

ECON 202
MACROECONOMIC THEORY
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Final Exam

1. (25 Points) Suppose that the following equations describe an open economy:

$$C = 16 + (0.5)(Y - T), T = 10, I = 10, G = 10, X = 15, M = 5 + (0.5)Y, \text{ and } \epsilon = 5.$$

Hint: Do not forget to take into consideration the real exchange rate, ϵ . And do not forget to follow the notation of your course textbook.

- (a) Find the **multiplier** and equilibrium **GDP** values of this economy (**7 Points**)
- (b) Find the equilibrium **net export** value of this economy. (**5 Points**)
- (c) What would be net export, were constant imports increased by 15 (from 5 to 20) (**Hint:** this is a tricky question)? (**8 Points**)
- (d) Suppose that both government spending and export are increased by 5 (i.e., new $G=15$ and new $X=20$). What would be the **joint multiplier** (**Hint:** answer is extremely simple, if one can see)? (**5 Points**)

2. (25 Points) Please do solve the following short questions.

2.1 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 in (real dollars) \$140,000, \$160,000, and \$80,000 during your young-adulthood, old-adulthood and retirehood, respectively. Given that you do not like any deviation in your consumption level (=you want your consumption to be perfectly smooth), what should be your consumption per period? The real rate of interest is **0%** per period.

2.2. Investment

Suppose that the cost of investment project is \$300. The return is \$121 for Year 1, Year 2 and Year 3. The project ends in the three years. If the real rate of interest is 10%, should the firm make the investment?

2.3 RER

Suppose that 1 kg of apple was \$2.5 in the United States, £1.245 in UK, and the nominal exchange rate was \$1.10/£ in 2009. In 2010, the nominal exchange rate became \$1.20/£ and the price of apple did not change in both countries. Did the real exchange rate appreciate or depreciate from the viewpoint of US?

2.4 Interest Parity condition

Consider a financial investor choosing between US bonds and Japanese bonds. Suppose that one year interest rate on US bonds is 1.1%, the one-year interest on Japanese bonds is 4.9% and Japanese Yen depreciates by 3.9%. Which country should the investor prefer to invest? SHOW your Calculations! (no points without calculations)

2.5 Marshall-Lerner Condition

Suppose that a 1% depreciation leads to a proportional change in exports of 0.7% and to proportional change in imports of -0.5%. How does the trade balance change? Improve or deteriorate? Calculate!

3. (25 Points) Compare and contrast the **trade balance impact** of an increase in government spending versus depreciation of real exchange in a **simple Keynesian framework**. Support your answer by extensive discussion and illustrations.

Hint: Assume that there is trade balance initially.

4. (15 Points) Suppose the Phillips curve equation is $\pi_t - \pi_t^e = 0.025 - 0.25u_t$, where $\pi_t^e = 0.75\pi_{t-1} + 0.25\pi_{t-2}$.

- (i) (5 Points) What is the natural rate of unemployment?
(ii) (10 Points) Suppose that you are given the following information:

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

Find the inflation rate for periods 2 to 4, if $\pi_0 = 0.05$ and $\pi_1 = 0.04$.

5. (20 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.