Sigma square = 1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample Size** | **Method** | **P(underestimation)** | **P(correct estimation)** | **P(overestimation)** |
| 5 | BIC | 0 | 0 | 1 |
| BICc | 0 | 0 | 1 |
| PAL | 0.27 | 0.295 | 0.435 |
| AIC | 0 | 0 | 1 |
| 15 | BIC | 0 | 0.015 | 0.985 |
| BICc | 0 | 0.725 | 0.275 |
| PAL | 0 | 0.92 | 0.08 |
| AIC | 0 | 0 | 1 |
| 25 | BIC | 0 | 0.165 | 0.835 |
| BICc | 0 | 0.955 | 0.045 |
| PAL | 0 | 1 | 0 |
| AIC | 0 | 0 | 1 |
| 50 | BIC | 0 | 0.525 | 0.475 |
| BICc | 0 | 0.985 | 0.015 |
| PAL | 0 | 1 | 0 |
| AIC | 0 | 0 | 1 |
| 100 | BIC | 0 | 0.66 | 0.34 |
| BICc | 0 | 1 | 0 |
| PAL | 0 | 1 | 0 |
| AIC | 0 | 0 | 1 |
| 200 | BIC | 0 | 0.78 | 0.22 |
| BICc | 0 | 1 | 0 |
| PAL | 0 | 1 | 0 |
| AIC | 0 | 0 | 1 |
| 400 | BIC | 0 | 0.91 | 0.09 |
| BICc | 0 | 1 | 0 |
| PAL | 0 | 1 | 0 |
| AIC | 0 | 0 | 1 |

Sigma square =3

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample size** | **Method** | **P(underestimation)** | **P(correct estimation)** | **P(overestimation)** |
| 5 | BIC | 0 | 0 | 1 |
| BICc | 0 | 0 | 1 |
| PAL | 0.125 | 0.285 | 0.59 |
| AIC | 0 | 0 | 1 |
| 15 | BIC | 0 | 0.01 | 0.99 |
| BICc | 0.01 | 0.595 | 0.395 |
| PAL | 0.015 | 0.78 | 0.205 |
| AIC | 0 | 0 | 1 |
| 25 | BIC | 0 | 0.105 | 0.895 |
| BICc | 0 | 0.905 | 0.095 |
| PAL | 0 | 0.945 | 0.055 |
| AIC | 0 | 0 | 1 |
| 50 | BIC | 0 | 0.535 | 0.465 |
| BICc | 0 | 0.99 | 0.01 |
| PAL | 0 | 0.99 | 0.01 |
| AIC | 0 | 0 | 1 |
| 100 | BIC | 0 | 0.69 | 0.31 |
| BICc | 0 | 0.995 | 0.005 |
| PAL | 0 | 0.995 | 0.005 |
| AIC | 0 | 0 | 1 |
| 200 | BIC | 0 | 0.83 | 0.17 |
| BICc | 0 | 1 | 0 |
| PAL | 0 | 1 | 0 |
| AIC | 0 | 0 | 1 |
| 400 | BIC | 0 | 0.895 | 0.105 |
| BICc | 0 | 1 | 0 |
| PAL | 0 | 1 | 0 |
| AIC | 0 | 0 | 1 |

Sigma square =6

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample Size** | **Method** | **P(Underestimation)** | **P(correct estimation)** | **P(overestimation)** |
| 5 | BIC | 0 | 0 | 1 |
| BICc | 0 | 0 | 1 |
| PAL | 0.095 | 0.26 | 0.645 |
| AIC | 0 | 0 | 1 |
| 15 | BIC | 0 | 0.01 | 0.99 |
| BICc | 0.115 | 0.38 | 0.505 |
| PAL | 0.105 | 0.54 | 0.355 |
| AIC | 0 | 0 | 1 |
| 25 | BIC | 0 | 0.125 | 0.875 |
| BICc | 0.005 | 0.865 | 0.13 |
| PAL | 0.005 | 0.875 | 0.12 |
| AIC | 0 | 0 | 1 |
| 50 | BIC | 0 | 0.51 | 0.49 |
| BICc | 0 | 0.985 | 0.015 |
| PAL | 0 | 0.975 | 0.025 |
| AIC | 0 | 0 | 1 |
| 100 | BIC | 0 | 0.73 | 0.27 |
| BICc | 0 | 1 | 0 |
| PAL | 0 | 1 | 0 |
| AIC | 0 | 0 | 1 |
| 200 | BIC | 0 | 0.79 | 0.21 |
| BICc | 0 | 1 | 0 |
| PAL | 0 | 1 | 0 |
| AIC | 0 | 0 | 1 |
| 400 | BIC | 0 | 0.885 | 0.115 |
| BICc | 0 | 1 | 0 |
| PAL | 0 | 1 | 0 |
| AIC | 0 | 0 | 1 |

Sigma square=9

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample size** | **Method** | **P(underestimation)** | **P(correct estimation)** | **P(overestimation)** |
| 5 | BIC | 0 | 0 | 1 |
| BICc | 0 | 0 | 1 |
| PAL | 0.05 | 0.25 | 0.7 |
| AIC | 0 | 0 | 1 |
| 15 | BIC | 0 | 0 | 1 |
| BICc | 0.29 | 0.24 | 0.47 |
| PAL | 0.305 | 0.34 | 0.355 |
| AIC | 0 | 0 | 1 |
| 25 | BIC | 0 | 0.125 | 0.875 |
| BICc | 0.16 | 0.725 | 0.115 |
| PAL | 0.05 | 0.76 | 0.19 |
| AIC | 0 | 0 | 1 |
| 50 | BIC | 0 | 0.51 | 0.49 |
| BICc | 0.015 | 0.97 | 0.015 |
| PAL | 0.005 | 0.94 | 0.055 |
| AIC | 0 | 0 | 1 |
| 100 | BIC | 0 | 0.745 | 0.255 |
| BICc | 0 | 1 | 0 |
| PAL | 0 | 0.99 | 0.01 |
| AIC | 0 | 0 | 1 |
| 200 | BIC | 0 | 0.755 | 0.245 |
| BICc | 0 | 1 | 0 |
| PAL | 0 | 1 | 0 |
| AIC | 0 | 0 | 1 |
| 400 | BIC | 0 | 0.935 | 0.065 |
| BICc | 0 | 1 | 0 |
| PAL | 0 | 1 | 0 |
| AIC | 0 | 0 | 1 |

