R Tutorial for Undergraduate Econometrics

February 20, 2017

1 Introduction to R

1.1 Method 2

The estimate of OLS is calculated using the following formula:

$$\hat{\beta_{OLS}} = (X'X)^{-1}X'Y$$

1.2 Stargazer Latex Output of OLS Fit

	Dependent variable:
	y
x1	-2.987^{***}
	(0.049)
x2	3.003^{***}
	(0.016)
x3	-1.907^{***}
	(0.071)
x4	4.976^{***}
	(0.050)
Constant	1.754^{***}
	(0.552)
Observations	1,000
R^2	0.980
Adjusted R^2	0.980
Residual Std. Error	3.065 (df = 995)
F Statistic	$12{,}287.690^{***}$ (df = 4; 995)
Note:	*p<0.1; **p<0.05; ***p<0.01

Table 1: Single Model

	Dependent variable:			
	y			
	(1)	(2)	(3)	(4)
x1	-2.987^{***}	-2.443^{***}	-2.858^{***}	-2.863^{***}
	(0.049)	(0.338)	(0.162)	(0.161)
x2	3.003^{***}		2.972^{***}	2.968^{***}
	(0.016)		(0.051)	(0.051)
x3	-1.907^{***}			0.408^{*}
	(0.071)			(0.222)
x4	4.976^{***}			
	(0.050)			
Constant	1.754^{***}	32.430^{***}	21.455^{***}	20.712^{***}
	(0.552)	(3.451)	(1.661)	(1.707)
Observations	1,000	1,000	1,000	1,000
R^2	0.980	0.050	0.783	0.784
Adjusted R^2	0.980	0.049	0.783	0.783
Residual Std. Error	3.065 (df = 995)	21.179 (df = 998)	10.124 (df = 997)	10.112 (df = 996)
F Statistic	$12{,}287.690^{***}$ (df = 4; 995)	52.303^{***} (df = 1; 998)	$1{,}799.815^{***}$ (df = 2; 997)	$1{,}203.870^{***}$ (df = 3; 996)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 2: Multiple Models

2 Plots

Figure 1 represents the predicted value of y for various values of x_3 holding all other variables 0. Specifically, we are comparing:

$$\begin{aligned} y_{true} &= \beta_0 + \beta_3 x_3 \\ y_{predicted} &= \hat{\beta}_0 + \hat{\beta}_3 x_3 \end{aligned}$$

Figure 2 represents same plot with a different color.

