

1 June 2011

**Final Exam**

1. (15 Points) Suppose that the following equations describe an open economy:

$$C = 18.5 + (0,85)(Y - T), T = 10, I = 10, G = 10, X = 10, M = (0,01)Y, \text{ and } \epsilon = 1/5.$$

- (a) Find the **multiplier** and equilibrium **GDP** values of this economy.
- (b) Find the equilibrium **net export** value of this economy.
- (c) What should be equilibrium GDP to make net exports positive (for given  $\epsilon$  and  $X$ ).

**Hint: Do not forget to follow the notation of your course textbook, namely Blanchard.**

Izmir University of Economics  
Department of Economics

I. Hakan Yetkiner  
<http://www.hakanyetkiner.com>

2. (15 Points) Suppose the Phillips curve equation is  $\pi_t - \pi_t^e = 0.05 - 0.5u_t$ , where  $\pi_t^e = \pi_{t-1}$  ( $\pi_0 = 0.05$ ).

- (i) What is the natural rate of unemployment?
- (ii) Suppose that you are given the following information:

Time (t)	Unemployment rate (u)
1	0.05
2	0.075
3	0.1
4	0.1

- (iii) Graph the short-run and the long-run relationship between inflation and unemployment, if  $\pi_0 = 0.05$ .

3. (30 Points) Please do solve the following short questions.

### 3.1 Consumption

Let's assume that you have 4 periods of life: **younghood**, **young-adulthood**, **old-adulthood** and **retirehood**. During younghood, you do not earn any income. You earn \$140,000 (real dollars) and \$160,000 (real dollars) per period, when you are young-adult and old-adulthood, respectively. Again there is no income during your retirehood. Given that you do not like any deviation in your consumption level (=you want your consumption to be smooth), what should be your consumption per period? The real rate of interest is 2% per period.

### 32. Investment

Suppose that the cost of investment project is \$200. The first year, the return is \$111 and the second year, the return is \$121. The project ends in the two years. If the real rate of interest is 10%, should the firm make the investment?

### 3.3 RER

Suppose that 1 kg of apple was \$2.5 in the United States, €1.245 in Spain, and the nominal exchange rate was €0.79/\$ in 2009. In 2010, the nominal exchange rate became €0.85/\$ (the price of apple did not change in both countries). Did the real exchange rate appreciate or depreciate from the viewpoint of US?

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### **3.4 Interest Parity condition**

Consider a financial investor choosing between US bonds and Japanese bonds. Suppose that one year interest rate on US bonds is 5% and the one-year interest on Japanese bonds is 14%. How much and in which direction should Japanese Yen change for the investor to prefer to invest in US (use the approximation rule)?

### **3.5 Marginal Efficiency of Capital**

Suppose that an investment project (purchasing a capital) costs 120 dollars. The capital has a two-year life and each year it returns 75 dollars. What is the marginal efficiency of capital?

### **3.6 Marshall-Lerner Condition**

Suppose that a 1% appreciation leads to a proportional decrease in exports of -0.9% and to proportional increase in imports of 0.5%. How does the trade balance change? Improve or deteriorate? Calculate!

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**4. (25 Points)** Compare and contrast the trade balance impact of a decrease in government spending versus depreciation. Support your answer by extensive discussion and illustrations. Hint: Use the simple Keynesian illustration tools. **Hint: This is a 25 point question. I expect extensive discussion.**

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5. (15 Points) Compare and contrast the impact of an increase in money supply under IS-LM and expectations augmented IS-LM frameworks. **Do not forget to support your answer by illustrations.**