Homework - 4

LINEAR REGRESSION TIME SERIES

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**Answer:**

**Solution A:**

*Regression function 1 can also be written as:*

*Moving ln to the other side:*

*Now comparing the above function with the second regression function*

*We can conclude that:*

*and*

*s.e( =*

*Var(*

*=*

***This states than se(***

**Solution B:**

*Var(*

*Var(*

*=*

*=*

*The of both the model is same as:*

*= 1 - RSS is same for both as the Error term is same*

*TSS = RSS + ESS*

*ESS = – = =*

*= =*

***Since, ESS is same for both the models thus TSS is also same. So, the for both the model is same.***

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**Answer:**

*Here it is given that the researcher is using two regression specification:*

*Log Y = β1 + β2 \* log X + µi*

*And we have denoted the disturbance term by vi in second model as vi*

*Log Y/X = α1 + α2 \* log X +vi*

*Also, it is given that:*

*Y = log Y*

*X = log X*

*z = log Y/X = log Y – log X =y-x*

**Solution A:**

*To demonstrate the standard error of β2 and α2 are the same:*

*We have to show that:*

=

=

= - 1

= – 1

α1 = –

=

= – \*

=

*The disturbance caused by second model is:*

*Disturbance*

*= – z*

*= + \* x – (y – x)*

*= + ( -1) \* x – (y-x)*

*= + ( -1) \* x – y*

*= – y*

*=*

Here,

*s.e() =*

*= = s.e () [ As, We have already proved above that V = U]*

**Solution B:**

is the measure of percentage of variance divided by variation of dependent variables explained by independent variable in terms of regression analysis and since the dependent variables are different for each regression so it is right to say that will be different.

Thank you !!!