Ph.D. Macroeconomics Fall 2015

Homework Assignment #4 Due: 9:00, Thursday 12 November

1. Review of basic *IS/LM* and *AS/AD* model. Using the basic *IS/LM* model of aggregate demand and the framework of aggregate supply and demand discussed in Chapter 2, Parts D and E of the coursebook, explain how each of the changes listed in parts a through c would affect the macroeconomy in both the short run and the long run. For each part, you should first use *IS/LM* and *AS/AD* graphs to how (if at all) each curve is affected in the short run and what adjustments occur in the long run. Then you should summarize each part with a table of results like the one below, showing the effect of the change on output, the real interest rate, and the price level.

	Short-run effect	Long-run effect
Effect on *Y*		
Effect on *r*		
Effect on *P*		

a. An increase in tax collections
b. An increase in the money supply
c. A fall in the world oil price (assuming this country is an oil importer)

2. Automatic stabilizers in the simple *IS/LM* model. In the model of Coursebook Chapter 2, taxes are assumed to be exogenous at a fixed level. Suppose instead that taxes are an increasing function of income: $T = T(Y)$, with $T'(Y) > 0$.

a. Explain how this would affect the slope of the *E* curve in the income-expenditure model, the simple Keynesian expenditure multiplier, and the slope of the *IS* curve.
b. Suppose that there was a shock to the *LM* curve. Explain both graphically and in words how the income-sensitive tax function would act as an "automatic stabilizer" to reduce the effect of the shock on real output.

3. Effects of shocks in open-economy models. This problem asks you to analyze the effects of three shocks in each of three models, so there are nine parts. The models are the ones discussed in Section 5.2 of Romer's 3rd edition. For each model, tell how (if at all) the following three shocks affect each of the curves in that model (some variant of *IS* and *MP* curves) and how (if at all) they affect real output, the real interest rate, and the real exchange rate in the short run with prices fixed:

Shock #1: An increase in the foreign interest rate
Shock #2: An increase in (domestic) taxes
Shock #3: Open-market purchases by the domestic central bank to buy domestic bonds and expand the money supply

a. Model with floating exchange rates, perfect capital mobility, and zero expected change in real exchange rate. (The *IS** and *MP** model of Romer's 3rd edition, Figure 5.7.)

b. Model with floating exchange rates and imperfect capital mobility (The *IS* and *MP* model of Romer's 3rd edition, Figure 5.8)

c. Fixed exchange rates (The *IS* and $\widetilde{MP}$ model of Romer's 3rd edition, Figures 5.9 and 5.10.)