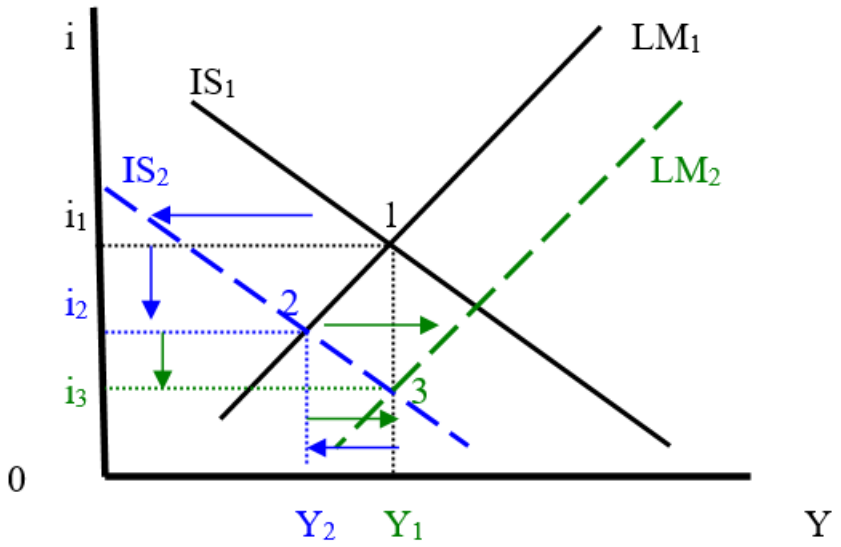
ECON2113 Macroeconomics

Chapter 12 Exercises

Solutions

1. If the government wants to change the composition of GDP towards investment and away from consumption without changing the level of aggregate demand, it needs to implement a combination of restrictive fiscal policy and expansionary monetary policy. An increase in personal income taxes or a decrease in transfer payments will reduce consumption and thus aggregate demand. The IS-curve will shift to the left, leading to a decrease in output and the interest rate. To increase output to its original level, the Fed can undertake expansionary monetary policy. This will shift the LM-curve to the right, leading to a further decrease in the interest rate, thus stimulating investment, and, in turn, aggregate demand. If the intersection of the new IS- and LM-curves is at the same income level as previously, then the decrease in the interest rate will have stimulated investment spending sufficiently to exactly offset the decrease in consumption. (Note: A tax increase can be combined with an investment subsidy, in which case, the IS-curve would not shift as far to the left as before.)

   The following diagram shows the effect of a decrease in transfer payments (TR) that is combined with an increase in money supply (M/P).



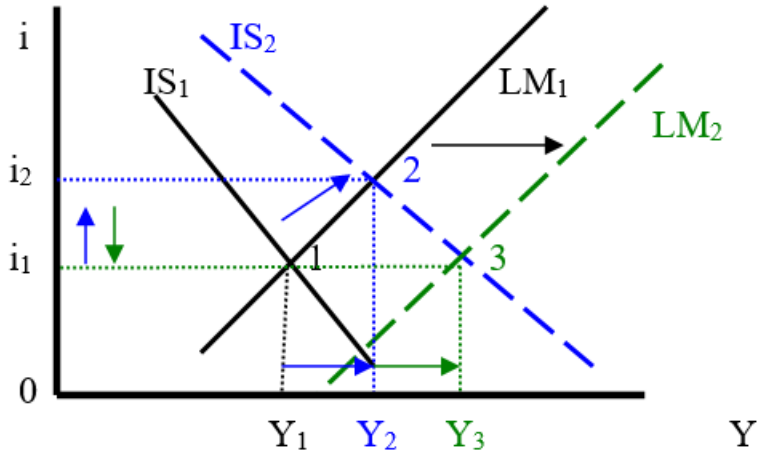
The adjustment process is as follows:

1-->2: TR↓ ==> C ↓ ==> Y↓ == $m_d$ ↓ ==> i ↓ ==> I ↑ ==> Y ↑. **Effect: Y↓ and i ↓.**

2-->3: (M/P) ↑ ==> i ↓ ==> I ↑ ==> Y ↑ ==> $m_d$ ↑ ==> i ↑ **Effect: Y ↑ and i ↓.**

**Combined effect: Y stays about the same while i goes down.**

2. A cut in the income tax rate will flatten the IS-curve and shift it to the right. Both the level of income and the interest rate will increase. If the Fed increases money supply to keep the interest rate constant, the LM-curve will also shift to the right, maximizing the multiplier effect, since no crowding out will take place. However, if money supply is held constant, the LM-curve will not shift and the overall effect on income will be weakened, since the increase in the interest rate will crowd out investment.



