Higher Edu. and Sci. Research Ministry		Subject: Econometrics
Salahaddin University		Stage: PhD.
College of Administration & Economic		Time: 2 Hours
Statistics and Informatics Department		Date: 7 / 1 /2024

Midterm Exam (2023 – 2024)

Q_1 // A- Describes each of the following briefly: time series data, cross-section data and pooled data with examples.

B- How can you describe each of the following: Pearson Correlation, Spearman correlation and Kendall rank correlation coefficient.

C-What is a scatter diagram, scatter gram and scatter plot? if there are any differences between them then show that. (30 marks)

Q_2 // A- Are these sentences (True) or (False) and correct the false sentences.

1. We cannot Use Cochrane-Orcutt procedure for Estimation autocorrelated errors.
2. An interaction occurs when an independent variable has a main different effect on the outcome (response variable) depending on the values of another independent variable.
3. the coefficient of correlation $r_{(x,y)}$ between $(-x_i, -y_i)$ is also positive.
4. Since the correlation between (y, x) can range from $(-1, 1)$, this also means that $Cov(y, x)$ also lies between these limits.
5. A plot of e_t against e_{t-1} is not one can use to detect autocorrelation.

B- Draw a sigmoid curve in regression model for two dimensions and their function.

C- How many types of logistic regression are there? gives examples of each one.

D- Briefly what is the differences between the Durbin Watson test and Run test? (40 marks)

Q_3 // A-Use least-squares regression to fit a straight line to the data below:

x_i	1	2	3	4	5	6	7	8	9
y_i	1	1.5	2	3	4	5	8	10	13

1. Find slope and intercept, compute the standard error of the estimates and the correlation coefficient. Plot the data and the straight line.
2. Precompute (1) but use polynomial regression to fit a parabola to the data. Compare the results with those of (1).

(20 marks)

Q_4 // The relationship between nominal exchange rate and relative prices. From the annual observations from (1980 -1994), the following regression results were obtained, where Y = exchange rate of the German mark to the U.S. dollar, and X = ratio of the U.S. consumer price index to the German consumer price index; that is, X represents the relative prices in the two countries: $\hat{y}_t = 6.682 - 4.318X_t$

$$SE = (1.22) \quad (1.33) \qquad R^2 = 0.528$$

Required // Interpret this regression. How would you interpret R^2 ?
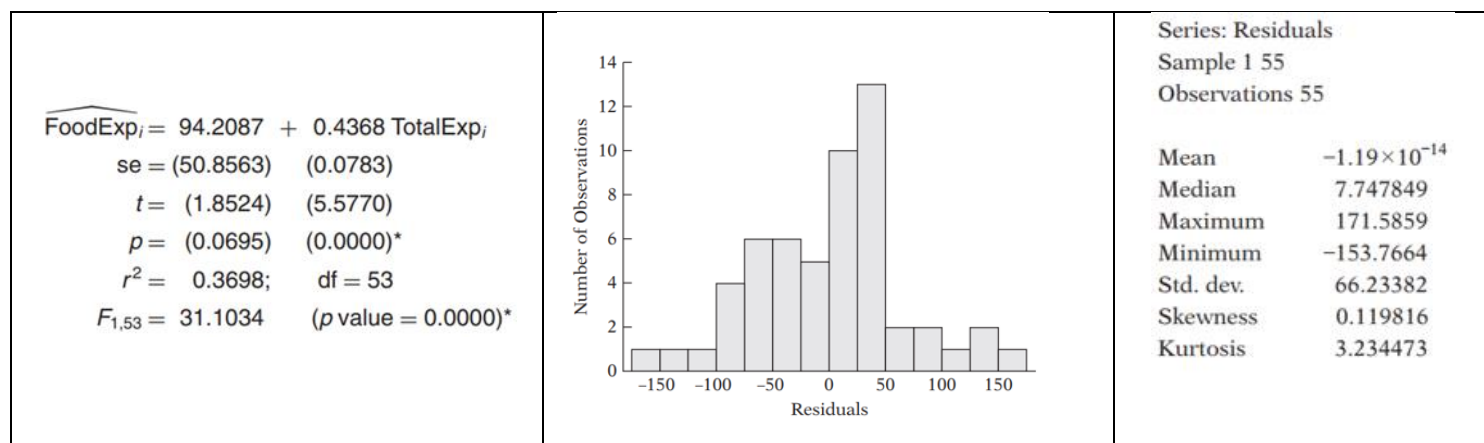
(10 marks)

