Large sample size sim. 0.4 Fixed effects (PCA) Mixed effects (LMM)  $\mathsf{SRMSD}_\mathsf{p}$ median 0.7 quartiles extrema 0.5 AUCPR 0. Small sample size sim. 0.5 0.0  $\mathsf{SRMSD}_\mathsf{p}$ 0.3 AUCPR 0.2 0.1 Ó Family structure sim.  $\mathsf{SRMSD}_\mathsf{p}$ 0.2 0.7 0.3 0.5 AUCPR 0.1 Number of PCs (r)