Chapter 8 review -- equilibrium macro.

Basic points:

1. If the economy is in macroeconomic equilibrium, all resources are “fully employed”. Thus, in
   the long run, output is determined by the economy’s production function and the amount of
   resources at full employment. The aggregate supply curve is vertical at the full employment level
   of output.

2. The aggregate demand curve is downward sloping because, according to the equation of
   exchange, \( mv = py \) implies that \( y = \frac{mv}{p} \). Thus, the amount of real output that can be purchased \( y \)
   falls as the price level \( p \) rises assuming that the amount of money \( m \) and its velocity \( v \) are
   held constant.

3. The equilibrium price level in the economy is determined by the intersection of \( AD \) and \( AS \) --
   as in the diagram below:

![Diagram showing the intersection of AD and AS curves to find equilibrium price level and real GDP](https://via.placeholder.com/150)

4. In equilibrium, \( AD = AS \). This implies that \( C + I + G + NX = y \) where \( C \) is consumption, \( I \)
   is investment, \( G \) is government purchases (excluding transfers), and \( NX \) is net exports. Also,
   income in the economy \( y \) must be split between \( C \) (consumption), \( S \) (saving) and \( T \) (taxes).
   Thus, assuming no international sector (i.e. \( NX=0 \)), in equilibrium:

   \[
   y = C + I + G = C + S + T \implies I + G = S + T \implies S = I + (G - T)
   \]

   recall that the supply of loans is the same as saving \( S \) and that the demand for loans consists of
   investment demand \( I \) and the government budget deficit \( G - T \). Thus, the last expression for
   equilibrium implies that:

   loan supply = loan demand.

   \[
   (S) \quad I + (G - T)
   \]

   Also, it is worth noting that consumption is given by:

   \[
   C = y - (S + T) = y - (I + G)
   \]
5. Changes in the amount of resources will increase the full employment level of output. Thus, for example, increased investment will increase output in the long run since additional investment will generate a larger capital stock in the future. The impact of increased investment on output will not be realized immediately, however.

Questions for your consideration
1. What might cause the level of saving in the economy to increase permanently? If this happened, what is the effect on interest rates, investment? How does this affect output and consumption initially? in the long term?

2a. Suppose there is an equal increase in government spending and taxes and that the changes have no impact on saving or investment incentives. How will this affect: interest rates, investment, consumption?
2b. Suppose that the increase in government spending was on infrastructure that increased the return on private investment. How will your answers to 2a change? How will consumption change initially versus the long term?
2c. Suppose that the increase in government spending had no effect on the return to private investment, but that the tax increase reduced the incentive to save. How will your answers to 2a change? How will consumption change initially versus the long term? Also, how could a tax increase reduce the incentive to save?

3. Suppose that there is an increase in government spending without any tax increase. If this additional government spending has no impact on the return to private investment, how will this change affect interest rates and investment? How will consumption be affected in the short term? the long term?

4. Suppose that there is a technological innovation that increases the return to private investment. How will this affect interest rates, investment and the level of saving in the economy? How will consumption be affected initially? in the long term?

5. What are the three types of unemployment? Why isn’t the unemployment rate zero when the economy is at full employment?

6. Explain how an economy would create “jobs” for workers displaced by new technology.