

Bias and Estimation under Misspecification of the Risk Period in Self-Controlled Case Series Studies

**Supplemental Materials: Patterns of Bias for Models with Three
Age Groups**

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Additional simulation results

We provide results from additional simulations for the characterization of the bias of the relative incidence, $R^* = \exp(\beta^*)$, under different exposure models with no age effects. We also provide the characterization of the bias of the age effect, $\exp(\alpha^*)$.

Figures 1-3, 4-6 and 8-9 show the theoretical characterization of the bias of the relative incidence for the single Uniformly distributed exposure model and true risk length $\tau = 15, 30$ and 45 respectively.

Figures 10-12, 13-15 and 16-18 show the theoretical characterization of the bias of the relative incidence for the multiple Uniformly distributed exposures model and true risk length $\tau = 15, 30$ and 45 respectively.

Figures 19-21, 22-24 and 25-27 show the theoretical characterization of the bias of the relative incidence for the single Normally distributed exposure model and true risk length $\tau = 15, 30$ and 45 respectively.

Figures 28-30, 31-33 and 34-36 show the theoretical characterization of the bias of the relative incidence for the multiple Normally distributed exposures model and true risk length $\tau = 15, 30$ and 45 respectively.

Figures 37-42, 43-48 and 49-54 show the theoretical characterization of the bias of the age effects, $(\exp(\alpha_1^*), \exp(\alpha_2^*))$, for the single Uniformly distributed exposure model and true risk length $\tau = 15, 30$ and 45 respectively.

Figures 55-60, 61-66 and 67-72 show the theoretical characterization of the bias of the age effects, $(\exp(\alpha_1^*), \exp(\alpha_2^*))$, for the multiple Uniformly distributed exposures model and true risk length $\tau = 15, 30$ and 45 respectively.

Figures 73-78, 79-84 and 85-90 show the theoretical characterization of the bias of the age effects, $(\exp(\alpha_1^*), \exp(\alpha_2^*))$, for the single Normally distributed exposure model and true risk length $\tau = 15, 30$ and 45 respectively.

Figures 91-96, 97-102 and 103-108 show the theoretical characterization of the bias of the age effects, $(\exp(\alpha_1^*), \exp(\alpha_2^*))$, for the multiple Normally distributed exposures model and true risk length $\tau = 15, 30$ and 45 respectively.

