and compute the price level for 2014 and 2015 using the Consumer Price Index with weights 30% for textbooks and 70% for hamburgers.
 - (h) What is the rate of inflation using the Consumer Price Index?
4. Fill in the table below.

Employment Statistic	June 2014	June 2015
Working-age population (in thousands)	247,814	250,663
Total Labor Force (in thousands)	155,700	
Total Employment (in thousands)	146,247	
Total Unemployed (in thousands)		
Unemployment Rate		5.3%
Labor Force Participation Rate		62.6%

5. For each person below, describe whether they are unemployed or not in the labor force.
 - (a) Albert was laid off from his clerical job and has begun to apply for new jobs.
 - (b) Betty was fired for stealing from her employer. She is on probation and has been looking for places who are willing to hire thieves.
 - (c) Carson lost his fast food job 12 months ago. He spent 10 months trying to look for work without any success, and now just sleeps in and plays video games.
 - (d) Denise was laid off from her job in manufacturing after her employer closed her plant and laid off all their workers. She decided not to return to work and dedicate her time to her family.
 - (e) Eliot retired from his job as a college professor and now spends his days traveling.
6. Explain whether each of the following situations should be described as frictional, structural, or cyclical unemployment.
 - (a) An automobile manufacturing plant in Detroit closed as Americans purchase more foreign-produced automobiles. Hundreds of people were laid off and are unable to find employment in the same industry.
 - (b) A restaurant closes and lays off all of its employees and incomes fall throughout the state, and with it falls demand for restaurant meals.
 - (c) A recent college graduate is unemployed for three months after graduating, needing the three months to apply, interview, and find the right job for her.
 - (d) A rude and incompetent restaurant worker is fired. It takes him two months to find job openings, submit applications, and land another job.
 - (e) A travel agency closed as more people plan and make flight and hotel registrations themselves through online services. The laid off workers are unable to find work in the same field.
 - (f) As a recession worsens and demand for new clothing is down, a number of stores in the mall close and lay off their workers.

5 Labor Market

1. As the quantity of labor hired increases, what happens to the following?
 - (a) Production
 - (b) Marginal Product of Labor
 - (c) Marginal revenue product of labor
 - (d) Labor demand
2. As demand increases for goods and services, what happens to the following?
 - (a) Marginal revenue
 - (b) Marginal revenue product of labor
 - (c) Labor demand
 - (d) Marginal product of labor
3. Suppose an improvement in communication technology that makes workers more productive. What is the impact on the following?
 - (a) Marginal product of capital
 - (b) Marginal product of labor
 - (c) Marginal revenue product of labor
 - (d) Labor demand
 - (e) Production
4. During World War II, many young working-age men went off to war. At the same time, the government demanded more production of manufactured goods to be used for the war effort. Describe and illustrate the impact this had on equilibrium employment and wages.

5. Suppose an increase in global energy prices makes workers capital less productive. Describe and illustrate the impact on equilibrium employment and wages.
6. Suppose an increase in incomes in Europe leads to an increase in demand for U.S. exports to Europe. Describe and illustrate the impact on equilibrium employment and wages in the United States.
7. Suppose there is a shift in demographics where more young people enter the workforce than older people retiring from it. Describe and illustrate the impact on equilibrium employment and wages.
8. The earned income tax credit (EITC) gives a refundable tax credit to low-to-moderate income *working* individuals depending on the amount one works, creating an increase hourly take home compensation for those who work and increasing the financial incentive to enter the workforce. Describe and illustrate the impact of the EITC on equilibrium employment and wages.
9. Suppose a natural disaster destroys capital stock. Describe and illustrate the impact on equilibrium wages and employment.

