

ECON2120 IS-LM exercise

Student Name _____ Student no. _____

In the IS-LM model, equilibrium Y is derived as:

$$Y^* = \frac{l}{hf + l[1 - c(1 - t)]} (c_0 - ct_0 + i_0 + \bar{G} + jW) - \frac{f}{hf + l[1 - c(1 - t)]} gW + \frac{f}{hf + l[1 - c(1 - t)]} \bar{M}$$

The relative effectiveness of fiscal versus monetary policy (i.e. the relative size of the fiscal multiplier versus the monetary multiplier) depends on the size of $\boxed{\begin{matrix} > \\ l=f \\ < \end{matrix}}$, as the denominator of both multipliers are the same. Only the numerator l and f are different.

l : the interest elasticity of money demand

f : the interest elasticity of investment

1. Draw the case where fiscal policy (the shift of the IS curve) is more

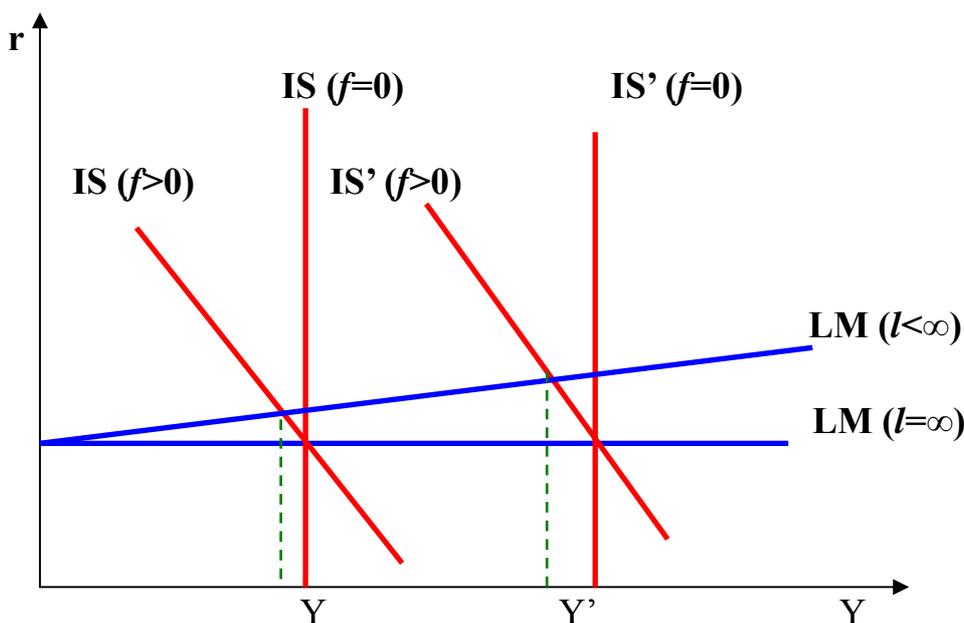
effective and state whether $\begin{matrix} > \\ l=f \\ < \end{matrix}$ Recall the IS curve and LM Curves:

$$Y = \frac{1}{1 - c(1 - t)}(c_0 - ct_0 + i_0 + \bar{G} + jW) - \frac{f}{1 - c(1 - t)}r$$

So $f=0 \rightarrow$ vertical IS curve; $f=\infty \rightarrow$ horizontal IS curve/

$$Y = \frac{1}{h}\bar{M} - \frac{g}{h}W + \frac{l}{h}r$$

So $l=\infty \rightarrow$ horizontal LM curve; $l=0 \rightarrow$ vertical LM curve



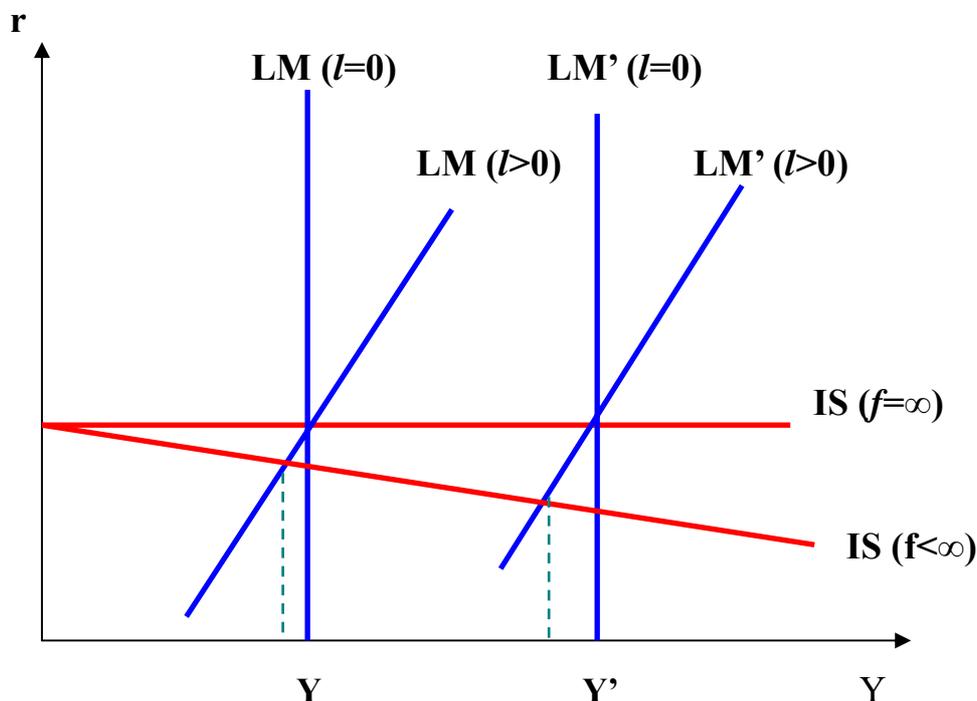
Remember that $M_d = hY - lr + gW$, so given $l=\infty$ and a horizontal LM curve, people are so pessimistic that they become insensitive to movement in interest rate and want to hold money in stead of spending it, so matter how much MS the government issues, leading to a fall in r . That is called a “liquidity trap”, which could happen as r approaches zero (but not necessarily at zero). Hence only the government can spend by increasing G , creating employment and increasing output.

Recall that $I = i_0 - fr$. Given $f=0$ and a vertical IS curve, people are insensitive to r in their investment. No matter how much MS is issued and how low r falls to, they still don't want to invest. Again fiscal expenditure works.

You can work out the intermediate cases for $l(<\infty) > f(>0)$ yourselves.

2. Draw the case where fiscal policy is more effective and state

whether $\begin{matrix} > \\ l=f \\ < \end{matrix}$



Recall that $I = i_0 - fr$, so when $f=\infty$ and a horizontal IC curve, people are perfectly sensitive to r in their investment decision. Any increase in r will kill off their interest in investment. So if government increases G , and resulting in a rise in r , the fiscal policy will not work at all.

An increase in MS however will push r down, resulting in a fall in r and a rise in I and Y . When $l=0$ and a vertical LM curve, given $M_d = hY - lr + gW$, people will not increase their demand for money even if r falls, they will spend the excess money issued by the government.

You can work out the intermediate cases for $l(<\infty) < f(>0)$ yourselves.