Good Luck

Dr. Paree Khan A. Omer

The Examiner

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Quiz Exam (2023 – 2024)

Q_1// the results of fitting the data of food expenditure and total expenditure in Iraq are below, we obtain the following expenditure equation, required interpret all the results statistically and economically.

$$\widehat{FoodExp}_i = 94.2087 + 0.4368\ TotalExp_i$$
$$se = (50.8563)\quad (0.0783)$$
$$t = (1.8524)\quad (5.5770)$$
$$p = (0.0695)\quad (0.0000)^*$$
$$r^2 = 0.3698;\quad df = 53$$
$$F_{1,53} = 31.1034\quad (p\ value = 0.0000)^*$$

Series: Residuals
Sample 1 55
Observations 55

Mean	-1.19×10^{-14}
Median	7.747849
Maximum	171.5859
Minimum	-153.7664
Std. dev.	66.23382
Skewness	0.119816
Kurtosis	3.234473

(25 marks)

Q_2// The data are from U.S. oil and gas price index values for 82 months (dataset no longer available). There is a strong linear pattern for the relationship between the two variables, as can be seen below, from the graphs and results what it is you find of the relation between these two variables?
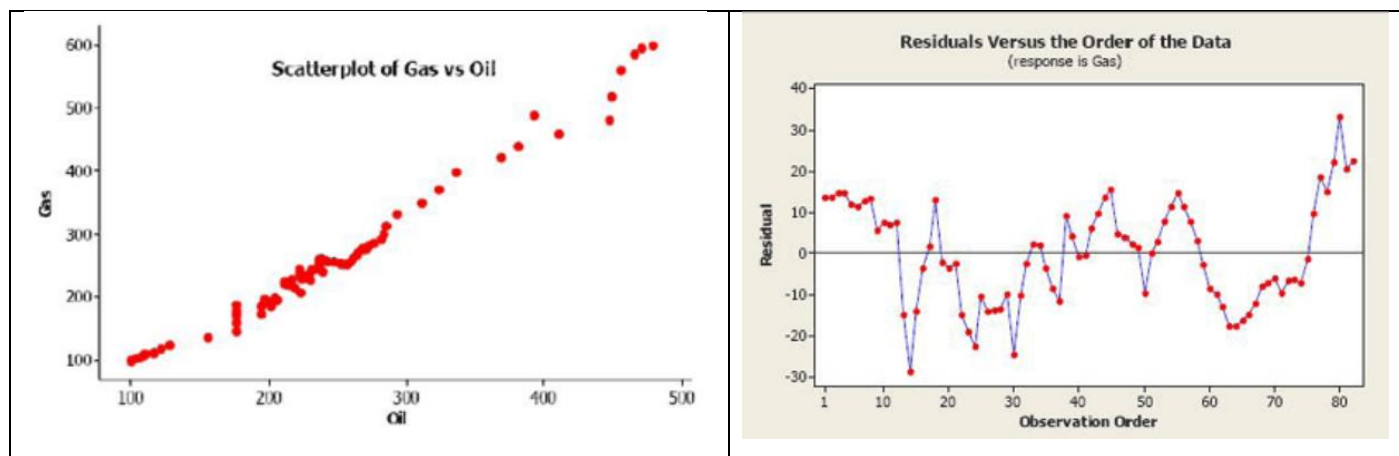
Coefficients

Predictor	Coef	SE Coef	T-Value	P-Value
Constant	-31.349	5.219	-6.01	0.000
Oil	1.17677	0.02305	51.05	0.000

Regression Equation

Gas = -31.3 + 1.18 Oil

(25 marks)

Good Luck

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