6 Loanable Funds Market

1. If tax revenues increase, but government expenditures stays the same, what is the impact on government savings?
2. Suppose a change in international trade policy results in an increase in imports and little change in exports. What is the impact on rest-of-world savings?
3. If the government cuts expenditures and taxes by the same amount, what is the impact on government savings?
4. Suppose consumers start to hold larger savings balances for precautionary purposes. Describe and illustrate the long-run impact on the interest rate and quantity of investment.
5. Suppose an earthquake destroys a number of businesses' buildings, stores, and production facilities. Describe and illustrate the long-run impact on the interest rate and quantity of investment.
6. Suppose the government starts to run larger government budget deficits. Describe and illustrate the long-run impact on the interest rate and quantity of investment.
7. Suppose businesses' economic outlook improves and many business owners begin to expect higher demand for their products in the future. Describe and illustrate the long-run impact on the U.S. interest rate and quantity of investment.
8. Suppose while not changing the level of government deficits, the government increases the capital gains tax.
9. Suppose incomes rise abroad, leading to larger demand for U.S. exports sold abroad. Describe and illustrate the long-run impact on the U.S. interest rate and quantity of investment.
10. Suppose the government cuts taxes but leaves government expenditures largely unchanged. Describe and illustrate the long-run impact on the U.S. interest rate and quantity of investment.
11. Suppose while maintaining a balanced budget, the government gives new tax rebates to businesses that expand their facilities. Describe and illustrate the long-run impact on the U.S. interest rate and quantity of investment.

7 Economic Growth and Standard of Living

1. China and India currently have economic growth rates much higher than the United States, yet the typical household in China or India is far poorer than the typical American household. What explains these differences?
2. Real GDP in 2014 in Sweden was \$570.59 billion and in the United States was \$17,419 billion. The population in 2014 was 9.6 million in Sweden and 318.9 million in the United States. Which country has a higher standard of living?
3. Real GDP per capita in Japan was approximately \$7,079 in 1950 and the average growth rate until 2007 was 2.94%.

- (a) What was Japan's GDP per capita approximately equal to in 2007.
 - (b) What would have Japan's GDP per capita been equal to in 2007 if the country had enjoyed an economic growth rate of 3.5%?
4. Suppose a country dedicates more of its resources to encouraging technology research and development. Describe and illustrate the impact this may have on long-run output per worker.
 5. Suppose a country dedicates more of its resources to building infrastructure such as roads, electrical lines, and communication infrastructure, all of which businesses more productive. Describe and illustrate the impact this may have on long-run output per worker.
 6. Non-profit organizations distribute free mosquito nets to children and families in Sub-Saharan Africa to reduce the spread of Malaria, a deadly disease that is transmitted by mosquitoes. If these programs are effective, describe and illustrate the possible impact on long-run output per worker.
 7. Suppose a country struggling with high levels of government debt decreases its expenditures on K-12 (primary and secondary) education. Describe and illustrate the impact this can have on long-run output per worker.
 8. Consider problems #4 through #11 from the previous unit, *Loanable Funds Market*. Describe and illustrate the impact each of these scenarios has on long-run output per worker.

8 Keynesian Multiplier Model

1. Suppose for the problems below that for the United States the MPC is 0.85 and the MPM is 0.25.
 - (a) Suppose stagnant economy in Europe causes U.S. exports to Europe to decrease by \$75 billion. Compute the impact on real GDP for the United States.
 - (b) Suppose the government increases expenditure by \$50 billion in an effort to stimulate the economy. Compute the impact on real GDP.
 - (c) Suppose a worsening in businesses' economic outlook causes a drop in investment which leads to a decrease in real GDP equal to \$100 billion. Compute the drop in investment.
2. Suppose it is found that when consumers incomes increase by \$10, they increase their savings by \$1.50 and increase their spending on imported goods by \$1.
 - (a) Compute the marginal propensity to consume, the marginal propensity to save, and the marginal propensity to import.
 - (b) Compute the expenditure multiplier.
 - (c) Suppose consumers' economic outlooks worsen, causing a decrease in consumer demand for goods and services equal to \$15 billion. Compute the immediate impact on real GDP.
 - (d) Suppose the government desires to increase expenditures in an effort to stimulate the economy through the expenditure multiplier process. The government would like real GDP to increase by \$40 billion in response to their policy. Compute how much the government should increase its expenditures to achieve its objective.
3. In February 2009, U.S. exports increased from \$124.8 billion to \$126.8 billion, while imports fell from \$160.9 billion to \$152.7 billion. At the time economists reported believing these changes would have a positive effect on economic growth. Suppose that as a result of these changes in exports and imports real GDP increased by \$20.4 billion. What is the expenditure multiplier equal to?

9 Aggregate Demand and Supply

1. Explain two reasons why the aggregate demand curve is downward sloping.
2. Explain why the aggregate supply curve is vertical in the long-run.
3. Explain why the aggregate supply curve is upward sloping in the short-run. What assumption is essential for this to be the case?

