
From Nicholson: Microeconomic Theory.

Aufgabe 5

Suppose there are only three goods (X_1 , X_2 , and X_3) in an economy and that the excess demand functions for X_2 and X_3 are given by

$$ED_2 = -3P_2/P_1 + 2P_3/P_1 - 1$$

$$ED_3 = 4P_2/P_1 - 2P_3/P_1 - 2.$$

- (a) Show that these functions are homogeneous of degree zero in P_1 , P_2 , and P_3 .
- (b) Use Walras' law to show that if $ED_2 = ED_3 = 0$, ED_1 also must be 0. Can you use Walras' law to calculate ED_1 ?
- (c) Solve this system of equations for the equilibrium relative prices P_2/P_1 and P_3/P_1 . What is the equilibrium value for P_3/P_2 ?

Aufgabe 6

Suppose two individuals (Smith and Jones) each have 10 hours of labor to devote to producing either ice cream (X) or chicken soup (Y). Smith's utility function is given by

$$U_S = X^{.3}Y^{.7}$$

Where as Jones's is given by

$$U_J = X^{.5}Y^{.5}.$$

The individuals do not care whether they produce X or Y, and the production function for each good is given by

$$X = 2 L$$

$$Y = 3 L,$$

Where L is the total labor devoted to production of each good. Using this information.

- (a) What must the price ratio, P_X/P_Y , be?
- (b) Given this price ratio how much X and Y will Smith and Jones demand? (Hint: Set the wage equal to one here.)
- (c) How should labor be allocated between X and Y to satisfy the demand calculated in part (b)?

Aufgabe 7

Return to problem 6 and now assume that Smith and Jones conduct their exchanges in paper money. The total supply of such money is \$ 60, and each individual wishes to hold a stock of money equal to $\frac{1}{4}$ of the value of transactions made per period.

(a) What will the money wage rate be in this model? What will the nominal prices of X and Y be?

(b) Suppose the money supply increases to \$ 90. How will your answers to part (a) change? Does this economy exhibit the classical dichotomy between its real and monetary sectors?