

# 國立臺北大學 107 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. Suppose you divide your life into two periods: working age and retirement age. When you work, you earn labor income  $y$ ; when retired, you earn no labor income, but must live off your savings and the interest it earns. While working, you save the amount  $s$ , earning interest at a constant rate  $r$ , so you have  $(1+r)s$  to live on when retired. Because you don't need to consume as much when retired, you want to set consumption when working ( $c^w$ ) twice as high as consumption when retired ( $c^r$ ).
  - (1) Suppose you earn \$1,000,000 over your working life, and the real interest rate is 50%. How much will you save and how much will you consume in each part of your life? (5 分)
  - (2) Suppose a social security system will pay you 25% of your working income when you are retired. Now, with  $y = \$1,000,000$ , as in part (a), how much will you save and how much will you consume each period? (5 分)
  - (3) Suppose the interest rate rises, starting from the situation in part (a). Will you save more or less in your working period? Discuss the change of your saving plan based on the substitution effect (SE) and income effect (IE), separately. (5 分)
  
2. *"The Federal Open Market Committee (FOMC) outlined its approach to monetary policy normalization in the Policy Normalization Principles and Plans that it issued after its September 2014 meeting. The FOMC indicated that there would be two main components to policy normalization: gradually raising its target range for the federal funds rate to more normal levels and gradually reducing the Federal Reserve's securities holdings. The Committee augmented these Principles and Plans at its March 2015 FOMC meeting by announcing more details about the approach it would use to raise the federal funds rate and other short-term interest rates."*

Based on the above announcement by FOMC, please discuss, in detail with macroeconomic theory, the impacts on (a) the prices and yield rates of government securities, (b) the (nominal) exchange rates, and (c) the aggregate economic activities in the United States. (15 分)
  
3. The textbook Solow–Swan model gives you the following framework setup:
  - Aggregate production function:  $Y_t = AK_t^\alpha L_t^{1-\alpha}$ , where  $Y_t$ ,  $K_t$ , and  $L_t$  are aggregate output, aggregate physical capital, and total labor force at time  $t$ , respectively. Total factor productivity  $A$  and the capital share  $\alpha$  are assumed constant.
  - Physical capital accumulation:  $K_{t+1} = I_t + (1-d)K_t$ , where  $I_t$  is the gross investment at time  $t$ , and the capital depreciates at a constant rate of  $d$ .
  - Labor force growth:  $L_{t+1} = (1+n)L_t$ , where  $n$  is a constant labor growth rate.
  - Aggregate output is distributed to aggregate consumption,  $C_t = (1-s)Y_t$ , and aggregate saving,  $S_t = sY_t$ , where the saving rate  $s$  is constant. There is no government in this closed economy. Goods market is in equilibrium for all time.

試題隨卷繳交

接背面

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第 2 頁 共 2 頁

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- (1) Let  $k_t = K_t/L_t$  and  $y_t = Y_t/L_t$  be capital-labor ratio and output per worker, respectively, find the first-order difference equation for  $k_t$ , that is  $k_{t+1} = g(k_t)$ . (5 分)
- (2) Find the steady-state capital-labor ratio ( $k^*$ ) and output per worker ( $y^*$ ) with the combination of defined parameters in the question. (5 分)
- (3) To maximize steady-state consumption per worker,  $c^* = (1 - s)y^*$ , one must choose the golden-run saving rate. Please prove that this golden-run saving rate must be equal to the capital share,  $\alpha$ . (5 分)
- (4) When  $\alpha = 1$ , the steady-state values of capital-labor ratio ( $k^*$ ) and output per worker ( $y^*$ ) fail to exist so please derive the long-run growth rates of  $k_t$  and  $y_t$ . (5 分)
4. 薪資低迷是臺灣目前面對的重大難題，政府財經官員最常採取的因應措施有二：  
(A)獎勵新創產業，增進研發動能，(B)提高教育水準，增加人力資本。  
(1)獎勵新創產業是補貼資本家創業，而不是補貼勞工加薪，請問這對提高勞工薪資會有幫助嗎？試說明之。(10 分)  
(2)廣設大學，五年五百億頂尖大學計畫，愛因斯坦計畫等等都是教育/科技主管單位這十幾年來想出的提高教育水準，增加人力資本的點子，請問這對提高勞工薪資會有幫助嗎？試說明之。(10 分)
5. 央行總裁彭淮南即將卸任，在他任內央行的貨幣政策是以釘住重貼現率為主，新任總裁無論是誰，相信在這方面依然會蕭規曹隨。  
(1)臺灣央行為何不像美國聯準會 (Fed) 是以釘住聯邦基金利率 (即各商業銀行之間拆借聯邦準備金的隔夜拆款利率) 的公開市場操作政策為主，而是以重貼現率作為央行的指標利率？(10 分)  
(2)其實 Fed 也不是一直以公開市場操作為主，譬如在 1929-1933 的經濟大蕭條期間 (當時美國採取金本位)，Fed 也是以調整重貼現率為主要的貨幣政策，你認為當時 Fed 為何會用重貼現率政策，但現在卻是改採公開市場操作呢？其主要原因為何？試說明之。(10 分)
6. 經研所畢業的學生許多都會去金融機構工作，可是據說在人工智慧 (artificial intelligence, AI) 和金融科技 (Fintech) 不斷發展下，未來許多工作都將由 AI 取代。你覺得對想進入金融業的經濟系學生而言，主要應該加強以下哪一種知識或能力，才不會被 AI 淘汰？  
(A)程式設計，(B)統計分析，(C)區塊鏈技術，(D)總經分析  
試說明之。本題沒有參考或標準答案，評分以你的論述為主。(10 分)

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