

SGPE Summer School

Macro Problem Set 7

Aggregate Demand II
Mankiw, Chapter 11

7th August 2013

Problems

Question 1

Suppose two countries differ only in the size of their *MPC*. In Country A, the *MPC* is large, and in Country B, the *MPC* is small.

- (a) Draw the representative *IS* and *LM* curves for each country. Compare the shapes of the *IS* and *LM* curves in the two countries and explain your results.
- (b) In which country will an increase in the money supply be more effective in changing real output? Illustrate using the graph you just drew in part (a).

Question 2

Some economists believe that the US economy is now in a liquidity trap as interest rates have been kept almost to zero for a few years. One proposed solution is an announced, long-term expansionary monetary policy that increases both the nominal money supply and inflationary expectations. Draw *IS – LM* curves using the nominal interest rate on the vertical axis and illustrate how a successful implementation of this policy would affect the equilibrium levels of *i*, *Y*, and *r*.

Question 3

Suppose consumption is a linear function of disposable income:

$$C(Y - T) = a + b(Y - T),$$

where $a > 0$ and $0 < b < 1$. Suppose also that investment is a linear function of the interest rate:

$$I(r) = c - dr,$$

where $c > 0$ and $d > 0$.

- (a) Solve for Y as a function of r , the exogenous variables G and T , and the model's parameters a , b , c , and d .
- (b) How does the slope of the IS curve depend on the parameter d , the interest rate sensitivity of investment? Refer to your answer to part (a), and explain the intuition.
- (c) Which will cause a bigger horizontal shift in the IS curve, a \$100 tax cut or a \$100 increase in government spending? Refer to your answer to part (a), and explain the intuition.

Now suppose demand for real money balances is a linear function of income and the interest rate:

$$L(r, Y) = eY - fr,$$

where $e > 0$ and $f > 0$.

- (d) Solve for r as a function of Y , M , and P and the parameters e and f .
- (e) Using your answer to part (d), determine whether the LM curve is steeper for large or small values of f , and explain the intuition.
- (f) How does the size of the shift in the LM curve resulting from a \$100 increase in M depend on
 - i. the value of the parameter e , the income sensitivity of money demand?
 - ii. the value of the parameter f , the interest sensitivity of money demand?
- (g) Use your answers to parts (a) and (d) to derive an expression for the aggregate demand curve. Your expression should show Y as a function of P ; of exogenous policy variables M , G , and T ; and of the model's parameters. This expression should not contain r .
- (h) Use your answer to part (g) to prove that the aggregate demand curve has a negative slope.
- (i) Use your answer to part (g) to prove that increases in G and M , and decreases in T , shift the aggregate demand curve to the right. How does this result change if the parameter f , the interest sensitivity of money demand, equals zero?