ECON 317 - Money, Banking, and Financial Institutions

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Inflation and Quantity Theory of Money

Exercise 1

The inhabitants of a country consume three goods: bagels, salmon, and cars. 60% of their income is spent on cars, 30% on salmon, and 10% on bagels. The price of bagels increased from \$3 to \$6 between periods 1 and 2. The price of salmon increased from \$10 to \$12, and the price of cars decreased from \$500 to \$450.

(a) Calculate the rate of change in the price of each good.

(b) Calculate the average price increase in the economy.

(c) Fix the price index at 100 for period 1. What is the index in period 2?

(d) Explain what a substitution effect is.

(e) What substitutions might occur between periods 1 and 2?

(f) What are the implications of (e) for calculating the price index?

Exercise 2

(a) Write the quantitative equation linking the amount of money available (M), the general price level (P), the velocity of money (V), and the real output of goods and services (Y) in an economy over a period.

(b) Rearrange the equation in (a) to specify how M, V, and Y affect the general price level.

(c) Express the growth rate of prices in the economy as a function of the growth rates of M, V, and Y.

(d) In the quantity theory of money, what assumption is made about the growth of the velocity of money?

(e) What is the neutrality of money?

(f) Suppose the GDP growth rate is 3%. What growth rate of the money supply should the central bank aim for to achieve 2% inflation?

Exercise 3

Sophie has \$100 and lends this sum to Paul at a nominal interest rate of 5%. In a year, she will have \$105.

Today, a book costs \$1.

(a) How many books can Sophie buy today with the \$100?

(b) How many books will Sophie be able to buy in a year if the inflation rate is zero, 5%, and 10%?

(c) What do you conclude?

(d) What is the ex-post real interest rate on the loan?

(e) Can the ex-ante real interest rate be calculated?