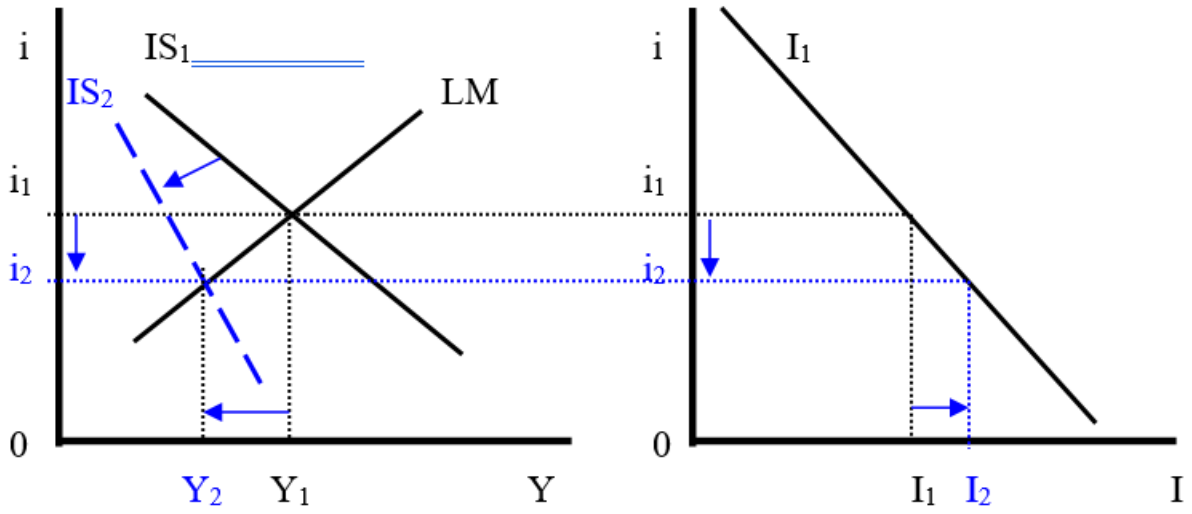

The adjustment process is as follows:

1-->2: t ↓ ==> C ↑ ==> Y ↑ == md ↑ ==> i ↑ ==> I ↓ ==> Y ↓ **Effect: Y ↑ and i ↑.**

2-->3: (M/P) ↑ ==> i ↓ ==> I ↑ ==> Y ↑ ==> md ↑ ==> i ↑ **Effect: Y ↑ and i ↓.**

**Combined effect: Y goes up while i stays about the same.**

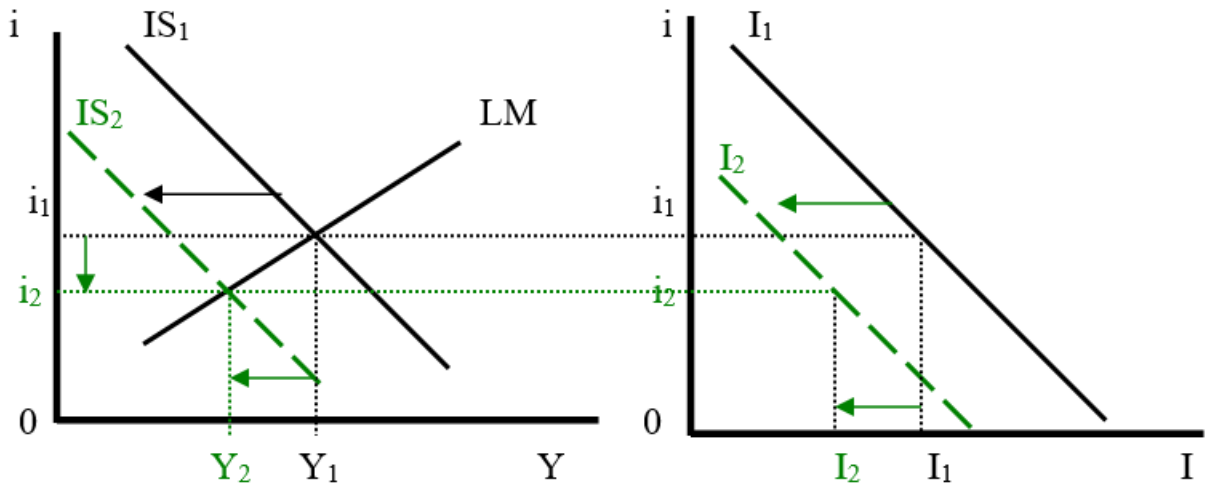
3. Either a removal of an investment subsidy or an increase in the income tax rate will shift the IS-curve to the left. This will lead to a decrease in income and the interest rate. However, the effects on the composition of GDP and on the investment schedule are not quite the same.




An increase in the income tax rate will reduce consumption. The expenditure multiplier will become smaller, so the IS-curve will become steeper and shift to the left. Due to the decrease in income, the money sector will no longer be in equilibrium (money demand will have decreased), so the interest rate will have to decrease to again achieve a simultaneous equilibrium in the expenditure and money sectors. The lower interest rate will increase investment spending and we will move along the investment schedule from left to right. Overall, we have a decrease in income and consumption but an increase in investment due to lower interest rates. The adjustment process can be described as follows:

1-->2: t ↑ ==> C ↓ ==> Y↓ == $m_d$ ↓ ==> i ↓ ==> I ↑ ==> Y ↑. **Effect: Y ↓ and i ↓.**

Removing an investment subsidy will reduce the level of investment spending and shift the investment schedule to the left. But this will shift the IS-curve parallel to the left by a magnitude of $\Delta IS = \alpha(\Delta I_o)$. Due to the decrease in income, the money sector will no longer be in equilibrium (money demand will have decreased), so the interest rate will decrease until we are in a simultaneous equilibrium in the expenditure and money sectors. The decrease in interest rate will increase investment spending again and we will move along the new investment schedule from left to right. Thus the effect of the shift will be partially offset by the decrease in the interest rate. Overall, we will have a decrease in the levels of income, consumption, and investment.




This time, the adjustment process can be described as follows:

1-->2: $I_o$↓ ==> Y↓ == $m_d$↓ ==> i↓ ==> I↑ ==> Y↑. **Effect: Y↓ and i↓.**