

國立臺北大學 112 學年度碩士班一般入學考試試題

系（所）組別：經濟學系

科 目：總體經濟學

第1頁 共2頁

☐可 ☒不可使用計算機

1. (30%) 在金融市場中，其中知名的一條曲線為 yield curve(稱收益率曲線或殖利率曲線，請說明 yield curve 的意涵 (3%)；yield curve 具有哪三個重要現象 (Empirical facts) (9%)；好的理論必須要能解釋以上三個現象，請說明 yield curve 相關理論發展及其意涵 (18%)。
2. (20%) 烏俄戰爭造成經濟體系動盪不安，請以總體經濟模型說明地緣政治風險對經濟體系的影響。
3. (25%) Let us examine a simple model of employment and unemployment. Consider an economy of two production sectors. Denote the sectors by $i = 1, 2$. Suppose that the economy has a labor force of L , with v of the labor force being allocated to sector 1 and $(1 - v)$ of the labor force being allocated to sector 2. Let U_i , E_i , s_i and f_i be the total number of the unemployed workers, the total number of the employed workers, job separating rate and job finding rate in sector i , respectively. A worker is either employed or unemployed. Assume that the labor markets of the two production sectors are completely segregated, and there is no labor mobility across sectors. Answer the following questions.
 - (a) (4%) The labor market in this economy is said to be in a steady state if the unemployment rate is constant. Write down the steady-state conditions for the labor markets.
 - (b) (3%) Suppose that s_1/f_1 is always higher than s_2/f_2 . Which sector has a higher steady-state unemployment rate, sector 1 or sector 2?
 - (c) (5%) Derive the steady-state unemployment rate for the economy.

We usually observe that the less educated workers tend to hold manual and service occupations. Besides, the unemployment rate for the less educated workers is found to be higher than that for more educated workers. Furthermore, the less educated were found to be hurt the most in terms of job loss during the COVID-19 pandemic.

- (d) (3%) Which of the sector in the model corresponds to the “manual and service” in the description?
- (e) (5%) Suppose that there is a developed North country and a developing South country. Suppose that prior to the pandemic, the two countries have the same sector specific unemployment rate, but their labor force compositions are different, i.e., $v^N \neq v^S$. Which country has a higher v , the North or the South? Which country has a higher unemployment rate prior to the pandemic? How the pandemic affects the job separation rates and the job finding rates in the North and the South? Which country has a higher unemployment rate during the pandemic? Briefly explain your answer.

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(f) (5%) Up so far, we have assumed that workers have no mobility across sectors. In reality, it is costly for workers to switch sectors. Discuss what could prevent workers from switching sectors. Formulate your answer by writing down an equation (equations) for a worker to be indifferent between switching across sectors.

4. (25%) Consider a simple two-period model where the world lasts only for two periods. An agent has one unit of labor and provides the labor to the market inelastically. The agent's budget constraints in the two periods are:

$$c_1 + b_1 = w_1$$

$$c_2 = b_1(1 + r_1) + w_2$$

where b_1 is the asset position of the agent in period 1, w_1 and w_2 are the real wage rate in periods 1 and 2, and r_1 is the real interest rate from period 1 to period 2. The production technology in this economy is

$$Y = AL$$

for both periods, where L is total number of workers or agents in the economy. All markets are competitive. Answer the following questions.

(a) (2%) What is the equilibrium wage rate in period 1 and period 2?

(b) (3%) Derive the two-period intertemporal budget constraint for the agent. Plot it on the (c_1, c_2) -space.

Suppose that there is a government collecting taxes from and providing services to the agents in the economy. The government can choose to impose a consumption tax, a capital income tax or a labor income tax on the household.

(c) (10%) Let τ_c , τ_k and τ_w denote the consumption tax rate, the capital income tax rate and the labor income tax rate. How will the taxes affect the agent's budget constraint? Write down the agent's budget constraints in periods 1 and 2 as well as the intertemporal budget constraint. Illustrate the intertemporal budget constraint under consumption tax, capital income tax and labor income tax in figures, respectively.

(d) (10%) Suppose that the government collects labor income taxes only. In both periods, the government provides services to all the agents in the economy, inclusive of public health services, national defense, and etc. Denote government expenditure by G . Suppose that the technology scaling factor in the two periods, A_1 and A_2 , are different and $A_1 > A_2$. Now the total taxes collected in period 1 is greater than G_1 . Do you think that the government should return the "excess" tax revenue to the agents in the economy? Discuss.