



Antal blad /
Number of sheets

06 ✓

TENTAMEN / EXAMINATION

Anvisningar: Skriv din anonymitetskod på varje blad.
Endast en uppgift får lösas på varje blad.
Var vänlig skriv tydligt!

Instructions: Write your anonymous code on each sheet.
Answer only one question on each sheet.
Please write clearly!

Vänligen texta anonymitetskoden i textboxen enligt exempel nedan!
Please write the Anonymous Code clearly in the textbox like example below!

Bokstäver/Letters:

A-B-C-D-E-F-G-H-I-J-K-L-M-N-O
P-Q-R-S-T-U-V-W-X-Y-Z-Å-Ä-Ö

Siffror/Numbers:

0-1-2-3-4-5-6-7-8-9

Exempel:

A B C 1 7 0 - 0 1 7

NEG001

Kurskod + Kurs / Course Code + Course:

Econometrics

Delkurs / Part course:

Anonymitetskod / Anonymous code =
Kurskod + kodnr / course code + code number

NEG001-022 ✓

Tentamensdatum /
Examination date:

3/6-16

Behandlade uppgifter / Solved problems

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
X	X	X	X											
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Ifylles av lärare / To be completed by the examiner

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Poäng / Marks gained: 12,38

Betyg / Grade: G

Max poäng / Total marks gained: 20

För Gk poäng / Marks gained to be passed:

Examin. lärare / Kursansvarig signatur / Signature of the examiner

Namnförtydligande / Clarification of the signature

Student name: Beskow, Fredrik
Anonymity code: NEGB01-22 930222-5033

Points:

1. Total: ~~4,25~~ § 3,375

- a) 0,75
- b) 0
- c) 0
- d) 0,5
- e) 0

2. Total: 2,75

- a) 0,25
- b) 0,5
- c) 1
- d) 0
- e) 1

3. Total: 3

- a) 1
- b) 0
- c) 0,25
- d) 1
- e) 0,75

4. Total: 3,25

- a) 1
- b) 1
- c) 1
- d) 0
- e) 0,25

§

Score on homework: 3,375

Your homework replaces your points earned for question 1.

Total points on exam (taking homework into account): 12,375

Grade: G



Ange anonymitetskod / Write your anonymity code
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(For non-anonymous exams write the course code + name + civic registration number)

NEGB01-022

Löpande sidnr
Consecutive no:

1

Häftområde

Skriv ej i detta område
Leave this area blank

1. (a) Given the CLRM, OLS estimators are unbiased, linear and of minimum variance, they are BLUE.

(c) autocorrelation is when there is a "connection" between the observations. They are similar.

(d) Implications are that the estimators are no longer BLUE.

(b) It is applicable due to it being linear and of min. var.

(e) I'm not sure, autocorrelation I instantly think about Durbin Watson which is hard to apply here without some values, so I, sadly, have to pass on this question.

Uppgift nr /
Question no: 1

Poäng / Points
awarded:

Lärens
anteckning
Examiner's remarks:



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Löpande sidnr
 Consecutive no:

2

Uppgift nr /
 Question no: 2

Poäng / Points
 awarded:

Lärarens
 anteckning
 Examiner's remarks:

Häftområde

Skriv ej i detta område
 Leave this area blank

2. a) That for each labor input the $\ln Y_i$ goes up by 0,74 ln. It is a part of the intercept. (together with X_{3i}).

c)
$$\frac{ESS}{TSS} = R^2 \quad TSS = RSS + ESS$$

From assignment $10 = 5 + ESS$
 $ESS = 5$

$$\frac{5}{10} = R^2 = 0,5$$

e) If the test doesn't show a value higher than the critical value, then there is, at 5% significance level, no heteroscedasticity.

d) $H_0: X_{2i} + X_{3i} = Y_i$
 $H_1: X_{2i} + X_{3i} \neq Y_i$

$(X_{2i} + X_{3i} > Y_i, \text{ diminishing return})$
 $(X_{2i} + X_{3i} < Y_i, \text{ increasing return})$

b)
$$t = \frac{\hat{\beta}_2 - \beta_2}{se(\hat{\beta}_2)}$$

$$t = \frac{0,74 - 0}{0,2} \approx 3,7$$

The rule closest in table D.2 is at 20% 0,677 our T value is clearly over 0,677 and therefore is, at a 5% significance level, different from 0.



