



**Figure S3** Standard errors of the allele frequency estimates at locus 1 for simulation 1 (A), simulation 2 (C) and simulation 3 (E), and the standard errors of the allele frequency estimates at locus 2 for simulation 1 (B), simulation 2 (D) and simulation 3 (F). The dashed lines represents estimates from GUS-LD whereas the solid lines represents estimates from the standard likelihood approach.