Problem set on IS/LM

1) Assume $M^S / P = L(i,Y)$ and $Y = E(Y,r,G,T)$ where $r = i - \pi^e$

a) Derive expressions for $\partial i / \partial M^S$ and $\partial Y / \partial M^S$ in terms of L_Y , L_i , E_r , E_Y . assuming π^e and P remain fixed.

b) Derive expressions for $\partial i / \partial \pi^e$ and $\partial Y / \partial \pi^e$ assuming M^S and P remain fixed.

Hint: use the method we used to derive the slope of the AD curve.

5.3. The government budget in the standard Keynesian model.

(*a*) **The balanced budget multiplier.** (See Haavelmo, 1945.) Suppose that planned expenditure is given by (5.2), $E = C(Y - T) + I(i - \pi^e) + G$.

(*i*) How do equal increases in G and T affect the position of the IS curve? Specifically, what is the effect on Y for a given level of i?

(*ii*) How do equal increases in G and T affect the position of the AD curve? Specifically, what is the effect on Y for a given level of P?

(*b*) **Automatic stabilizers.** Suppose that tax revenues, T, instead of being exogenous, are a function of income: $T = T(Y)$, $T'(Y) > 0$. With this change, find how an increase in $T'(Y)$ affects the following:

(*i*) The slope of the IS curve.

(*ii*) The effects of changes in G and M on Y for a given P.

5.4. The liquidity trap and the Pigou effect. Assume that the nominal interest rate is so low that the opportunity cost of holding money is negligible. Suppose that as a result people are indifferent concerning the division of their wealth between money and other assets, and that they are therefore willing to change their money holdings without any change in the interest rate.

(*a*) **The liquidity trap.** (Keynes, 1936.) In this situation, what is the slope of the AD curve? If prices are completely flexible (so the AS curve is vertical), is aggregate demand irrelevant to output?

(*b*) **The Pigou effect.** (Pigou, 1943.) Suppose that, in addition, planned expenditure depends on real wealth as well as the variables in (5.1). Since the public's holdings of high-powered money are one component of wealth, a fall in the price level increases real wealth. If prices are completely flexible (so the AS curve is vertical), is aggregate demand irrelevant to output?