

Problem Set 5

Answer the following questions:

1) List and describe six costs of inflation.

Answer: Six costs of inflation are: (1) shoeleather costs; (2) menu costs; (3) relative-price variability and the misallocation of resources; (4) inflation-induced tax distortions; (5) confusion and inconvenience; and (6) arbitrary redistributions of wealth. Shoeleather costs arise because inflation causes people to spend resources going to the bank more often. Menu costs occur when people spend resources changing their posted prices. Relative-price variability occurs because as general prices rise, a fixed dollar price translates into a declining relative price, so the relative prices of goods are constantly changing, causing a misallocation of resources. The combination of inflation and taxation causes distortions in incentives because people are taxed on their nominal capital gains and interest income instead of their real income from these sources. Inflation causes confusion and inconvenience because it reduces money's ability to function as a unit of account. Unexpected inflation redistributes wealth between borrowers and lenders.

2) Explain how an increase in the price level affects the real value of money.

Answer: An increase in the price level reduces the real value of money because each dollar in your wallet now buys a smaller quantity of goods and services.

3) According to the Fisher effect, how does an increase in the inflation rate affect the real interest rate and the nominal interest rate?

Answer: According to the Fisher effect, an increase in the inflation rate raises the nominal interest rate by the same amount that the inflation rate increases, with no effect on the real interest rate.

4) Suppose that this year's money supply is \$500 billion, nominal GDP is \$10 trillion, and real GDP is \$5 trillion.

a. What is the price level? What is the velocity of money?

Answer: (All amounts in billions) Nominal GDP = $P \times Y = \$10,000$ and $Y = \text{real GDP} = \$5,000$, so $P = (P \times Y)/Y = \$10,000/\$5,000 = 2$.

Because $M \times V = P \times Y$, then $V = (P \times Y)/M = \$10,000/\$500 = 20$.

b. Suppose that velocity is constant and the economy's output of goods and services rises by 5% each year. What will happen to nominal GDP and the price level next year if the Fed keeps the money supply constant?

Answer: If M and V are unchanged and Y rises by 5%, then because $M \times V = P \times Y$, P must fall by 5%. As a result, nominal GDP is unchanged.

c. What money supply should the Fed set next year if it wants to keep the price level stable?

Answer: To keep the price level stable, the Fed must increase the money supply by 5%, matching the increase in real GDP. Then, because velocity is unchanged, the price level will be stable.

d. What money supply should the Fed set next year if it wants inflation of 10%?

Answer: If the Fed wants inflation to be 10%, it will need to increase the money supply 15%. Thus $M \times V$ will rise 15%, causing $P \times Y$ to rise 15%, with a 10% increase in prices and a 5% rise in real GDP.

5) Define the nominal exchange rate and real exchange rate and explain how they are related. If the nominal exchange rate goes from 100 to 120 yen per dollar, has the dollar appreciated or depreciated?

Answer: The nominal exchange rate is the rate at which a person can trade the currency of one country for the currency of another. The real exchange rate is the rate at which a person can trade the goods and services of one country for the goods and services of another. They are related through the expression: real exchange rate equals nominal exchange rate times domestic price divided by foreign price.

If the nominal exchange rate goes from 100 to 120 yen per dollar, the dollar has appreciated because a dollar now buys more yen.

6) If a Japanese car costs 500,000 yen, a similar American car costs \$10,000, and a dollar can buy 100 yen, what are the nominal and real exchange rates?

Answer: If a dollar can buy 100 yen, the nominal exchange rate is 100 yen per dollar. The real exchange rate equals the nominal exchange rate times the domestic price divided by the foreign price, which equals 100 yen per dollar times \$10,000 per American car divided by 500,000 yen per Japanese car, which equals two Japanese cars per American car.

7) Describe the difference between foreign direct investment and foreign portfolio investment. Who is more likely to engage in foreign direct investment—a corporation or an individual investor? Who is more likely to engage in foreign portfolio investment?

Answer: Foreign direct investment requires actively managing an investment, for example, by opening a retail store in a foreign country. Foreign portfolio investment is passive, for example, buying corporate stock in a retail chain in a foreign country. As a result, a corporation is more likely to engage in foreign direct investment, while an individual investor is more likely to engage in foreign portfolio investment.