

EPPS 6313 : Recitation Session #9

Problem 1

(From the last session problem)Independent variable(X) is the number of cigarette the patients smoke a day, and dependent variable(Y) is Lung capacity.

(a)Make a regression equation for this

(b)Calculate ESS and R^2

Cigarettes(x)	Lung Capacity(Y)
0	45
5	42
10	33
15	31
20	29

EPPS 6316 : Recitation Session #9

Problem 1

Under heteroskedasticity, the OLS coefficients are unbiased, but error variance $Var(u|x)$ is not constant any more. Show why it happens mathematically.

Problem 2

```
regress y x1 x2
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Source	SS	df	MS	Number of obs =	100
Model	73.351891	2	36.6759455	F(2, 97) =	26.48
Residual	134.328266	97	1.38482748	Prob > F =	0.0000
Total	207.680156	99	2.09777936	R-squared =	0.3532
				Adj R-squared =	0.3399
				Root MSE =	1.1768

	y	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
	x1	2.214879	.4154986	5.33	0.000	1.390229	3.039528
	x2	-2.175013	.4181382	-5.20	0.000	-3.004902	-1.345124
	_cons	.362262	.3100512	1.17	0.246	-.2531038	.9776279

```
hettest
```

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of y

chi2(1) = 0.06

Prob > chi2 = 0.8002

```
. whitest
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White's general test statistic : 16.77733 Chi-sq(5) P-value = .0049

From above the STATA result, the two test results for heteroskedasticity are different. Explain the reason and its implication.