Macroeconomics, Module 15: Inflation, Interest Rates, and Money Growth

Homework Assignment: Winners and Losers from Money Supply Growth

(The attached PDF file has better formatting.)

Some people gain from inflation; others lose from inflation. For simplicity, we divide the population over 20 into three groups of people.

- Young adults age 21 to 40 earn income from work, take fixed rate mortgages to buy homes, and invest extra cash in stocks.
- Older adults age 41 to 60 have paid their mortgages and invest their extra cash in bonds.
- Retired persons age 61 and over have fixed incomes from pensions and social security. Assume the private pensions and social security are *not* indexed in the price level.

For the investments, assume that

- Bonds are not indexed for inflation. The real return from a bond decreases when inflation rises and increases when inflation declines.
- Stocks are a hedge against inflation. If the price level rises Z%, the average stock price rises Z%. (This is not perfectly true; real estate is a better hedge against inflation than stocks. We use this assumption just for the homework assignment.)

The government has outstanding debt of $100 billion. To pay off the debt, the government decides to print $100 billion of new bills. We examine two scenarios.

In Scenario #1, the government prints $100 billion and pays the debt immediately.

A. What happens to the real demand for money?
B. What happens to the nominal supply of money?
C. What happens to the price level?
D. What is the effect on the inflation rate in future years?
E. What is the effect on the real interest rate?
F. What is the effect on the nominal interest rate?
G. Which group benefits the most and which group loses the most?
H. In Scenario #2, the government announces a plan to print $5 billion each year for twenty years. How does the inflation rate and the nominal interest rate differ in Scenario #2?

For Part A: Barro assumes that money is neutral. A change in the money supply does not affect real macroeconomic variables, such as real income, real interest rates, unemployment, investment, and items that are functions of these real variables.

This homework assignment focuses on money supply and demand, inflation, and the winners and losers from inflation. It does not deal with government services. If the government pays its debt, its budget constraint changes, which may change its consumption or investment or the taxes levied on the people. Do not consider these effects for this homework assignment.

For Part B: This homework assignment focuses on the relation of money supply growth, the price level, and inflation. It does not deal with the money multiplier that depends on the FED reserve requirements. Assume the multiplier is one.

For Part C: Use two relations:

- The real demand for money equals the real money supply.
- The real money supply is the nominal money supply divided by the price level.

For Part D: The change in the price level is immediate. We don't expect the government to print more money in the future.

For Part E: Use the neutrality of money.

For Part F: The change in the nominal interest rate is the change in the real interest rate plus the change in the expected inflation rate.

For Part G: An increase in the price level hurts creditors and helps borrowers. It hurts people whose income is fixed in dollar terms, not people whose income or assets vary with the price level.

Government is an abstraction. We do not say: "the government gains" or "the government loses." If the government prints money to pay its debt, this homework assignment shows *which groups incur the cost of paying the debt*. Paying the debt doesn't change GDP, or the economy's overall wealth. *If some people lose, others gain.*

For Part H: The money supply does not change right now. It is expected to grow $5 billion a year over the next 20 years. People expect the money supply to change, so expected inflation changes and the nominal interest rate changes.

Current Events

The Federal Reserve Board targeted low unemployment in the 1960's and 1970's, and ended up with high inflation. It targeted low inflation in the 1990's and the 2000's, with less concern about unemployment. Barro says (correctly) that the FED target in the 1960's and 1970's was based on faulty economic reasoning, and the targets in the past two decades reflect better economic policy. A cynic might say that young adults were the largest voting bloc in the 1960's and 1970's; they wanted jobs, and they were helped by high inflation in paying off mortgages. In the 1990's and 2000's, retired persons are a powerful voting bloc. They have little concern about jobs, but they want inflation to be as low as possible. Many news articles talk about the high cost of pensions in Japan and some northern European countries. One wonders: if the cost is so high, why do these countries continue the pension benefits? Why don't working people vote for reform? The answer is that the majority of voters are above age 50: already retired or soon eligible for retirement.