

Chapter 30: Money Growth and Inflation
Principles of Economics, 8th Edition
N. Gregory Mankiw
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1. Introduction
 - a. *Inflation is a sustained increase in the average level of prices.*
 - b. *An increase in the price of a particular good (oil) is probably not inflationary when all other goods are taken into consideration.*
 - c. *If we only have a certain amount to spend and the price and the amount that we are spending on oil goes up, then we have less to spend on everything else and their prices would be expected to fall.*
 - i. *There probably is little effect on the average level of prices.*
 - d. *So what causes inflation: that is the story below.*
 - e. *The increase in the overall level of prices is called inflation.*
 - f. *The decrease in the overall level of prices is deflation.*
 - g. *Remember the Principle that prices rise when the government prints too much money.*

2. The Classical Theory of Inflation
 - a. This theory is called classical because it was developed by some of the earliest thinkers about economic issues.
 - b. *This is a long term view of the economy.*
 - c. The Level of Prices and the Value of Money
 - i. While we think in terms of inflation being an increase in the level of prices, it is also an erosion in the purchasing power of money.
 - d. Money Supply, Money Demand, and Monetary Equilibrium
 - i. The value of money is based on supply and demand.
 - ii. The Fed controls the money supply and since it is not influenced by the price level it is vertical.
 - iii. The demand for money is negatively related to its value, so that when its value is high you need less of it to buy things.
 - (1) It is positively related to the price level, so that you need more of it when prices are high.
 - iv. *Later in the book, we will examine the short run answer and we will see that interest rates play a key role.*
 - v. In the long run, the overall level of prices adjusts to the level at which the demand for money equals the supply.
 - vi. *Be careful when thinking about the demand for money (an asset).*
 - (1) *The demand for money is the demand for a highly liquid asset that facilitates transactions.*
 - (2) *It is not a demand for income (a flow).*
 - vii. **Figure 1: How the Supply and Demand for Money Determine the Equilibrium Price Level. P. 631.**
 - e. The Effects of a Monetary Injection
 - i. An increase in the money supply, if the demand for money is constant causes its value to fall and the price level to rise.

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- ii. **Figure 2: An Increase in the Money Supply. P. 632.**
- iii. Quantity theory of money is a theory asserting that the quantity of money available determines the price level and that the growth rate in the quantity of money available determines the inflation rate. P. 631.
- f. A Brief Look at the Adjustment Process
 - i. *This is an important process to understand.*
 - ii. If the supply of money exceeds the demand, then people will attempt to get rid of it.
 - (1) They will consume.
 - (2) They will buy assets..
 - iii. The supply of goods and services are unaffected by the money supply so, their actions will increase the demand for goods and service, thereby, increasing prices.
- g. The Classical Dichotomy and Monetary Neutrality
 - i. *This is a good exercise in logical thinking.*
 - (1) *People (the news) spend a lot of time and energy being concerned about the activities of the Federal Reserve, but all the Fed does is create little pieces of green paper.*
 - (2) *The output of our economy depends on the available inputs and the efficiency with which they are put together.*
 - (3) *We have more goods and services when have more inputs or we use them more efficiently--not because we have more little pieces of green paper.*
 - (4) *As noted above, money is important for facilitating transactions, but it does not make things.*
 - ii. Nominal variables are variables measured in monetary units. P. 633.
 - iii. Real variables are variables measured in physical units. P. 633.
 - iv. Classical dichotomy is the theoretical separation of nominal and real variables. P. 633.
 - v. Monetary neutrality is the proposition that changes in the money supply do not affect real variables. P. 634.
 - vi. Most economists today accept Hume's conclusion of monetary neutrality as a description of the economy in the long run.
- h. Velocity and the Quantity Equation
 - i. Velocity of money is the rate at which money changes hands. P. 634.
 - (1) $V = (P * Y)/M$
 - ii. Quantity equation is the equation $M * V = P * Y$, which relates the quantity of money, the velocity of money, and the dollar value of the

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economy's output of goods and services. P. 635.

(1) *It becomes a theory by assuming that output and velocity are independent of the money supply, so changes in the money supply result in changes in prices.*

iii. **Figure 3: Nominal GDP, the Quantity of Money, and the Velocity of Money. P. 635.**

iv. We now have all the elements necessary to explain the equilibrium price level and inflation:

(1) The velocity of money(V) is relatively stable over time.

(2) Because V is stable, when the Fed changes the quantity of money(M), it causes proportionate changes in the nominal value of output (P x Y).

(3) The economy's output of goods and services (Y) is primarily determined by the factors of production and technology and this output is not affected by M.

(4) If M increase more rapidly than Y, then prices rise.

(5) So the Fed is the cause of inflation.

i. **Case Study: Money and Prices During Four Hyperinflations, P. 636.**

i. **Figure 4: Money and Prices During Four Hyperinflations. P. 637.**

j. The inflation tax is the revenue the government raises by creating money. P. 637.

i. It is a tax on everyone who holds money.

ii. **FYI: Hyperinflation in Zimbabwe, P. 638.**

k. The Fisher effect is the one for one adjustment of the nominal interest rate to the inflation rate. P. 639.

i. Real interest rate = nominal rate - (*expected*) inflation rate

ii. When the Fed increases the rate of money growth, the result is both a higher inflation rate and a higher nominal interest rate.

iii. **Figure 5: The Nominal Interest Rate and the Inflation Rate. P. 640.**

(1) They move together.

(2) *Most of the changes in nominal interest rates is due to changes in expected inflation rather than a change in the real interest rate, which is the rate upon which decisions should be made.*

(3) *Compare this Figure to Figure 3 on Page 508 in Chapter 24 that illustrates real and nominal interest rates.*

3. The Costs of Inflation

a. A Fall in Purchasing Power? The Inflation Fallacy

i. Since wages and prices tend to move together, on paper inflation

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- should have little effect on welfare, but it does for the following reasons.
- b. Shoe leather costs are the resources wasted when inflation encourages people to reduce their money holdings. P. 641.
 - c. Menu costs are the costs of changing prices. P. 642.
 - d. Relative price variability and the mis-allocation of resources
 - e. Inflation-induced tax distortions that reduce saving, because taxes are based on nominal gains rather than real gains.
 - i. Capital gains
 - ii. Nominal interest rates
 - iii. **Table 1: How inflation raises the tax burden on saving. P. 644.**
 - iv. A solution is indexing.
 - v. *While the income tax brackets are indexed to the CPI, the same adjustments is not given to capital gains or interest income.*
 - f. Confusion and inconvenience reduces the incentives to invest.
 - g. A Special Cost of Unexpected Inflation: Arbitrary Redistributions of Wealth
 - i. Unanticipated inflation, benefits debtors and hurts creditors.
 - ii. *If the inflation was anticipated, then interest rates would adjust and this redistribution would not occur.*
 - h. **Case Study: The Wizard of Oz and the Free-Silver Debate, P. 646.**
 - i. This is an interesting story.
 - ii. In 1879, the US went off of a bi-metal (silver and gold) standard onto a pure gold standard.
 - (1) This reduced the demand for silver.
 - (2) *Many of the silver dollars in circulation are from the period just after the shift to keep silver interests happy.*
4. Conclusion
- a. This chapter discusses long term effects.
 - b. We also need to be concerned about short term effects.
5. Summary