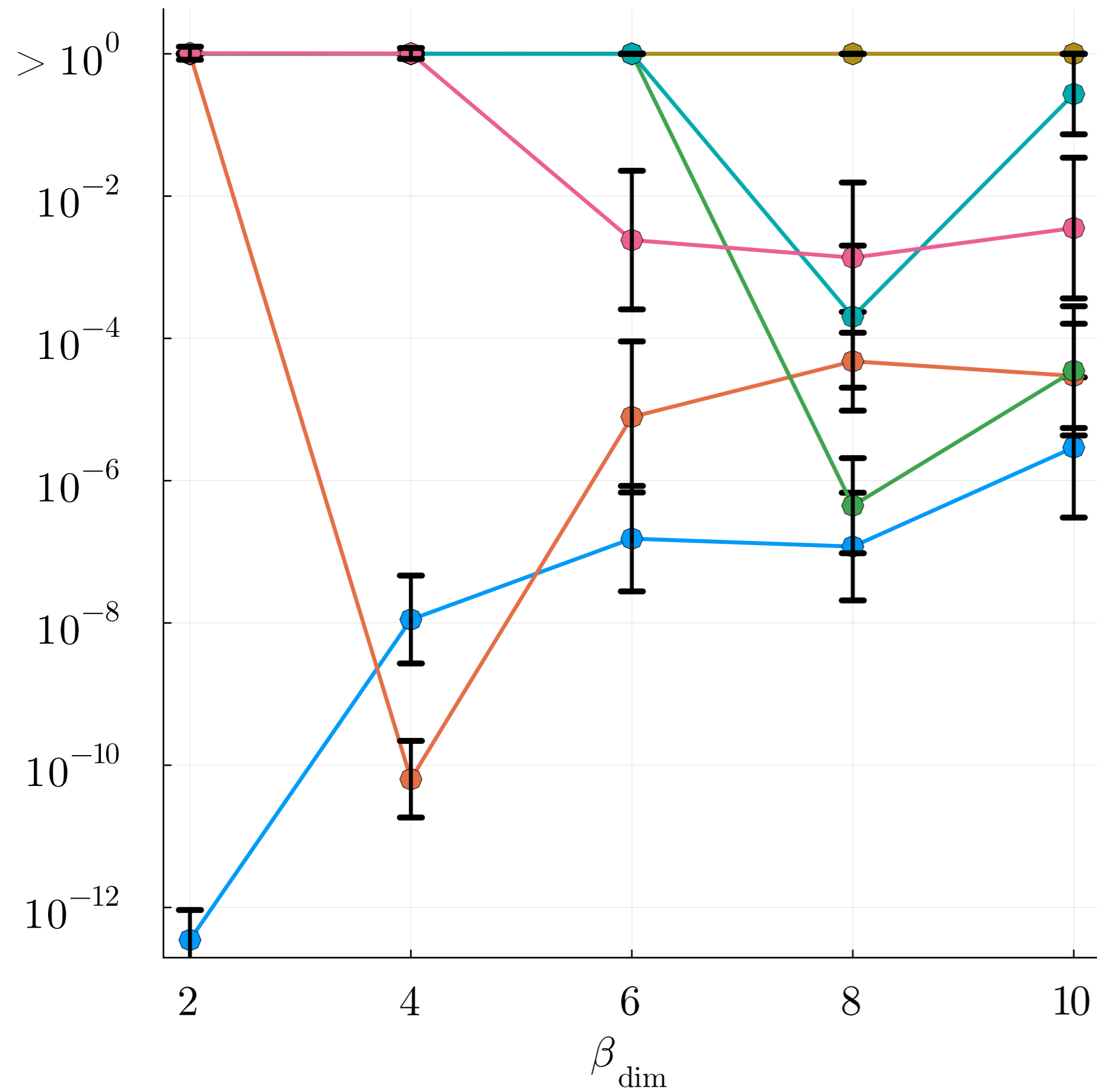


(a) Perturbative Sketching : Rel. error vs. β_{dim} (b) Perturbative Sketching : Runtime vs. β_{dim} 