

國立中興大學八十二學年度研究所博士班考試（經濟理論）

第一部份

- 一、如何衡量農業部門在整體經濟中所佔的地位？通常經濟成長使產業結構發生何種變化？何以農業部門隨經濟發展而相對降低其地位，試建立理論模型說明之。(20%)
- 二、說明農場經營規模的意義及技術進步對農場經營規模的影響。又，何謂農場經營及約度，舉出兩種求算方法，並評估其優缺點。農場經營規模與農場經營及約度有否相互關係，試論述之。(20%)

第二部分

(15%) Suppose a consumer has a utility of the form $U(X_1, X_2) = -1/X_1 - 1/X_2$

- (1) Compute the Marshallian demand functions.
- (2) Compute the indirect utility function.
- (3) Compute the expenditure function.
- (4) Compute the Hicksian demand functions.

(15%) Given that the production function is $Y = 100 X_1 X_2$

Define Y as output, X_1 and X_2 as input prices, and C as cost.

- (1) Find $C(W_1, W_2, Y)$.
- (2) Find the effect of an increase in output on marginal cost.
- (3) Given $p =$ price of output, find $X_1(W_1, W_2, P)$, $X_2(W_1, W_2, P)$, and $Y(W_1, W_2, P)$. Use Hotelling's lemma to derive the supply function $Y(W_1, W_2, P)$.
- (4) Verify that the production function is homothetic.

第三部份

總體部分(共三十分)

- 一、根據多方面跡象顯示，當前國經濟景氣呈現衰退下降之趨勢。試說明造成當前景氣不振之主要原因及振興景氣之道。(十五分)
- 二、何謂理性預期？在理性預期行為假設下，經濟體系如何由一短期均衡調整至長期均衡？(十五分)

八十四年 經濟理論

第一部份 (個經部分)

一、(20 %) It has been show that the translog cost function is a (local) second order approximation to an arbitrary cost function. It is given implicitly by the linear-in-logs form:

$$\log(c) = A_0 + \sum_j^n A_j \log(W_j) + 0.5 \sum_i^n \sum_j^n B_{ij} \log(W_i) \log(W_j) + \log(Y), \text{ if } B_{ij} = B_{ji} \text{ and } B_{ij} = 0 \text{ for } i=1, \dots, n,$$

the substitution matrix is symmetric as required.

- (1) What restrictions on the parameters A_i are required to ensure homogeneity ?
- (2) For what values of the parameters does the translog reduce to the Cobb-Douglas form ?
- (3) Show that factor shares in the translog cost function are linear in the logs of factor prices and output.

二、(20 %) Explain the following observations.

- (1) Individuals are more likely to research for bargains for expensive items than for cheap ones.
- (2) People with significant baby-sitting expenses are more likely to have those meals they eat out at expensive restaurants than are those without such expenses.

第二部分

一、試說明政府財政政策與貨幣政策對總體經濟活動的效果。(20 %)

二、固定匯率與浮動匯率有何優缺點？當國際收支不平衡時，其所採取對策為何？請一併說明之。(20 %)

三、貿易自由或對農業部門之影響為何？又農業部門應如何因應？請一併說明之。(20 %)

八十五年 經濟理論

一、(20 %) Farmers produce corn from land and labor. The labor cost in dollars to produce y bushels of corn is $c(y)=y^2$. There are 100 identical farms which all behave competitively.

- (a) what is the individual farmer's supply curve of corn?
- (b) what is the market supply of corn?
- (c) suppose the demand curve of corn is $D(p)=200-50p$. what is the equilibrium price and quantity sold?
- (d) what is the equilibrium rent on the land?

