

國立嘉義大學 100 學年度

應用經濟學系碩士班招生考試試題

科目：總體經濟學

This exam for macroeconomics contains four questions within two pages and amounts to 100 points. Please mark the items clearly and leave a space between each question.

1. Consider the production function:

$$Y = AK^\alpha N^\beta,$$

where Y is total output, K is capital, N is labor force, and A is total factor productivity. Also, the parameters α and β respectively measure the capital and labor shares of income.

- Derive the so-called Solow residual $g_A = g_Y - \alpha g_K - \beta g_N$, where g_u denotes the growth rate of variable u , and provide the rationale for it. (10 分)
- Given appropriately constant parameters in a simple Solow growth model, what is the growth rate of capital per worker ($g_{K/N}$) at the steady state? (5 分)
- Continuously given the circumstance in part (b), what is the meaning of golden rule $k = K/N$? Show your answer in a plausible diagram. (8 分)
- How does the production function in an endogenous growth model differ from the function in the Solow model? (7 分)

2. You read in a newspaper that the nominal interest rate is 8% per year in the United States and 12% per year in Canada. Suppose that the real interest rates are equalized in these two countries and the purchasing power parity holds.

- Utilize the Fisher equation to infer about the expected inflation in the United States and Canada. (5 分)
- What can you infer about the expected change in the bilateral nominal exchange rate between Canada and the United States? (5 分)

- One of your friends proposes a get-rich-quick scheme: Borrow from the United States bank at 8%, deposit the money in a Canadian bank at 12%, and make a 4% profit. What is wrong with this scheme? (10 分)

3. The relationship between inflation and unemployment is given by:

$$\pi = \pi^e - 3(u - 0.06).$$

- If actual inflation is 0.02 and expected inflation is 0.05, what is the unemployment rate? (5 分)
- Graph the short-run and long-run Phillips curves. How do the rational expectations imply about these tradeoffs? (15 分)
- What is the value of the natural rate of unemployment? If you were president of the United States, what would you do to reduce the natural rate of unemployment? Propose *two* different methods that will achieve that goal. (10 分)

4. Someone said, "Due to a change in the regulatory structure of a small open economy, the desired capital stock becomes higher for both private investment and government investment. Increased government investment spending is financed by borrowing, not by higher taxes. If both desired investment and government spending rise at the same time, there will be twin deficits."

- What is the concept of a small open economy? (5 分)
- Find a theory regarding the issue on government financing. (5 分)
- Draw a plausible diagram to explain why you agree or do not agree with the above-mentioned statement. (10 分)