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Löpande sidnr
Consecutive no:

3

Uppgift nr /
Question no: 3

Poäng / Points
awarded:

Lärens
anteckning
Examiner's remarks:

Häftområde

Skriv ej i detta område
Leave this area blank

3. a)
$$\text{tot. cost} = \beta_1 + \beta_2 \text{output} + \beta_3 \text{output}^2 + \beta_4 \text{output}^3 + u$$
 3 (1)

b) A p-value that low means in a chow test that we can reject "H₀" that there is no connection between the two groups.

c) I would say it can compare them. The regression for the electronics industry is clearly better with a R² value of 0,75 than the automotive industry of 0,48. That said, the two are connected according to b). The amount of TC explained by output is 75% in electronics and 48% in automotive.

d) The problem that can cause this is multicollinearity. With high t-values making them insignificant and still a high R² value it might be that we have multicollinearity, something that we do not want.

e)
$$Y_i = \gamma + X_{2i} + X_{3i} + \beta_1 X_{4i} + u$$



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NEGB09-022

Löpande sidnr
 Consecutive no:

4

Häftområde

Skriv ej i detta område
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3(2)

Uppgift nr /
 Question no: 3

Poäng / Points
 awarded:

Lärens
 anteckning
 Examiner's remarks:

(c) cont. I write $\beta_2 \text{output}^3$ since i see that the function is a cubed expression due to the movement. I still wanted to add $\beta_2 \text{output}$ and $\beta_3 \text{output}^2$ due to it being hard to see if they affect the function. If they don't their β -values will simply be 0.

(e) cont. X_{2i} is a dummy variable so it is highly likely to have some sort of $\beta \neq 1$, thats why i wrote it out. (I also want to mention that i thought about adding $\beta_5 X_{2i} X_{3i} X_{2i}$ but came to the conclusion that the difference you asked for isn't that).



$$y = \beta_1 + \beta_2 X_2 + u \quad y(1)$$

4. a) price = $-7576 + 37,998 \text{ wage} + u$

b) $-7,576$: Means that if wage would be 0 the price would be $-7,576$. Something that I cannot see realistically, but econometrics models aren't always functioning correctly, because when would there be 0 wage.

(After I wrote this I saw you asked for slope)
 $-7,576$ isn't a slope parameter it's the intercept.

$37,998$ wage: As wages rise the price goes up by $37,998$ per 1% in wage. The more wages, the higher price.

c) Durbin-Watson

$K-1 = k'$ also det from the ANOVA table (1)

$n = n$ 286 from SPSS output "Residual statistics"

We take Durbin Watson value of $.027$ from

the SPSS output "Model summary" and

compare to our critical value from the

table D.5A. We have $n=286$ but table

D.5A only goes to 200 so we take that

value. $d_L = 1,758$ $d_U = 1,778$

We can clearly see that our $d = 0,027$ is in

the bracket positive autocorrelation that has

0 to d_L as its case. This means that

there is positive autocorrelation, that the

values follows in an positive manner \leftarrow

Uppgift nr /
Question no: 4Poäng / Points
awarded:Lärares
anteckning
Examiner's remarks:



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Löpande sidnr
Consecutive no:

6

Uppgift nr /
Question no: 4

Poäng / Points
awarded:

Lärarens
anteckning
Examiner's remarks:

d) Because all the variables added to the $Y(2)$ model help it to be more precise. If we added a bunch of more variables our r^2 value would probably rise but our adjusted r^2 wouldn't.

e) To add a time lag variable in this case would probably help with our model due to minimizing the impact of the cycles of the economy that already exist.