Sparsity search in simulation study S_1
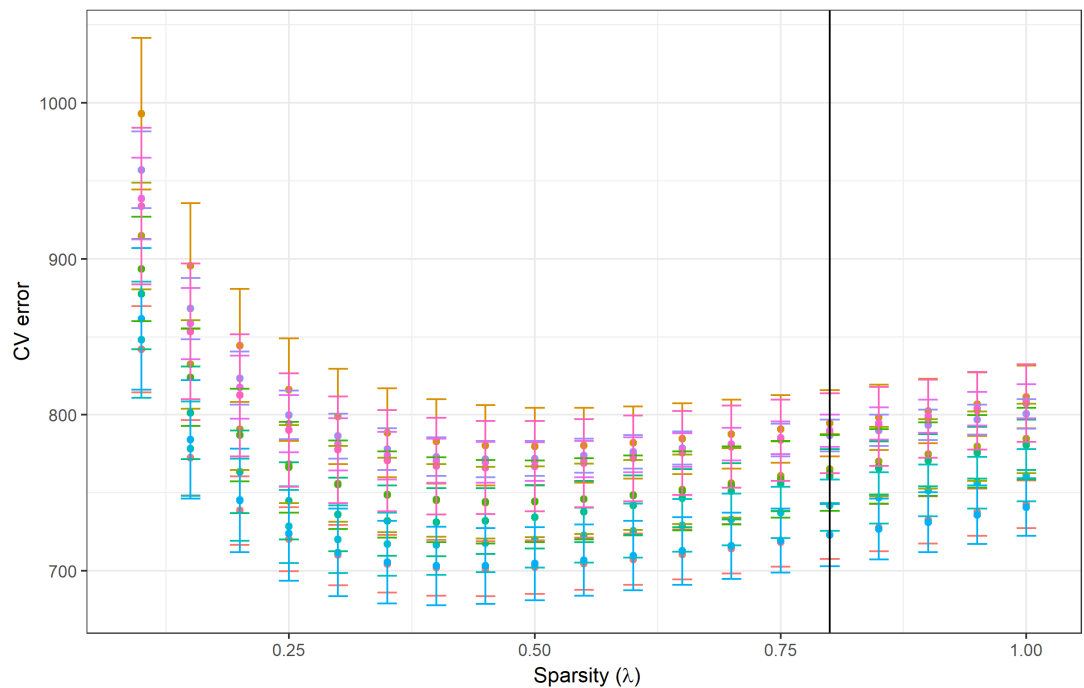
Sparsity search in simulation study S_2