

E797B - Problem Set 3

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Instrumental Variables Estimation

Table 1: Different estimations of the effect of x (endogenous) on y

	$Q = 1$		$Q = 10$		$Q = 20$	
	Bias	Type 1 Error (%)	Bias	Type 1 Error (%)	Bias	Type 1 Error (%)
OLS	0.80	100.00	0.79	100.00	0.80	100.00
2SLS	-0.02	4.00	0.36	55.00	0.50	94.00
CLR	-0.02	0.00	0.36	2.00	0.50	8.00
LIML	-0.02	4.00	-0.01	5.00	0.03	5.00
Lasso ^a	0.13	6.78	0.20	27.03	0.25	25.00

Note. In this table we report the median bias $\hat{\beta} - 1$ and the percentage times that the correct null hypothesis that $\beta_1 = 1$ was rejected at the 5% significance level

a. Lasso regression did not pick any instrument 41.00 , 63.00 and 72.00 % of the times for $Q = 1, 10$ and 20 respectively. The reported outcomes for Lasso correspond to the cases when it selected at least one instrument