淡江大學九十四學年度碩士班招生考試試題

系別：產業經濟學系　　科目：計 量 經 濟 學

准帶項目請打「V」	
V	簡單型計算機

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本試題雙面印製

1. Consider the data given in the following table.

Tea consumption (Y) in relation to average retail price (X) in Taiwan, 1991-2000

Year	Y (liter(公升) per person per week)	X (NT$ thousand per kilogram)
1991	2.57	0.78
1992	2.50	0.75
1993	2.53	0.76
1994	2.30	0.73
1995	2.25	0.75
1996	2.20	0.75
1997	2.11	1.08
1998	1.95	1.80
1999	2.05	1.00
2000	2.02	1.04

(a). (10%) Estimate the regression of tea quantity demanded to its price

$$Y_t = \hat{\beta}_1 + \hat{\beta}_2 X_t + \hat{u}_t \qquad (1)$$

(b) (5%) Student A adopts the double log model to estimate the demand function and obtains the following result

$$\ln \hat{Y}_t = 0.7793 - 0.2637 \ln X_t$$

se (0.0229) (0.0790)

Please interpret the economic meaning for the slope coefficient?

(c). (8%) Student B rescales the unit of X as "NT$ per kilogram" and re-estimate equation (1). How will this affect the estimated intercept and slope obtained from (a)?

2. The estimated production function for Taiwan over the 1959-1997 is

$$\ln Q_t = -3.938 + 1.451 \ln L_t + 0.384 \ln K_t$$

se (0.237) (0.083) (0.048) R^2=0.9946 DW=0.88

We suspect that there is the autocorrelation problem in the estimation

(a). (6%)What is the nature of autocorrelation? Interpret it economically and symbolically.

(b). (5%) The most celebrated test for detecting autocorrelation is the Durbin-Watson *d* statistic. Please show the formula.

(c). (6%) Is there positive or negative autocorrelation in the estimation? Show your hypothesis testing.

n=39，k=2，5% significance level d_L=1.382，d_U=1.597

n=39，k=3，5% significance level d_L=1.328，d_U=1.658

(d). (6%) Show your remedial measures

3. 為了檢查淡江產經所畢業生在各地區就業的薪資是否存在差異，A 同學將台灣劃分為北部(新竹以北)、中南部以及東部三個區域，並蒐集了 100 位系友的資料，擬進行底下的迴歸分析

$$Y_t = \beta_1 + \beta_2 X_t + \beta_3 D1_t + \beta_4 D2_t + u_t$$

其中 Y=薪資 (千元) X=畢業的年數 D 為區域的虛擬變數(dummy variable)

(a). (6%) 你如何設定這二個虛擬變數?

(b). (6%) 若 $\beta_3 = 3.54$，請根據你在(a)的假設下解釋此係數的經濟意義。

(c). (6%) 若估計結果的 $se(\hat{\beta}_3) = 0.85$，請檢定該係數是否顯著的異於 1 (α=0.05)

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4. 某大三學生以去年大四學長姐是否參加海外畢業旅行進行研究，藉以提供今年即將舉辦的海外畢旅參考。根據 50 位學長姐參加與否擬估計底下的模型

$$Y_i = \beta_1 + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 D_i + u_i$$

其中，Y 為 binary-variable Y=1 參加　Y=0 未參加

X_2= 每個月零用錢 (千元)　　X_3= 出國旅遊經驗 (次數)

D 為 dummy variable D=1 男同學　D=0 女同學

(a). (6%) 在實證估計的計量方法上，你將採用何種方法? Why?

(b). (6%) 你預期 β_2 與 β_3 的符號為正或負? 請說明理由

(c). (6%) 實際進行估計的結果如下

$$\ln\frac{\hat{P}_i}{1-\hat{P}_i} = -13.021 + 2.826X_{2i} + 0.09X_{3i} + 2.3787D_i$$

se = (4.9310)　(1.2629)　(0.1421)　(1.0645)

t = (-2.6407)　(2.2378)　(0.7226)　(2.2345)　　Maddala R^2=0.3821

β_2 與 β_3 的估計結果是否符合預期? 若不是，你認為 CLRM 的哪個(些)假設不成立，Why?

5. (18%) 請回答下列問題為對、錯或不確定，並解釋理由。<u>未說明理由者不予計分</u>

(a). A linear regression model means a model linear in the variables.

(b). The adjusted and unadjusted R^2 are identical only when the unadjusted R^2 is equal to 1.

(c). If residuals estimated from an OLS regression exhibits a systematic pattern, it means heteroscadasticity is present in the data.