二、(20 %) Let the consumer's utility function be

$$U = \alpha^{-\alpha} (1-\alpha)^{-(1-\alpha)} X_1^\alpha X_2^{(1-\alpha)} \quad 0 < \alpha < 1$$

and her budget constraint $M=P_1X_1+P_2X_2$,

- (1) Derive the ordinary demand function for X_1 and X_2
 - (2) Derive the compensated demand function for X_1 and X_2
 - (3) Show that the compensated demand function are
 - (i) homogeneous of degree 0 in price ,
 - (ii) downward sloping , and
 - (iii) symmetric
- 三、由於中共的「文攻武嚇」，使台灣的資金大量外流，請就中央銀行的貨幣政策工具，說明中央銀行曾經採取哪些措施以資因應，這些措施對貨幣市場有哪些影響，請評論之。(15 %)
- 四、(1) Is it reasonable to argue that high budget deficits lead to high trade deficits? (5 %)
- (2) What implications would a distortionary tax have for the two- period life-cycle model? (5 %)
 - (3) In an open economy with two identical countries, what effect does a pay-roll tax in one country (to pay for government consumption) have on the worldwide capital-labor ratio and on that country's own net foreign asset position? what happens to its trade balance? (5 %)
- 五、請說明有效保護率 (Effective Rate of Protection) 的涵義，據以說明光復迄今台灣稻米生產保護程度的變動概況。並就未來農業經濟情勢，式論台灣稻米政策調整的方向? (15 %)
- 六、(1) 城鄉的均衡發展為區域經濟政策的重要目標之一。式數促進鄉村發展的策略與手段。(7 %)
- (2) 農地的變更轉用為經濟發展過程中不可避免的現象。試說明 : (8 %) (i) 吾人應如何規範農地的變更轉用?
 - (ii) 農地變更與國土規劃與有何關聯?

中興大學八十六學年度應用經濟研究所博士班考題（經濟理論）

- 一、請獵取實質國民總所得（Real GNP）之主要內涵為何？
- 二、試分析貨幣理論中，通貨膨脹（Inflation）與利率（Interest Rates）之市場均衡關係？
- 三、A typical Silicon Valley firm produces output of chips y using a cost function $c(y)$, which exhibits increasing marginal costs. Of the chips it produces, a fraction $(1 - \alpha)$ are defective and can't be sold. Working chips can be sold at a price p and the chip market is highly competitive.
 - (a) Calculate the derivative of profits with respect to p and its sign. (3%)
 - (b) Calculate the derivative of output with respect to p and its sign. (3%)
 - (c) Suppose that there are n identical chip producers, let $D(p)$ be the demand function, and let p^* be the competitive equilibrium price. Calculate (dp/dn) and its sign. (4%)
- 四、An economy has two kinds of consumers and two goods. Type A consumers has utility functions $U(X_1, X_2) = 4X_1 - (X_1^2/2) + X_2$ and type B consumers have utility functions $U(X_1, X_2) = 2X_1 - (X_1^2/2) + X_2$. Consumers can only consume nonnegative quantities. The price of good 2 is 1 and all consumers have incomes of 100. There are N type A consumers and N type B consumers.
 - (a) Suppose that a monopolist can produce good 1 at a constant unit cost of c per unit and can't engage in any kind of price discrimination. Find its optimal choice of price and quantity. For what values of c will it be true that it choose to sell to both types of consumers? (3%)
 - (b) Suppose that the monopolist uses a "two-part tariff" where a consumer must pay a lump sum k in order to be able to buy as much as anything at all. All person who has paid the lump sum k can buy as much as he likes at a price of p per unit purchased. Consumers are not able to resell good 1. For $p < 4$, what is the highest amount k that a type A is willing to pay for the privilege of buying at price p ? If a type A does pay the lump sum k to buy at price p , how many units will he demand? (6%)
 - (c) If the economy consisted only N type A consumers and no type B consumers, what would be the profit-maximizing choices of p and k ? (3%)
 - (d) If $c < 1$, find the values of p and k that maximize the monopolist's profits subject to the constraint that both types of consumers buy from it. (3%)
- 五、Please choose five theories among the following seven models to explain the causes of recession and policy implications briefly in words:
 - (1) Traditional Keynesian Model ;
 - (2) Misperception Theory ;
 - (3) Real Business Cycle Theory
 - (4) Sectoral Shift Model
 - (5) New Keynesian Theories of Wage And Price Rigidities
 - (6) New Keynesian Models of Coordination Failures
 - (7) Political Business Cycle. (25%)

六、 A consumer's utility function is $U = X_1 + X_2$. If his incomes I is \$100 and the price of X_2 is $P_2 = \$1$.

