Homework III

due Friday, September 15th in class

1. **Saving** (2 points) The government raises taxes by $100 billion. If the marginal propensity to consume is 0.6, what happens to the following? Do they rise or fall? By what amounts?
   
   (a) Public saving
   (b) Private saving
   (c) National saving
   (d) Investment

2. **Demand for Investment** (2 points) Suppose there is a technological breakthrough that increases the productivity of all capital and, consequently, increases the demand for investment.

   (a) Using the long-run model of the economy developed in Chapter 3, graphically illustrate the impact of the increased investment demand. Be sure to label: i. the axes; ii. the curves; iii. the initial equilibrium values; iv. the direction curves shift; and v. the terminal equilibrium values.

   (b) State in words what happens to: i. the real interest rate; ii. national saving; iii. investment; iv. consumption; and v. output.

3. **Capital Destruction** (4 points) Assume that a competitive economy can be described by a constant returns to scale (Cobb-Douglas $Y = AK^\alpha L^{1-\alpha}$) production function and all factors of production are fully employed. Holding other factors constant, including the quantity of labor and technology, carefully explain how a one-time, 50-percent decrease in the quantity of capital (perhaps the result of war damage) will change each of the following:

   (a) the level of output produced;
   (b) the real wage of labor;
   (c) the real rental price of capital; and
   (d) capital’s share of total income.

4. **Taxes** (3 points) Suppose the government decides to decrease taxes in an effort to increase consumer spending and investment in the economy.

   (a) Will this plan succeed in accomplishing both goals?
   (b) In equilibrium, what happens to interest rates as a result of this action?
   (c) Would you characterize this as a case of fiscal crowding out? Explain.
5. **Country Comparison** (4 points) Consider two competitive economies that have the same quantities of labor \((L = 400)\) and capital \((K = 400)\), and the same technology \((A = 100)\). The economies of the countries are described by the following Cobb-Douglas production functions:

- North Economy: \(Y = AL^{0.3}K^{0.7}\)
- South Economy: \(Y = AL^{0.7}K^{0.3}\)

(a) Which economy has the larger total production? Explain.
(b) In which economy is the marginal product of labor larger? Explain.
(c) In which economy is the real wage larger? Explain.
(d) In which economy is labor’s share of income larger? Explain.

**Multiple Choice** (5 points)

6. In the classical model with fixed income, if households want to save more than firms want to invest, then:

(a) the interest rate rises.
(b) the interest rate falls.
(c) output increases.
(d) output falls.

7. (2 points) In a classical model with fixed factors of production and flexible prices, the amount of consumption spending depends on ________, the amount of investment spending depends on ________, and the amount of government spending is determined ________.

(a) disposable income; the interest rate; exogenously
(b) labor’s share of output; capital’s share of output; by the interest rate
(c) the interest rate; disposable income; by tax revenue
(d) the real wage; the real rental price of capital; by factor prices

8. When a pizza maker lists the price of a pizza as $10, this is an example of using money as a:

(a) store of value
(b) medium of exchange
(c) unit of account
(d) flow of value

9. To increase the money supply, the Federal Reserve:

(a) increases the reserve requirement
(b) buys government bonds
(c) sells government bonds
(d) increases the discount rate