

initialx		xOpt		xTrue		thetaOpt				thetaTrue				Bounds		
initialx[0]	initialx[1]	xOpt[0]	xOpt[1]	xTrue[0]	xTrue[1]	thetaOpt[0][0]	thetaOpt[0][1]	thetaOpt[1][0]	thetaOpt[1][1]	thetaTrue[0][0]	thetaTrue[0][1]	thetaTrue[1][0]	thetaTrue[1][1]	objOpt	MLBD	SUBD
0.314	0.039	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.006	0.098	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.592	0.899	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.896	0.988	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.438	0.329	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.187	0.601	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.883	0.082	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.774	0.311	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.512	0.799	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.82	0.825	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.862	0.743	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
1	0.445	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.143	0.039	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.041	0.002	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.262	0.634	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.294	0.486	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.047	0.875	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.189	0.106	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.734	0.014	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.091	0.404	-0.852	-0.215	-0.219	-0.866	0.055	0.39	0.945	0.61	0.951	0.622	0.049	0.378	0	-0.01	0
0.631	0.196	-0.627	0	0.44	-0.51	0.561	0	0.439	1	0.167	0.553	0.833	0.447	0	-0.01	0
0.846	0.944	0	-0.627	0.44	-0.51	0.439	1	0.561	0	0.167	0.553	0.833	0.447	0	-0.01	0
0.38	0.876	0	-0.627	0.44	-0.51	0.439	1	0.561	0	0.167	0.553	0.833	0.447	0	-0.01	0
0.086	0.848	-0.468	-0.002	0.44	-0.51	0.751	0	0.249	1	0.167	0.553	0.833	0.447	0	-0.01	0
0.912	0.028	-0.627	0	0.44	-0.51	0.561	0	0.439	1	0.167	0.553	0.833	0.447	0	-0.01	0
0.977	0.967	-0.627	0	0.44	-0.51	0.561	0	0.439	1	0.167	0.553	0.833	0.447	0	-0.01	0
0.858	0.204	-0.627	0	0.44	-0.51	0.561	0	0.439	1	0.167	0.553	0.833	0.447	0	-0.01	0
0.808	0.506	-0.627	0	0.44	-0.51	0.561	0	0.439	1	0.167	0.553	0.833	0.447	0	-0.01	0
0.986	0.165	-0.627	0	0.44	-0.51	0.561	0	0.439	1	0.167	0.553	0.833	0.447	0	-0.01	0
0.75	0.356	-0.627	0	0.44	-0.51	0.561	0	0.439	1	0.167	0.553	0.833	0.447	0	-0.01	0
0.521	0.683	0	-0.627	0.44	-0.51	0.439	1	0.561	0	0.167	0.553	0.833	0.447	0	-0.01	0
0.897	0.497	-0.627	0	0.44	-0.51	0.561	0	0.439	1	0.167	0.553	0.833	0.447	0	-0.01	0
0.538	0.249	-0.627	0	0.44	-0.51	0.561	0	0.439	1	0.167	0.553	0.833	0.447	0	-0.01	0
0.838	0.616	-0.627	0	0.44	-0.51	0.561	0	0.439	1	0.167	0.553	0.833	0.447	0	-0.01	0
0.593	0.03	-0.627	0	0.44	-0.51	0.561	0	0.439	1	0.167	0.553	0.833	0.447	0	-0.01	0
0.837	0.678	-0.627	0	0.44	-0.51	0.561	0	0.439	1	0.167	0.553	0.833	0.447	0	-0.01	0
0.468	0.279	-0.627	0	0.44	-0.51	0.561	0	0.439	1	0.167	0.553	0.833	0.447	0	-0.01	0
0.173	0.782	0	-0.627	0.44	-0.51	0.439	1	0.561	0	0.167	0.553	0.833	0.447	0	-0.01	0
0.399	0.574	0	-0.627	0.44	-0.51	0.439	1	0.561	0	0.167	0.553	0.833	0.447	0	-0.01	0
0.096	0.396	0	-0.627	0.44	-0.51	0.439	1	0.561	0	0.167	0.553	0.833	0.447	0	-0.01	0
0.483	0.812	1.738	0.533	-2.956	0.748	0.179	0.179	0.821	0.821	0	0	1	1	0	-0.01	0
0.409	0.789	3.01	0.695	-2.956	0.748	0.023	0.023	0.977	0.977	0	0	1	1	0	-0.01	0
0.188	0.905	3.527	0.178	-2.956	0.748	0.17	0.17	0.83	0.83	0	0	1	1	0	-0.01	0
0.517	0.413	0.669	3.036	-2.956	0.748	0.966	0.966	0.034	0.034	0	0	1	1	0	-0.01	0
0.585	0.769	3.249	0.455	-2.956	0.748	0.105	0.105	0.895	0.895	0	0	1	1	0	-0.01	0
0.256	0.107	3.22	0.485	-2.956	0.748	0.096	0.096	0.904	0.904	0	0	1	1	0	-0.01	0
0.191	0.07	0.445	0.821	-2.956	0.748	0.193	0.193	0.807	0.807	0	0	1	1	0	-0.01	0
0.615	0.395	0.726	0.725	-2.956	0.748	1	1	0	0	0	0	1	1	0.001	-0.01	0
0.766	0.419	0.802	0.753	-2.956	0.748	0	0	1	1	0	0	1	1	0	-0.01	0
0.858	0.978	1.836	0.599	-2.956	0.748	0.121	0.121	0.879	0.879	0	0	1	1	0	-0.01	0
0.667	0.338	1.242	0.747	-2.956	0.748	0.002	0.002	0.998	0.998	0	0	1	1	0	-0.01	0
0.893	0.57	0.615	3.089	-2.956	0.748	0.946	0.946	0.054	0.054	0	0	1	1	0	-0.01	0
0.675	0.901	0.588	2.429	-2.956	0.748	0.913	0.913	0.087	0.087	0	0	1	1	0	-0.01	0
0.868	0.887	1.836	0.599	-2.956	0.748	0.12	0.12	0.88	0.88	0	0	1	1	0	-0.01	0
0.402	0.973	0.37	0.764	-2.956	0.748	0.04	0.04	0.96	0.96	0	0	1	1	0	-0.01	0
0.693	0.412	1.247	0.746	-2.956	0.748	0.005	0.005	0.995	0.995	0	0	1	1	0	-0.01	0
0.275	0.927	0.164	0.69	-2.956	0.748	0	0	1	1	0	0	1	1	0.007	-0.01	0
0.811	0.757	0.25	3.454	-2.956	0.748	0.845	0.845	0.155	0.155	0	0	1	1	0	-0.01	0
0.379	0.938	3.561	0.143	-2.956	0.748	0.177	0.177	0.823	0.823	0	0	1	1	0	-0.01	0
0.257	0.748	0.75	0.758	-2.956	0.748	1	1	0	0	0	0	1	1	0	-0.01	0

Table 1. Test GOP using different seeds on three data sets with scale of M=1, K=2, N=3.

The optimal objective function  $||y-xOpt*thetaOpt||^2_2$  is 0.

Constraints for x:

```
cons = np.sum(abs(x_star))
```

Number of seeds:

```
MAXSEED = 20
```

Generate different seeds by timing:

```
SEED = int(time.time())
```

```
np.random.seed(SEED)
```

Generate initial value for x:

```
np.random.random_sample((M,K))
```

Tolerance:

```
e = 0.01
```

Parallel processing in "get unique regions using cell numeration" and "solve master problems":

```
NUM_CORES = 64
```