

Homework Set Nine

1. (40%) There are ten parts:

Caution: this question asks for consumption and money holdings in real and nominal terms for each period. In short, each question requires sixteen numbers for a complete answer. There is no credit if you don't give all sixteen numbers.

- a) Suppose the bachelor decision maker expects to live four periods and receive a wage income of \$180,000 in real terms in both periods 2 and 3, and that the real and nominal interest rates are 50 and 80 percent per annum, respectively. Further suppose that $\xi = 1/3$. Calculate the decision maker's consumption and money holdings for all periods in both real and nominal terms.
- b) Suppose the bachelor decision maker expects to live four periods and receive a wage income of \$180,000 in real terms in both periods 2 and 3, and that the real interest rate is 100% and that the expected inflation rate is the same as in problem 1. Further suppose that $\xi = 1/3$. Calculate the decision maker's consumption and money holdings for all periods in both real and nominal terms.
- c) Suppose the bachelor decision maker expects to live four periods and receive a wage income of \$180,000 in real terms in both periods 2 and 3, and that the real and nominal interest rates are 50 and 80 percent per annum, respectively. Further suppose that $\xi = 1/4$. Calculate the decision maker's consumption and money holdings for all periods in both real and nominal terms.
- d) Suppose the bachelor decision maker expects to live four periods and receive a wage income of \$180,000 in real terms in both periods 2 and 3, and that the real interest rate is 50 percent per annum, and that prices are expected to be constant. Further suppose that $\xi = 1/3$. Calculate the decision maker's consumption and money holdings for all periods in both real and nominal terms.
- e) Suppose the bachelor decision maker expects to live four periods and receive a wage income of \$180,000 in real terms in both periods 2 and 3, and that the real interest rate is 50 percent per annum, and that prices are expected to decline by 20% per year. Further suppose that $\xi = 1/3$. Calculate the decision maker's consumption and money holdings for all periods in both real and nominal terms.

- f) Suppose the bachelor decision maker expects to live four periods and receive a wage income of \$100,000 in real terms in period 2 and \$300,000 in period 3, and that the real and nominal interest rates are 50 and 80 percent per annum, respectively. Further suppose that $\xi = 1/3$. Calculate the decision maker's consumption and money holdings for all periods in both real and nominal terms.
- g) Suppose the bachelor decision maker expects to live four periods and receive a wage income of \$180,000 in real terms in both periods 2 and 3, and nominal interest rate is 100 percent per annum. Suppose also that prices are expected to rise at 25 percent per year. Further suppose that $\xi = 1/3$. Calculate the decision maker's consumption and money holdings for all periods in both real and nominal terms.
- h) Suppose the bachelor decision maker expects to live four periods and receive a wage income of \$180,000 in real terms in both periods 2 and 3, and that the real and nominal interest rates are 100 and 160 percent per annum, respectively. Further suppose that $\xi = 1/3$. Calculate the decision maker's consumption and money holdings for all periods in both real and nominal terms.
- i) Suppose the bachelor decision maker expects to live four periods and receive a wage income of \$216,000 in nominal terms in period 2 and \$259,200 in period 3, that the real and nominal interest rates are 50 and 80 percent per annum, respectively. Further suppose that $\xi = 1/2$. Calculate the decision maker's consumption and money holdings for all periods in both real and nominal terms.
- j) Suppose the bachelor decision maker expects to live four periods and receive a wage income of \$180,000 in real terms in both periods 2 and 3, and that the real and nominal interest rates are both 50 percent per annum. Further suppose that $\xi = 1/3$. Calculate the decision maker's consumption and money holdings for all periods in both real and nominal terms.

Note: this means that if all 16 numbers are not present, no credit.

- 2. (10 %) Suppose that, instead of Santa Claus, an avenging angel had come on Christmas Eve and destroyed half the money balances. What actions both would the auctioneer have taken if money was the only nominal asset? If there were other nominal assets?
- 3. (10 %) Suppose that the Federal Reserve System engaged in a \$100 Billion Open Market Operation.
 - a) Explain what an Open Market Operation is and how the Fed would carry it out.

- b) Assuming the Quantity Theory of Money works without qualification, explain what the impact of the Open Market Operation would be on the price level. (You might also want to define the Quantity Theory of Money in your answer).
- c) By how much? You may assume that prior to the change, M_2 equaled \$4 trillion and that the M_2 multiplier was 8.
- d) Trace through any implications of the Open Market Operation on wealth, and why this might lead to a qualification to the Quantity Theory.
4. (10%) It is often said that unemployment is a sign of resources being reallocated. If there is true, then high unemployment can never be bad for that simply means that a lot of resources are being reallocated and that must mean sweeping gains in economic efficiency. Explain whether you agree or disagree.
5. (10%) If the Federal Reserve System wanted to increase the money supply this month, it could do so by simply cutting its reserve requirements. There is no need for open market operations. Explain whether you agree or disagree.
6. (10%) If people want to double the amount of money they hold (formally, ξ doubles), and the Federal Reserve System responds by open market operations to double the money supply, consumption will definitely go up. Explain whether you agree or disagree.
7. (10%) Which of the following leads to a decline in real prices?
- Department stores place clothing on sale after Christmas.
 - People begin to use the internet in a big way for shopping.
 - President Alicia Mustard decides that green dollar bills are last year's colors and replaces them with new blue colored money. To save money she gives people one blue dollar bill for each two green dollar bills. (Comparable adjustments are made in checking accounts, mortgages, etc.)