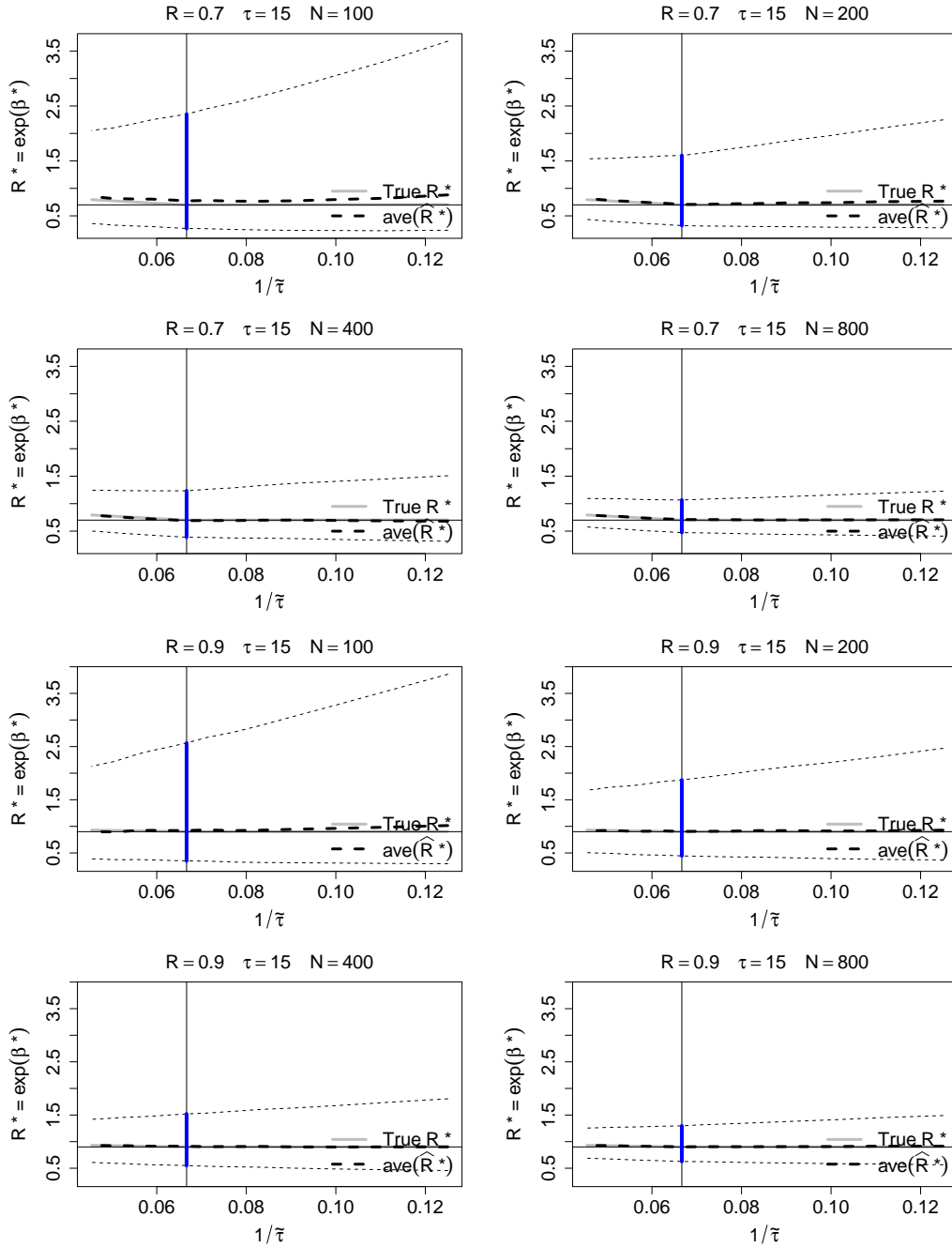


Figure 1: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 15$; $R = 0.7$ and 0.9 displayed in the top and bottom panels, respectively.

