Higher Edu. and Sci. Research Ministry
Salahaddin University
College of Administration & Economic
Statistics and Informatics Department

Subject: Econometrics
Stage: MSc. degree
Time: 1 Hour
Date: 8 / 5 /2024

Quiz Exam (2023 – 2024)

Name: ……………………………………………..

Q_1 // How we can use the least-squares procedure to the data to a higher-order polynomial. For example, suppose that we it a second-order polynomial or quadratic:

$$y = a_0 + a_1 x + a_2 x^2 + e$$

(5 marks)

Q_2 // Consider the following regression output†:

$$\hat{Y}_i = 0.2033 + 0.6560X_i$$

$$SE = (0.0976) \quad (0.1961)$$

$$r^2 = 0.397 \qquad RSS = 0.0544 \qquad ESS = 0.0358$$

where Y = labor force participation rate (LFPR) of women in 1972 and X = LFPR of women in 1968. The regression results were obtained from a sample of 19 cities in the United States.

Required / How do you interpret this regression?

(5 marks)

Good Luck

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Subject: Econometrics
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Date: 16 / 5 /2024

midterm Exam (2023 – 2024)

Name: …………………………………………..

Q1 // A- State with reason whether the following statements are true or false:

1. If there is no intercept in the regression model, the estimated e_i $(=\hat{e}_i)$ will not sum to zero.
2. If X and Y are statistically independent, the correlation coefficient between them is zero; but if r = 0, it does not mean that two variables are independent.
3. Researcher can find (d_L and d_U) values by the sample size and number of explanatory variables.
4. the coefficient of correlation $r_{(x,y)}$ between $(-x_i, -y_i)$ is negative.
5. To check the linearity, we can look at the $(q \sim q)$ quantile to quantile plot.

B- How can you give a brief concept of Polynomial Regression and Logistic Regression model? (10 marks)

Q2// A-form the data on the level of education (measured by the number of years of schooling) the mean hourly wages earned by people at each level of education and the number of people at the stated level of education, we obtained the following regression

$$\widehat{Meanwage} = 0.7437 + 0.6416\ Education$$

$$SE = (0.8355) \quad (\qquad)$$
$$t = (\qquad) \quad (9.6536) \qquad R^2 = 0.8944 \qquad n = 13$$

1. Fill in the missing numbers.
2. How do you interpret the coefficient 0.6416?

B- find out if the model has an autocorrelation problem or not by using Run test? From the following result at the level of significant 0.05, If Z= ±1.96 and R = 3

$$\hat{Y}_i = 1346.2894 - 12.1003X_i \quad , \quad F = 9.641 \quad , \quad R^2 = 0.546$$

Year	y_i	x_i	$\hat{y}_i$	e_i
1990	580	60	620.2714	-40.2714
1991	890	59	632.3717	257.6283
1992	430	77	414.5663	15.4337
1993	690	52	717.0738	-27.0738
1994	310	87	293.5633	16.4367
1995	750	50	741.2744	8.7256
1996	460	80	378.2654	81.7346
1997	630	52	717.0738	-87.0738
1998	800	53	704.9735	95.0265
1999	215	67	535.5693	-320.5693

(10 marks)

Good Luck

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