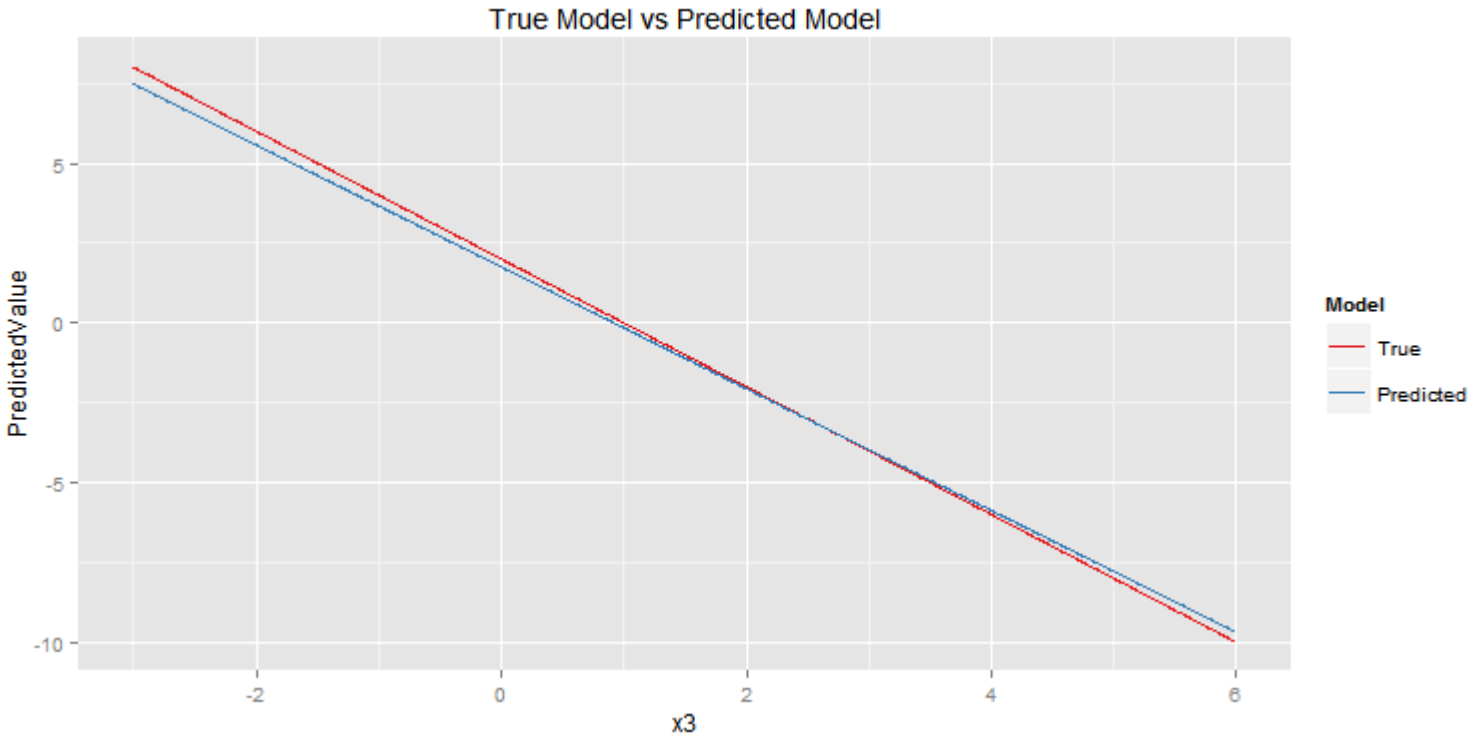

Figure 1: Predicted value of y for various values of x_3

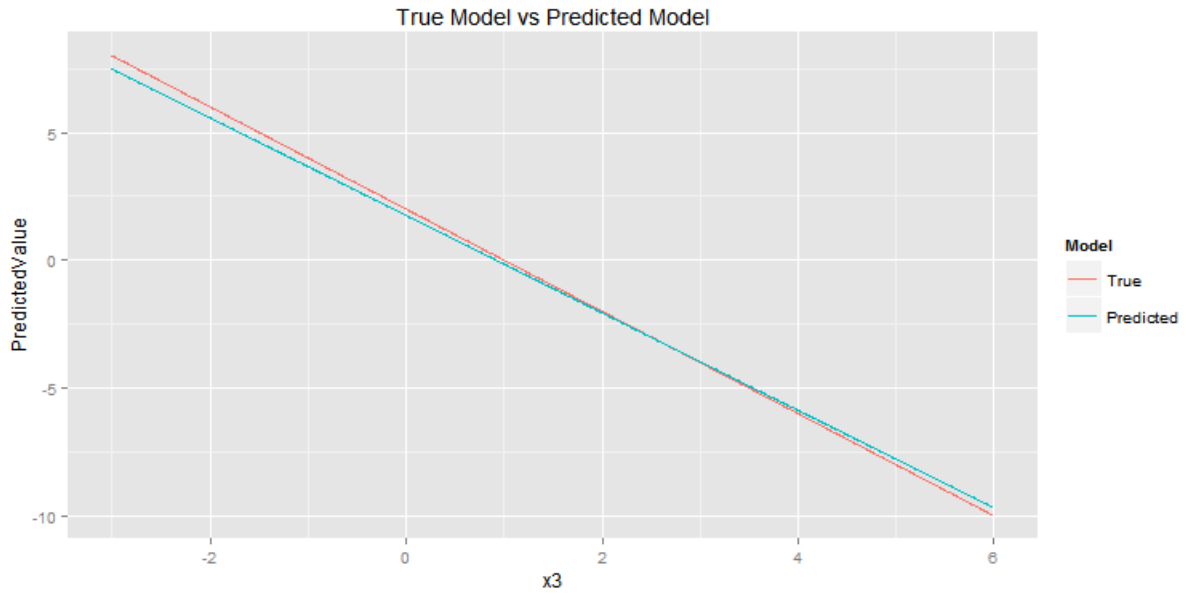

Figure 2: Predicted value of y for various values of x_3