

國立中央大學100學年度碩士班考試入學試題卷

所別：產業經濟研究所碩士班 產業經濟組(一般生)

科目：總體經濟學

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*請在試卷答案卷(卡)內作答

參考原

1. (20%) Assume Mr. A cares about his consumption (c) and leisure ($1-l$) where we measure labor (l) as the fraction of the day that Mr. A works, the remainder is leisure. Suppose Mr. A's preferences are given by: $u(c,l) = c^\beta (1-l)^{(1-\beta)}$ where $0 < \beta < 1$. Mr. A's technology is $y = f(l) = Al^\alpha$. What are Mr. A's optimal choices of consumption (c) and labor (l)?
2. (30%) Assume Mr. A cares about his consumption (c_t) in each period. His preferences look like: $u(c_1, c_2, c_3, \dots) = u(c_1) + \beta u(c_2) + \beta^2 u(c_3) + \dots$. Mr. A gets exogenous income y_t in each period. This income is in terms of consumption goods. At time t , Mr. A can buy or sell consumption goods c_t at a price of P per unit. He is able to save money by buying bonds that bear interest. Use b_t to denote the number of dollars of bonds that Mr. A buys at period t , for which it will collect principal and interest in period $t+1$ at the rate of interest on the bonds, R . Assume Mr. A lives for two time periods, $t=1,2$. His problem is to choose consumption c_1 and c_2 and first-period bond holding b_1 .
- (a) (10%) Please write out Mr. A's utility maximization problem.
(b) (10%) Determine the Euler equation.
(c) (10%) Determine the equilibrium interest rate, R^* , if we assume $u(c_t) = \ln c_t$.
3. (20%) Consider Mr. A with a utility function over consumption C and effort L of the form: $U(C,L) = 2\sqrt{C} - L$. Mr. A's income takes

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the form: $y(L) = wL$, given the wage rate, w . Assume that there is a simple flat tax, given the tax rate, τ , so the tax policy is

$$H(L; \tau) = \tau y(L).$$

(a) (10%) Does this system exhibit a Laffer curve?

(b) (10%) If the government introduces a lump-sum tax of amount τ_1 , does this system exhibit a Laffer curve?

4. (30%) Assume that the government has a utility function over unemployment rate (u) and inflation rate (π) of $V(u, \pi)$ given by:

$$V(u, \pi) = -\phi u^2 - \pi^2 \text{ where } \phi > 0. \text{ Assume that there is a Phillips curve}$$

of the form: $u = u^* + \gamma(\pi^e - \pi)$ where u^* is the "natural rate" of

unemployment, π^e is the expected inflation rate.

(a) (10%) Assume that inflationary expectations are fixed at π^e . Find the optimal inflation rate choice of the government, $\pi_0(\phi)$.

(b) (10%) For fixed inflationary expectations, find the corresponding choice of unemployment rate, $u_0(\phi)$.

(c) (10%) Now assume that the private sector is aware of the government's maximization problem and knows ϕ perfectly.

Find the inflation rate π_1 at which expectations are met. What is

the associated unemployment rate, u_1 ?

參考用

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