1 Numerical Result

Table 1: Variable Selection Results for Example 1 ($\beta = (3, 2, 1.5, 0, 0, 0, 0, 0)'$)

Method	CFR (%)	OFR (%)	AN	TIME	CFR (%)	OFR (%)	AN	TIME
		Case A				**Case B**		
ALasso	74	23	3.29	0.9	63	25	3.25	0.97
sLTS	8	91	4.96	3.62	28	72	4.07	3.5
MMNNG	68	25	3.25	691.33	88	12	3.13	682.07
SROS	19	78	4.34	49.36	30	70	4.12	53.2
PAWLS	77	16	3.15	1.71	94	5	3.04	1.61
		Case C				**Case D**		
ALasso	3	2	1.94	0.85	0	19	2.52	1.19
sLTS	7	93	5.21	3.95	11	89	5.05	3.99
MMNNG	72	12	2.95	673.93	63	16	3.25	682.47
SROS	50	42	3.57	49.32	3	84	4.9	49.3
PAWLS	78	14	3.09	1.37	90	3	3.01	2.73
		Case E						
ALasso	0	17	4.05	0.98				
sLTS	3	97	5.03	3.86				
MMNNG	79	12	3.08	484.67				
PAWLS	76	18	3.16	1.89				

Table 2: Variable Selection Results for Example 2 ($\beta = (3, 2, 1.5, 0, 0, 0, 0, 0)'$)

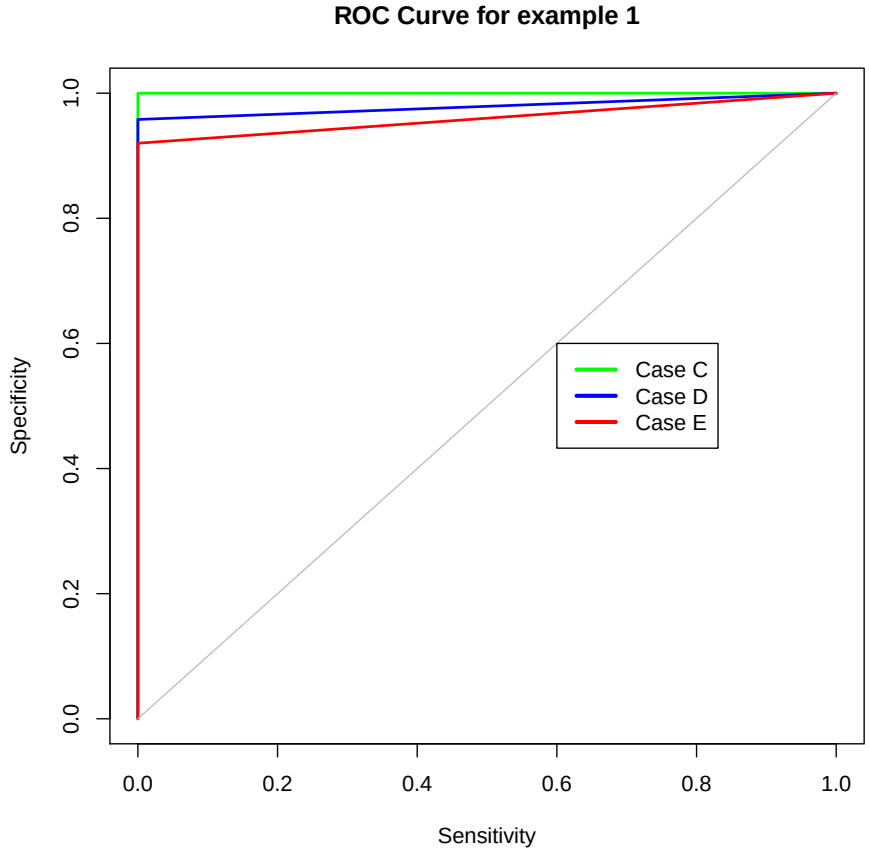
Method	CFR (%)	OFR (%)	AN	TIME	CFR (%)	OFR (%)	AN	TIME
		Case A				**Case B**		
ALasso	97	0	9.96	3.4	84	1	9.75	3.41
sLTS	0	73	32.66	1686.47	1	86	24.93	1621.8
PAWLS	82	6	8.95	151.65	69	1	7.23	176.72
		Case C				**Case D**		
ALasso	0	0	6.25	4.07	0	1	6.89	4.07
sLTS	0	91	32.11	1928.42	0	92	31.98	1861.67
PAWLS	7	0	6.43	278.01	4	3	4.52	288.13
		Case E						
ALasso	0	0	12.18	4.06				
sLTS	0	95	30.17	1865.4				
PAWLS	3	8	10.72	268.38				

