PROBLEM SET #9

This homework assignment is due at the beginning of lecture on Thursday, December 7. Although you may discuss the problems with others, you are expected to write your answers in your own words.

1. (a) Suppose that the economy is in a long-run equilibrium and the government decides to reduce government spending. Use the AD–AS model that we have developed in class to determine both the short-run and the long-run effects of this reduction in government spending on the following variables: output, consumption, investment, the price level, the unemployment rate, and the interest rate. (You may assume that the government does not change taxes.) Support your answer with clearly-labelled diagrams.

(b) In part (a), the government, by reducing government spending but leaving taxes unchanged, runs a surplus. According to the theory of Ricardian equivalence (as described on pp. 7–11 of Lectures Slides #10), forward-looking consumers recognize that if the government runs a surplus today, then it can (and will) run a deficit in the future by reducing taxes (assuming that government spending does not change in the future). If consumers want to smooth consumption over time, how do they adjust today’s consumption in anticipation of a future reduction in taxes? How does this adjustment affect your answer in part (a) about the short-run effects of the reduction in government spending? For example, in the short run, do output and the price level adjust by more or less when consumers anticipate a tax reduction in the future? Explain clearly.

2. (a) Read the two articles from The Economist magazine on the course web site (http://www.econ.yale.edu/smith/econ116a) about the recent U.S. housing slump. Briefly summarize (using no more than three sentences) the main points of these articles.

(b) The second of the two articles on the housing slump suggests that the recent decline in housing prices could lead consumers to feel less wealthy and, consequently, to spend less on consumption goods. To account for this effect of a housing slump in the AD–AS model, suppose that \( C = \bar{C} + b(Y - T) \), where \( b \) is the marginal propensity to consume, \( Y - T \) is disposable income, and \( \bar{C} \) is autonomous consumption (i.e., the part of consumption expenditures that does not depend on
disposable income). Suppose that the housing slump causes $\bar{C}$ to fall (i.e., there is a one-time drop in the value of $\bar{C}$). Use the AD–AS model to determine both the short-run and the long-run effects of this change on the same variables as in part (a) of the first problem. Support your answer with clearly-labelled diagrams.

3. Consider a world with three countries: the U.S., China, and Saudi Arabia. Each country produces one type of consumption good: in a given year, the U.S. produces $1000 worth of financial services, China produces $400 worth of manufactured goods, and Saudi Arabia produces $300 worth of crude oil. In the same year, the U.S. consumes $700 worth of financial services, $300 worth of manufactured goods, and $200 worth of crude oil; China consumes $100 worth of financial services, $60 worth of manufactured goods $90 worth of crude oil; and Saudi Arabia consumes $200 worth of financial services, $40 worth of manufactured goods, and $10 worth of crude oil. Calculate net exports for each country. Verify that the sum of your answers is zero. (Why must this be true?)

4. (a) Read the article from *The Economist* (located on the course web site) about the Big Mac index.

(b) Suppose that 1 dollar is currently worth 10 yuan and 0.7 euros. How much is 1 euro worth in terms of yuan? How much is 1 yuan worth in terms of euros?

(c) Suppose that a Big Mac costs 1.5 dollars in the U.S., 18 yuan in China, and 1.2 euros in Europe. Using these prices and the nominal exchange rates in part (b), calculate the real exchange rates (i.e., the rate at which Big Macs in one country can be exchanged for Big Macs in another country) for each of the three pairs of countries. For which, if any, pairs of countries does purchasing power parity (PPP) hold?

(d) For each pair of countries, use the Big Mac prices to compute the nominal exchange rate predicted by PPP.

(e) If the PPP nominal exchange rates that you computed in part (d) do not agree with the actual nominal exchange rates in part (b), then state (for each pair of countries for which PPP does not hold) which country’s currency must appreciate in order for PPP to hold.