- (1) Derive the compensated demand curve and compare its slope with that of the ordinary demand curve.
- (2) Suppose P_1 falls from \$1 to \$0.5. Evaluate the consumer's gain by CV(compensating variation).

中興大學八十七學年度應用經濟研究所博士班考題（經濟理論）

一、(36%) 假設 Y 為總生產量或 GNP, t 為稅率, r 為利率, G 為政府採購, P 為物價, e 為匯率, M_0 為貨幣供給量, \bar{k} 為資本存量, N 為就業量, w 為工資率, $f(N)$ 為勞動生產力, $g(N)$ 為實質工資, P^f 為進口貨之國外價格(視為固定)。在財貨市場中, 總生產量由國內消費 (C), 國內投資 (I), 政府採購 (G), 輸出 (X) 及輸入 (M) 所組成。已知 $C=C(Y-t(Y))$, $I=I(r)$, $G=G_0$, $X=X(P, e)$, $M=M(Y, P, e)$ 。在貨幣市場中, 實質貨幣供給為 $\frac{M}{P}$, 而交易及預防的貨幣需求為 $M_t=k(Y)$, 投資的貨幣需求為 $M_s=I(r)$ 。總生產函數為 $Y=Y(N, \bar{k})$ 。勞動市場中, 勞動的需求由 $W=P \times f(N)$ 決定, 勞動的供給由 $W=P^e \times g(N)$ 決定。在外匯市場中, 外匯供給為 $P \times X(P, e)$, 外匯需求為 $\frac{P^f}{P} M(Y, P, e) + F(r)$ 。

請導出: 1. 總和需求曲線(AD), 並說明何時 AD 線可能垂直。

2. 總和供給曲線(AS), 並說明何時 AS 線可能垂直。

3. 在何種情況下財政政策較有效, 在何種情況下貨幣政策較有效。

二、(14%) 請說明東南亞發生金融風暴之原因, 目前餘波蕩漾, 請利用第一提的模型, 推論此次的風暴如何發展, 詳述你的推論過程。

三、Both Mr. Jones and Mr. Dundee are consumers for food (x_1) and wood (x_2). Mr. Jones has expenditure function $e_1(p_1, p_2, u_1) = (p_1 p_2)^{\frac{1}{2}}$ and Mr. Dundee has utility function $u_2(x_1, x_2) = 50x_1^4 x_2$ 。

(1) (10%) Denote the income of Mr. Jones by M_j and the income of Mr. Dundee by M_d . What are the Marshallian demand functions for food and wood by each of Mr. Jones and Mr. Dundee? And the market demands?

(2) (8%) For what value(s) of the parameter will there exist an aggregate demand function that is independent of the distribution of income?

四、A monopolist maximizes profit. In order to capture some of the monopoly profits, the government imposes a tax of $t\%$ on the monopolist's revenue. Set up a model and analyze the following question.

(1) (5%) Does this tax increase or decrease the monopolist's output Q ?

(2) (8%) Now the government decide to award the revenue from this tax to the consumers of the monopolist's product. Each consumer will receive a "rebate" (退費) in the amount of the tax collected from his expenditures. Assuming quasilinear utility, derive an expression for the consumer's inverse demand as a function of Q and t .

(3) (5%) How does the monopolist's output respond to the tax-rebate program?

(4) (14%) Assume there is no tax program. w_1 and w_2 are prices of input x_1 and x_2 . If the cost function is $C(w_1, w_2, Q) = w_1^a w_2^b Q$. What is the production function? What are the conditional factor demands? What do we know about a and b ?