

Table S3 Computed sample size, estimated power, and simulated power for transformed Exponential predictors with $\{\beta_I, \beta_S\} = \{0.3, 1.3\}$, $\{\beta_{I0}, \beta_{S0}\} = \{0, 1\}$, $\sigma^2 = 1$, Type I error $\alpha = 0.05$, and nominal power $1 - \beta = 0.90$

| μ_X | σ_X^2 | N | Simulated power | Exact approach | | Approximate method | |
|---------|--------------|-----|-----------------|-----------------|--------|--------------------|---------|
| | | | | Estimated power | Error | Estimated power | Error |
| 0 | 0.5 | 99 | 0.8941 | 0.9025 | 0.0084 | 0.7524 | -0.1417 |
| | | 76 | 0.8831 | 0.9030 | 0.0199 | 0.6257 | -0.2574 |
| | | 53 | 0.8727 | 0.9050 | 0.0323 | 0.4602 | -0.4125 |
| 0.5 | 0.5 | 56 | 0.9020 | 0.9055 | 0.0035 | 0.8430 | -0.0590 |
| | | 48 | 0.8874 | 0.9024 | 0.0150 | 0.7756 | -0.1118 |
| | | 38 | 0.8693 | 0.9006 | 0.0313 | 0.6604 | -0.2089 |
| 1 | 0.5 | 35 | 0.9000 | 0.9013 | 0.0013 | 0.8682 | -0.0318 |
| | | 33 | 0.9061 | 0.9089 | 0.0028 | 0.8445 | -0.0616 |
| | | 28 | 0.8832 | 0.9016 | 0.0184 | 0.7689 | -0.1143 |