

الكل هو صحيح

The final exam in advanced econometrics

Question 1: Name two nonlinear regression models Exponential, logarithmic, Power, local

Question 2: Determine the purpose of each statistical test:

Augmented Dicky-Fuller, the White test

Unit root test

heteroskedasticity test

Question 3: Complete by the right answer:

Panel data consist of... time-series data and cross-section data

Panel data is a special data of.... pooled data

Panel data has three models... Fixed effect, random effect, pooled regression

Question 4: Observe the following tables of Linear Regression Analysis and answer the questions:

Table 01: the regression model

Dependent Variable: Y
Included observations: 47

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.219	0.05	4.38	0.0001
X1	-0.0394	0.02	-1.97	0.0947 x
X2	-0.084	0.60	-0.14	0.0056
X3	0.0063	0.015	0.42	0.0720 x
F-statistic	5.4	R-squared	0.1115	
Prob(F-statistic)	0.04	Durbin-Watson stat	2.22	

Table 02: Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	3.392548	Prob. F(3,43)	0.0263
Obs*R-squared	8.995308	Prob. Chi-Square(3)	0.0294
Scaled explained SS	16.29029	Prob. Chi-Square(3)	0.0010

The questions :

- Complete the table.
- Write the regression equation. $y = 0.219 - 0.084 x_2$
- Interpret the coefficient of determination, and the significance of the model.
- Does the model contain econometrics problems? Justify your answer and what solutions do you suggest?

3. $R^2 = 0.1115 \Rightarrow 11.15\%$ of the change in y due to x_2 and the last percentage due the other variables which not considered in this model.

4. the significance of the model $\Leftrightarrow \text{sig}(F) < 5\%$ significant

of the variables : only x_2 is significant

4. The model contain the heteroskedasticity cause Prob chi square is $0.02 < 0.05$ significant

- we suggest to solve this problem by:
- ① adding data.
adding Variables.
using algorithm.
-

about auto-correlation, D.W test = 2,22

- ① it is close of 2 so the regression model does not suffer the econometrics problems.

② answering in English