

Introduction to Economics: Problem Set 4

Due on April 12, 2024 at 11:59pm

Tuesday/Thursday 3:30-4:45, Genome Sciences 100

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Question 1

Use the AD-AS model to forecast how the economy will respond to each of the following scenarios. For each scenario (1) indicate whether AD or AS will shift, and in which direction; (2) draw a graph illustrating how the economy will respond in the short-run; (3) characterize what the short-run equilibrium means for the economy (e.g., will it create inflation, a recession, etc.)

- (a) Due to rapid economic development in India, Ford pickup trucks produced in America become very popular and exports rise.
- (b) A computer virus is released that targets automated industrial machinery, severely limiting the amount of production by American manufacturing firms for about 2 months.
- (c) In 2017 President Trump signed a tax bill that reduced income taxes for many Americans. Now, in 2023, some of those tax cuts are expiring, meaning that income taxes for Americans may go up in 2024.
- (d) With the new GDP report, American businesses become more confident that a recession is not approaching, and the economic expansion is likely to continue for the foreseeable future.

Question 2

In this question, you will explore how changes in the economy develop over time. Assume we start in LR equilibrium. Suppose we see the consumer confidence index rise. Use our AD-AS model to discuss the following:

- (a) Would this event impact AD, SRAS, or LRAS? Show the impact of this in the short-run on an AD-AS graph.
- (b) Would this event create an output gap? If so, what kind? Indicate this on your graph.
- (c) Has this event changed long-run potential output? If so, has it shifted up, or down?
- (d) How would the market move from short-run to long-run equilibrium? Visualize this on your graph.
- (e) How would the market move from short-run to long-run equilibrium? Visualize this on your graph.

Question 3

During the Coronavirus pandemic, U.S. policymakers used several different levers to try to limit the damage to the economy. For each of the following policy changes, (1) decide if this was fiscal or monetary policy, (2), specify how this policy change is designed to impact the economy, and (3) answer the follow-up question given for each.

- (a) Between March 3, 2021 and March 15, 2021, the Federal Reserve announced that it would alter the discount rate (and other interest rates that it controls) in order to push the federal funds rate to 0%.
- (b) The Federal Reserve also announced on March 15th that it would keep the federal funds rate near 0% "until it is confident that the economy has weathered recent events and is on track to achieve its maximum employment and price stability goals."
- (c) The U.S. Congress sent taxpayers stimulus checks worth \$1,800 in 2020, and then \$1,200 in 2021.
- (d) The federal government expanded unemployment insurance in the U.S., increasing the length of time that individuals could receive unemployment insurance and also increasing the amount of money that people could receive via unemployment insurance.

Question 4

Robert is thinking about taking a vacation to Europe this summer, to visit old friends in Germany and Austria. Since these countries use the Euro for currency, Robert will need to purchase some Euros (€) with dollars.

- (a) What is the exchange rate between dollars and Euros as of October 27th, 2023?
- (b) If Robert wants to purchase 1,000 €, how much will it cost him in dollars?
- (c) Now consider the daily market for Euros. Given the information you found in (a), graph the market for Euros. Be sure to specify the price in this market. Assume that around 1 billion Euros are purchased each day using dollars.
- (d) Imagine that many, many Americans have the same idea as Robert to vacation in Europe this summer, so that the demand for Euros increases. Graph how this change will impact the market for Euros. Be sure to indicate how the price and quantity of Euros being traded for dollars is changing.
- (e) Explain how the change in the price of a Euro will lead the quantity of Euros supplied to change.

Question 5

The U.S. produces some computer graphics chips domestically, but imports most of them from abroad. Assume that the world market for graphics chips is competitive and that the U.S. is a small producer, unable to affect the world price. The world price for computer graphics chips is \$500. Since the U.S. imports graphics chips, we know that in the absence of trade, the U.S. equilibrium price on graphics chips would exceed the world price. Specifically, in the absence of trade, the equilibrium price for a graphics chip in the U.S. would be \$600.

- (a) Draw a diagram showing the U.S. market for graphics chips, given the world market for graphics chips that the U.S. can access.
- (b) On your graph above, indicate where we can see the U.S. production of graphics chips, and where we can see the quantity of graphics chips being imported.
- (c) Assuming they are identical in terms of capabilities, will the domestically produced graphics chips sell for the same price as the imported ones? Why or why not?
- (d) Imagine that the U.S. imposes a \$50 tariff on graphics chips. Graph the impact of this tariff on the U.S. market. Indicate where we can see the domestic production of graphics chips, as well as any imported graphics chips (if any are still imported).
- (e) Including the cost of the tariff, how will the cost of a U.S. graphics chip compare to the cost of an imported graphics chip? Explain your answer.
- (f) Who benefits and who is harmed by such a tariff? Show these effects in your diagram.