Integrand by inverse CDF (quantile function)
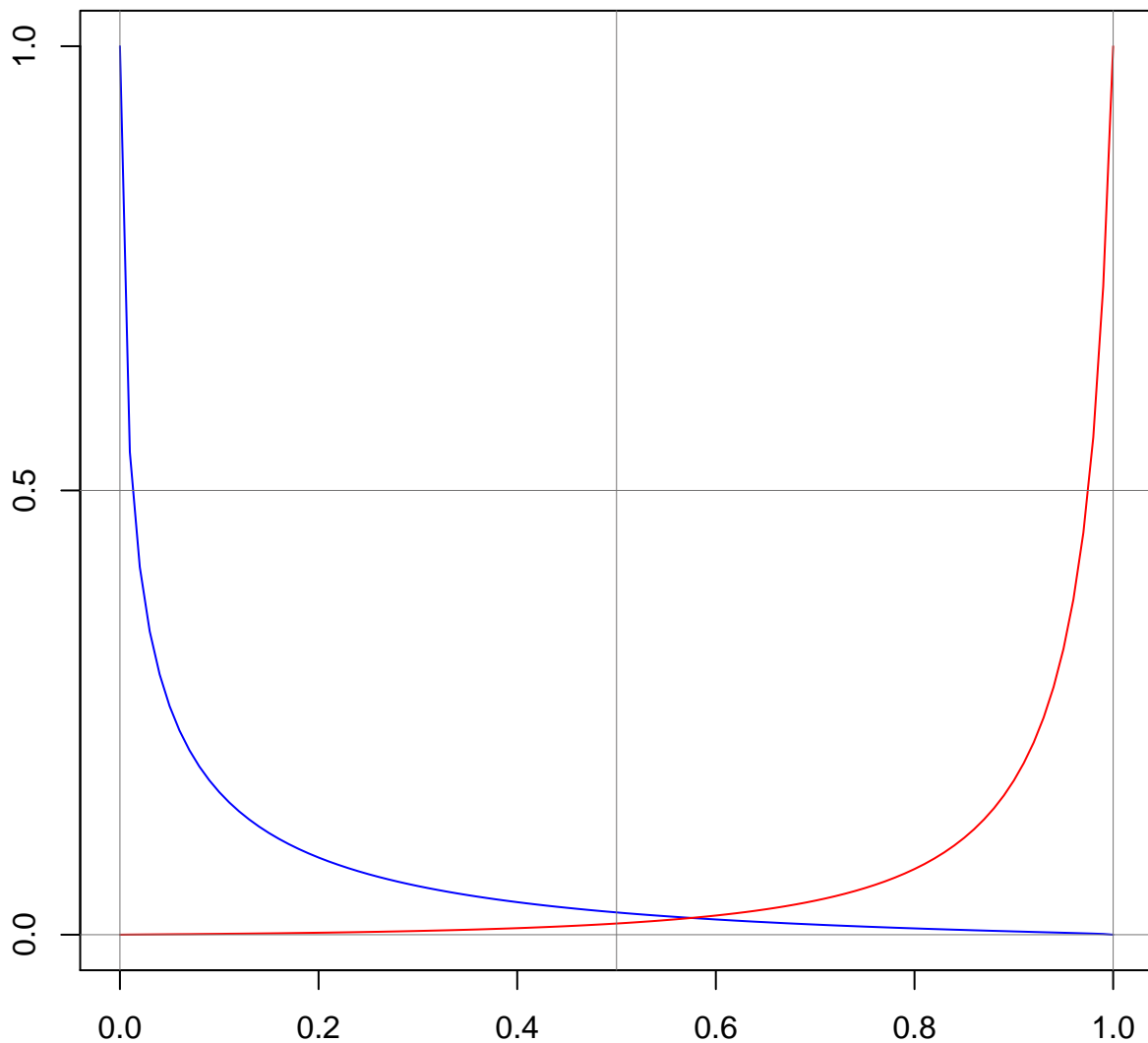**by Beta inverse (blue) and Gamma inverse (red)**

Area under the integrands is p = 0.063