

Alternative Procedures for Estimating Random Coefficient Logit Demand Models

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20 data sets for each level of $E[\beta_i^0]$ with $T = 10$, $J = 125$, $\text{Var}[\beta_i] = [.5 \ .5 \ .5 \ .5 \ .2]$, $\text{sigmaxi} = 1$, $\text{nn} = 1331$, $\text{seed} = 5500$.

Five starting points in the estimation for each data set.

Conv: the number of converged cases over all trials (100)

CPU, Iter, FEVs: average major iterations, function evaluations over all trials (100)

GlobOpt: counts how many times a method find the global optimum (convergent cases)

FailsNr: counts the problems where a method do not find the best function value (convergent cases)

CPU-GOpt: an estimate of the computing time in seconds needed for obtaining the global minima

$E[\beta_i^0]$	s_0	Method	Conv	CPU(std)	GlobOpt	FailsNr	CPU-GOpt
-7	0.90	Contraction	100	111(33)	95	0	256
		Spectral	100	95(28)	96	0	204
		Squarem	100	94(25)	97	0	185
		ABLP	98	78(38)	84	0	294
		MPEC	97	218(249)	77	0	1025
-4	0.70	Contraction	100	137(70)	90	0	411
		Spectral	100	95(24)	90	0	285
		Squarem	100	94(22)	92	0	257
		ABLP	84	127(95)	72	3	689
		MPEC	97	193(247)	83	0	752
0	0.25	Contraction	100	379(325)	86	0	1332
		Spectral	100	91(24)	90	0	273
		Squarem	100	95(35)	88	0	310
		ABLP	61	191(96)	42	9	2422
		MPEC	96	200(344)	73	0	1055

Table 1: Results for different β_1 values; 10 markets, 125 products; derivative-based outer loop.