4. Suppose real GDP is equal to potential GDP when there is a surge in consumer confidence which leads to more consumer spending.
 - (a) Describe and illustrate the short-run impact on real GDP, price level, employment, and wages.
 - (b) Describe and illustrate the long-run impact on real GDP, price level, employment, and wages.
5. Suppose real GDP is below potential GDP. Suppose to try to stimulate the economy, the government gives tax rebate checks to consumers.
 - (a) Describe and illustrate the economic situation in the labor market and the market for goods and services *before the government policy response*.
 - (b) Describe and illustrate the short-run impact of the government policy response on real GDP, price level, employment, and wages.
 - (c) Describe and illustrate the long-run impact on the government policy response on real GDP, price level, employment, and wages.
6. Suppose real GDP is equal to potential GDP when there is a decrease in global prices for raw materials used in producing manufactured goods.
 - (a) Describe and illustrate the short-run impact of the government policy response on real GDP, price level, employment, and wages.
 - (b) Describe and illustrate the long-run impact on the government policy response on real GDP, price level, employment, and wages.
7. Suppose real GDP is below potential GDP. Suppose to try to stimulate the economy, the government cuts taxes and regulations on businesses.
 - (a) Describe and illustrate the economic situation in the labor market and the market for goods and services *before the government policy response*.
 - (b) Describe and illustrate the short-run impact of the government policy response on real GDP, price level, employment, and wages.
 - (c) Describe and illustrate the long-run impact on the government policy response on real GDP, price level, employment, and wages.
8. Suppose real GDP is equal to potential GDP when there is a drop in stock market prices causing consumers to lose significant value in their lifetime savings.
 - (a) Describe and illustrate the short-run impact on real GDP, price level, employment, and wages.
 - (b) Describe and illustrate the long-run impact on real GDP, price level, employment, and wages.
9. Suppose real GDP is equal to potential GDP in Germany, when debt and financial problems elsewhere in Europe causes a decrease in demand for German exports.
 - (a) Describe and illustrate the short-run impact on Germany's real GDP, price level, employment, and wages.
 - (b) Describe and illustrate the long-run impact on Germany's real GDP, price level, employment, and wages.
10. Suppose the U.S. dollar appreciates against the Euro due to actions by the European Central Bank.
 - (a) Describe and illustrate the short-run impact on real GDP, price level, employment, and wages in the United States.
 - (b) Describe and illustrate the long-run impact on real GDP, price level, employment, and wages in the United States.

10 Monetary System and Monetary Policy

1. Suppose the Federal Reserve wishes to increase the money supply.
 - (a) Describe the open market operation the Fed should undertake and how it affects the quantity of money in circulation.
 - (b) Describe and illustrate the impact on the equilibrium interest rate and quantity of money.
 - (c) Suppose real GDP is equal to potential GDP when the Fed conducts this policy. Describe and illustrate the impact on short-run real GDP and price level.
2. Suppose the Federal Reserve wishes to increase the interest rate. Describe an open market operation to accomplish this, and describe and illustrate the equilibrium effects of the policy on the interest rate and quantity of money.
3. Suppose unemployment is high and real GDP is below potential GDP and the Federal Reserve is considering policies to address this economic problem.
 - (a) Describe and illustrate the economic problem in the market for final goods and services (do not shift anything).
 - (b) Describe and illustrate the economic problem in the labor market (do not shift anything).
 - (c) Describe an open market operation that the Fed could employ to address the problem. What is the impact on the money supply.
 - (d) Describe and illustrate the impact of your policy in the previous question on the equilibrium interest rate and quantity of money.
 - (e) Describe and illustrate the impact of the change in interest rate from the previous question on the short-run equilibrium real GDP and price level.
 - (f) Describe and illustrate the impact of the change in interest rate on the labor market.
4. Suppose real GDP is equal to potential GDP when there is an increase in world crude oil prices.
 - (a) Describe and illustrate the equilibrium impact on price level and real GDP.
 - (b) Suppose the Federal Reserve wishes to conduct a policy to move real GDP back to potential GDP. Describe such a policy, and illustrate the consequences on the quantity of money, the interest rate, real GDP, and the price level.
 - (c) Suppose the Federal Reserve wishes instead to combat inflation and therefore conduct a policy to move price level back to its original equilibrium. Describe such a policy, and illustrate the consequences on the quantity of money, the interest rate, real GDP, and the price level.
 - (d) How do your answers from (b) and (c) compare with one another?