

PS8 Smith

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1 Question 5 Response

beta-OLS closed form prints values are that very close to original beta. Rounding to the second decimal provides the same results are original beta.

	Unique	Missing Pct.	Mean	SD	Min	Median	Max
logwage	670	25	1.6	0.4	0.0	1.7	2.3
hgc	16	0	13.1	2.5	0.0	12.0	18.0
tenure	259	0	6.0	5.5	0.0	3.8	25.9
age	13	0	39.2	3.1	34.0	39.0	46.0
logwage_mean	670	0	1.6	0.3	0.0	1.6	2.3
logwage_pred	1221	0	1.7	0.3	0.0	1.7	2.3

2 Question 7 Response

The results using lbfgs come very close to original beta. Very similar results provided from closed form OLS analysis. The Nelder-Mead method results vary greatly and are not close compared to the other methods.

3 Question 9 Response and lm Summary table

	(1)
X1	1.501 (0.002)
X2	-1.001 (0.002)
X3	-0.252 (0.002)
X4	0.749 (0.002)
X5	3.501 (0.002)
X6	-2.001 (0.002)
X7	0.499 (0.002)
X8	1.003 (0.002)
X9	1.247 (0.002)
X10	2.001 (0.002)
Num.Obs.	100000
R2	0.991
R2 Adj.	0.991
AIC	145143.6
BIC	145248.3
Log.Lik.	-72560.811
RMSE	0.50

The results of the lm OLS are once again very close to original beta. Rounding to two decimal places results in the same original values of beta.