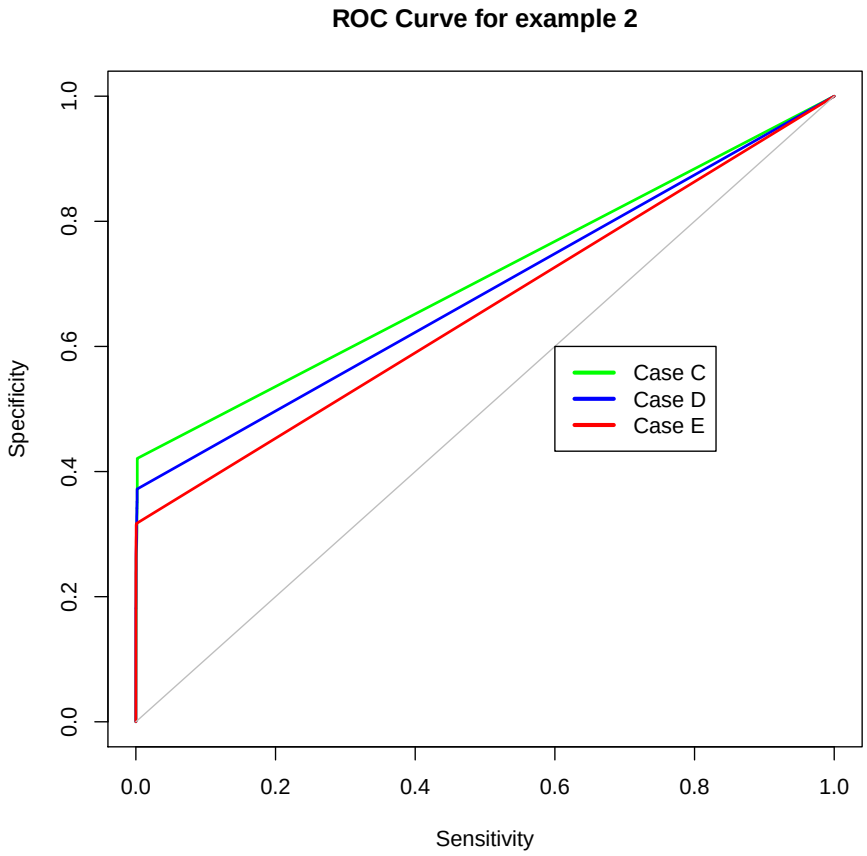
Table 3: Outlier Detection Evaluation in Example 1 and 2

		sLTS			PAWLS		
	Model	M (%)	S (%)	JD(%)	M (%)	S (%)	JD(%)
Example 1	Case A	0	0.06	1	0	0.02	1
	Case B	0	0.09	1	0	0.05	1
	Case C	0	0.02	1	0	0	1
	Case D	0	0.02	1	0.04	0	0.95
	Case E	0.02	0.03	0.89	0.08	2.22×10^{-4}	0.69
Example 2	Case A	0	0.21	1	0	7×10^{-4}	1
	Case B	0	0.16	1	0	0.01	1
	Case C	0	0.13	0.99	0.58	0	0.26
	Case D	0	0.14	0.99	0.63	0	0.2
	Case E	0.06	0.12	0.49	0.68	8.89×10^{-4}	0.01

Table 4: Outlier Detection Evaluation in Example 1

		IPOD			PAWLS		
	Model	M (%)	S (%)	JD(%)	M (%)	S (%)	JD(%)
Example 1	Case A	0	0	1	0	0.02	1
	Case B	0	0.1	1	0	0.05	1
	Case C	0	0.08	1	0	0	1
	Case D	0.49	0.02	0.07	0.04	0	0.95
	Case E	0.22	0.05	0.31	0.08	2.22×10^{-4}	0.69




ROC Curve for example 2
Specificity
Sensitivity
0.0
0.2
0.4
0.6
0.8
1.0
Case C
Case D
Case E