Simulation Results: Scenario 1 and Spatial domain W1

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$$W_1 = [0, 250] \times [0, 125].$$

Table 1: Lasso penalty and cBIC

W	Model	Bias	SD	RMSE	FPR	TPR	nbre.pts
W1	Strauss	0.77	1.56	1.74	42	81	101
W1	Strauss	0.7	1.4	1.57	46	90	138
W1	Geyer	0.28	0.62	0.68	45	100	752

Table 2: Lasso penalty and ERIC

W	Model	Bias	SD	RMSE	FPR	TPR	nbre.pts
W1	Strauss	1.41	0.83	1.64	6	78	101
W1	Strauss	1.34	0.65	1.49	5	89	138
W1	Geyer	0.45	0.54	0.7	29	100	752

Table 3: Ridge penalty and cBIC

W	Model	Bias	SD	RMSE	FPR	TPR	nbre.pts
W1	Strauss	1.33	0.9	1.61	100	100	101
W1	Strauss	1.37	0.72	1.55	100	100	138
W1	Geyer	1.43	0.38	1.48	100	100	752

Table 4: Ridge penalty and ERIC

W	Model	Bias	SD	RMSE	FPR	TPR	nbre.pts
W1	Strauss	2.4	0.18	2.41	100	100	101
W1	Strauss	2.27	0.07	2.27	100	100	138
W1	Geyer	1.44	0.37	1.49	100	100	752

Table 5: Elastic Net penalty and cBIC

W	Model	Bias	SD	RMSE	FPR	TPR	nbre.pts
W1	Strauss	1.61	0.75	1.78	18	92	101
W1	Strauss	1.66	0.53	1.74	15	96	138
W1	Geyer	1.35	0.37	1.4	14	100	752

Table 6: Elastic Net penalty and ERIC

W	Model	Bias	SD	RMSE	FPR	TPR	nbre.pts
W1	Strauss	1.64	0.47	1.71	16	98	101
W1	Strauss	1.63	0.28	1.65	16	100	138
W1	Geyer	1.37	0.3	1.4	13	100	752

Table 7: Adaptive Lasso penalty and cBIC

W	Model	Bias	SD	RMSE	FPR	TPR	nbre.pts
W1	Strauss	0.69	1.59	1.73	35	70	101
W1	Strauss	0.71	1.46	1.62	43	71	138
W1	Geyer	0.06	0.44	0.44	30	100	752

Table 8: Adaptive Lasso penalty and ERIC

W	Model	Bias	SD	RMSE	FPR	TPR	nbre.pts
W1	Strauss	1.41	0.78	1.61	1	58	101
W1	Strauss	1.45	0.58	1.56	0	59	138
W1	Geyer	0.42	0.3	0.52	0	100	752

Table 9: Adaptive Elastic Net penalty and cBIC

W	Model	Bias	SD	RMSE	FPR	TPR	nbre.pts
W1	Strauss	0.73	1.42	1.6	30	76	101
W1	Strauss	0.8	1.33	1.55	34	74	138
W1	Geyer	0.09	0.47	0.48	31	100	752

Table 10: Adaptive Elastic Net penalty and ERIC

W	Model	Bias	SD	RMSE	FPR	TPR	nbre.pts
W1	Strauss	1.65	0.8	1.83	2	60	101
W1	Strauss	1.68	0.57	1.77	1	58	138
W1	Geyer	0.49	0.32	0.59	0	100	752

Table 11: Scad penalty and cBIC

W	Model	Bias	SD	RMSE	FPR	TPR	nbre.pts
W1	Strauss	0.69	1.79	1.92	52	71	101
W1	Strauss	0.24	1.5	1.52	83	95	138
W1	Geyer	0.31	0.59	0.67	80	100	752

Table 12: Scad penalty and ERIC

W	Model	Bias	SD	RMSE	FPR	TPR	nbre.pts
W1	Strauss	2.19	0.79	2.33	1	10	101
W1	Strauss	1.04	1.44	1.78	39	68	138
W1	Geyer	0.39	0.73	0.83	65	99	752

Table 13: Mcp penalty and BIC

W	Model	Bias	SD	RMSE	FPR	TPR	nbre.pts
W1	Strauss	0.52	1.75	1.83	57	74	101
W1	Strauss	0.12	1.42	1.43	89	98	138
W1	Geyer	0.27	0.54	0.6	81	100	752

Table 14: Mcp penalty and ERIC

W	Model	Bias	SD	RMSE	FPR	TPR	nbre.pts
W1	Strauss	2.16	0.82	2.31	1	8	101
W1	Strauss	0.57	1.42	1.53	50	76	138
W1	Geyer	0.27	0.52	0.59	70	100	752