PS8

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1 Introduction

The beta difference in 1 in -0.0010100138. so the true beta is greater the the estimate.

2 Some examples to get started

Yes the answers differ with the gradient descent - L-BFGS being: 0.21424496 -0.42167989 -0.06994913 -0.46863335 0.09807015 -0.40477672 -0.90381391 0.05995393 -0.28358541 -0.03010323 These numbers are listed in the martix order.

3

The actual values are very similar to the estimated values with the largest difference being only 3 thousandths.

Table 1: Regression Results

	Dependent variable:
	Y
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)
Observations	100,000
R^2	0.991
Adjusted R^2	0.991
Residual Std. Error	0.500 (df = 99990)
F Statistic	1,075,526.000*** (df = 10; 99990)
Note:	*p<0.1; **p<0.05; ***p<0.01