Sigma square= 15

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample size** | **Method** | **P(Underestimation)** | **P(correct estimation)** | **P(overestimation)** |
| 5 | BIC | 0 | 0 | 1 |
| BICc | 0 | 0 | 1 |
| PAL | 0.025 | 0.18 | 0.795 |
| AIC | 0 | 0 | 1 |
| 15 | BIC | 0 | 0 | 1 |
| BICc | 0.48 | 0.11 | 0.41 |
| PAL | 0.47 | 0.165 | 0.365 |
| AIC | 0 | 0 | 1 |
| 25 | BIC | 0.03 | 0.115 | 0.855 |
| BICc | 0.655 | 0.32 | 0.025 |
| PAL | 0.36 | 0.475 | 0.165 |
| AIC | 0 | 0 | 1 |
| 50 | BIC | 0.01 | 0.515 | 0.475 |
| BICc | 0.195 | 0.795 | 0.01 |
| PAL | 0.05 | 0.85 | 0.1 |
| AIC | 0 | 0 | 1 |
| 100 | BIC | 0 | 0.695 | 0.305 |
| BICc | 0.005 | 0.995 | 0 |
| PAL | 0 | 0.955 | 0.045 |
| AIC | 0 | 0 | 1 |
| 200 | BIC | 0 | 0.775 | 0.225 |
| BICc | 0 | 0.995 | 0.005 |
| PAL | 0 | 0.98 | 0.02 |
| AIC | 0 | 0 | 1 |
| 400 | BIC | 0 | 0.91 | 0.09 |
| BICc | 0 | 1 | 0 |
| PAL | 0 | 0.995 | 0.005 |
| AIC | 0 | 0 | 1 |

Sigma square=20

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample size** | **Method** | **P(underestimation)** | **P(correct estimation)** | **P(overestimation)** |
| 5 | BIC | 0 | 0 | 1 |
| BICc | 0 | 0 | 1 |
| PAL | 0.045 | 0.175 | 0.78 |
| AIC | 0 | 0 | 1 |
| 15 | BIC | 0 | 0 | 1 |
| BICc | 0.64 | 0.07 | 0.29 |
| PAL | 0.615 | 0.115 | 0.27 |
| AIC | 0 | 0 | 1 |
| 25 | BIC | 0.045 | 0.13 | 0.825 |
| BICc | 0.665 | 0.295 | 0.04 |
| PAL | 0.43 | 0.4 | 0.17 |
| AIC | 0 | 0 | 1 |
| 50 | BIC | 0.055 | 0.485 | 0.46 |
| BICc | 0.465 | 0.525 | 0.01 |
| PAL | 0.165 | 0.66 | 0.175 |
| AIC | 0 | 0 | 1 |
| 100 | BIC | 0.01 | 0.73 | 0.26 |
| BICc | 0.045 | 0.955 | 0 |
| PAL | 0.01 | 0.925 | 0.065 |
| AIC | 0 | 0 | 1 |
| 200 | BIC | 0 | 0.79 | 0.21 |
| BICc | 0 | 1 | 0 |
| PAL | 0 | 0.93 | 0.07 |
| AIC | 0 | 0 | 1 |
| 400 | BIC | 0 | 0.88 | 0.12 |
| BICc | 0 | 1 | 0 |
| PAL | 0 | 0.995 | 0.005 |
| AIC | 0 | 0 | 1 |

Sigma square=30

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample size** | **Method** | **P(underestimation)** | **P(correct estimation)** | **P(overestimation)** |
| 5 | BIC | 0 | 0 | 1 |
| BICc | 0 | 0 | 1 |
| PAL | 0.055 | 0.19 | 0.755 |
| AIC | 0 | 0 | 1 |
| 15 | BIC | 0 | 0 | 1 |
| BICc | 0.7 | 0.03 | 0.27 |
| PAL | 0.68 | 0.11 | 0.21 |
| AIC | 0 | 0 | 1 |
| 25 | BIC | 0.15 | 0.095 | 0.755 |
| BICc | 0.92 | 0.07 | 0.01 |
| PAL | 0.725 | 0.18 | 0.095 |
| AIC | 0 | 0 | 1 |
| 50 | BIC | 0.2 | 0.315 | 0.485 |
| BICc | 0.825 | 0.17 | 0.005 |
| PAL | 0.4 | 0.45 | 0.15 |
| AIC | 0 | 0 | 1 |
| 100 | BIC | 0.045 | 0.625 | 0.33 |
| BICc | 0.225 | 0.77 | 0.005 |
| PAL | 0.05 | 0.805 | 0.145 |
| AIC | 0 | 0 | 1 |
| 200 | BIC | 0 | 0.81 | 0.19 |
| BICc | 0.015 | 0.985 | 0 |
| PAL | 0 | 0.93 | 0.07 |
| AIC | 0 | 0 | 1 |
| 400 | BIC | 0 | 0.885 | 0.115 |
| BICc | 0 | 1 | 0 |
| PAL | 0 | 0.99 | 0.01 |
| AIC | 0 | 0 | 1 |