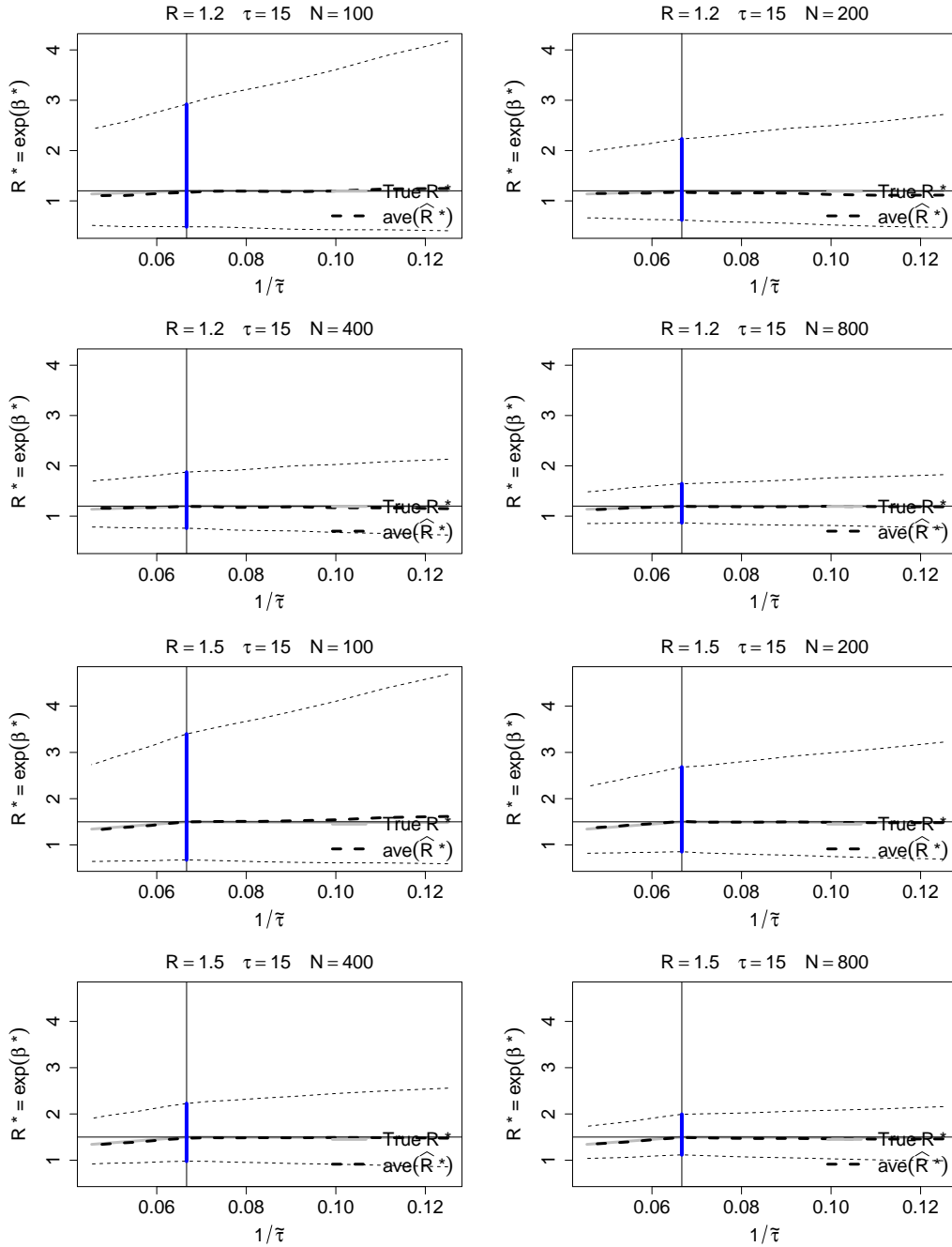


Figure 2: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages (ave(\hat{R}^*)) over 200 simulated datasets. The true risk length is $\tau = 15$. $R = 1.2$ and 1.5 displayed in the top and bottom panels, respectively.

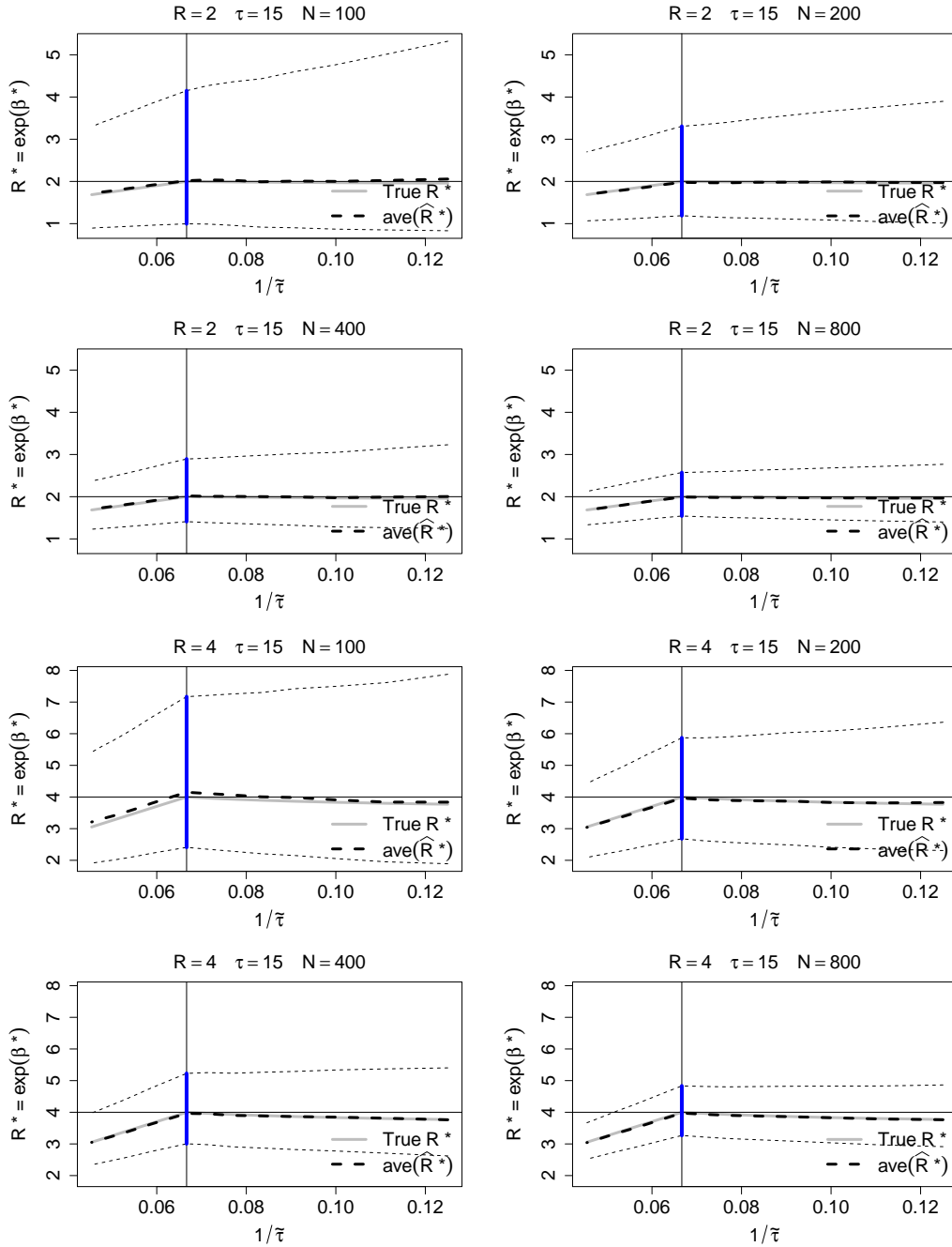


Figure 3: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 15$. $R = 2$ and 4 displayed in the top and bottom panels, respectively.

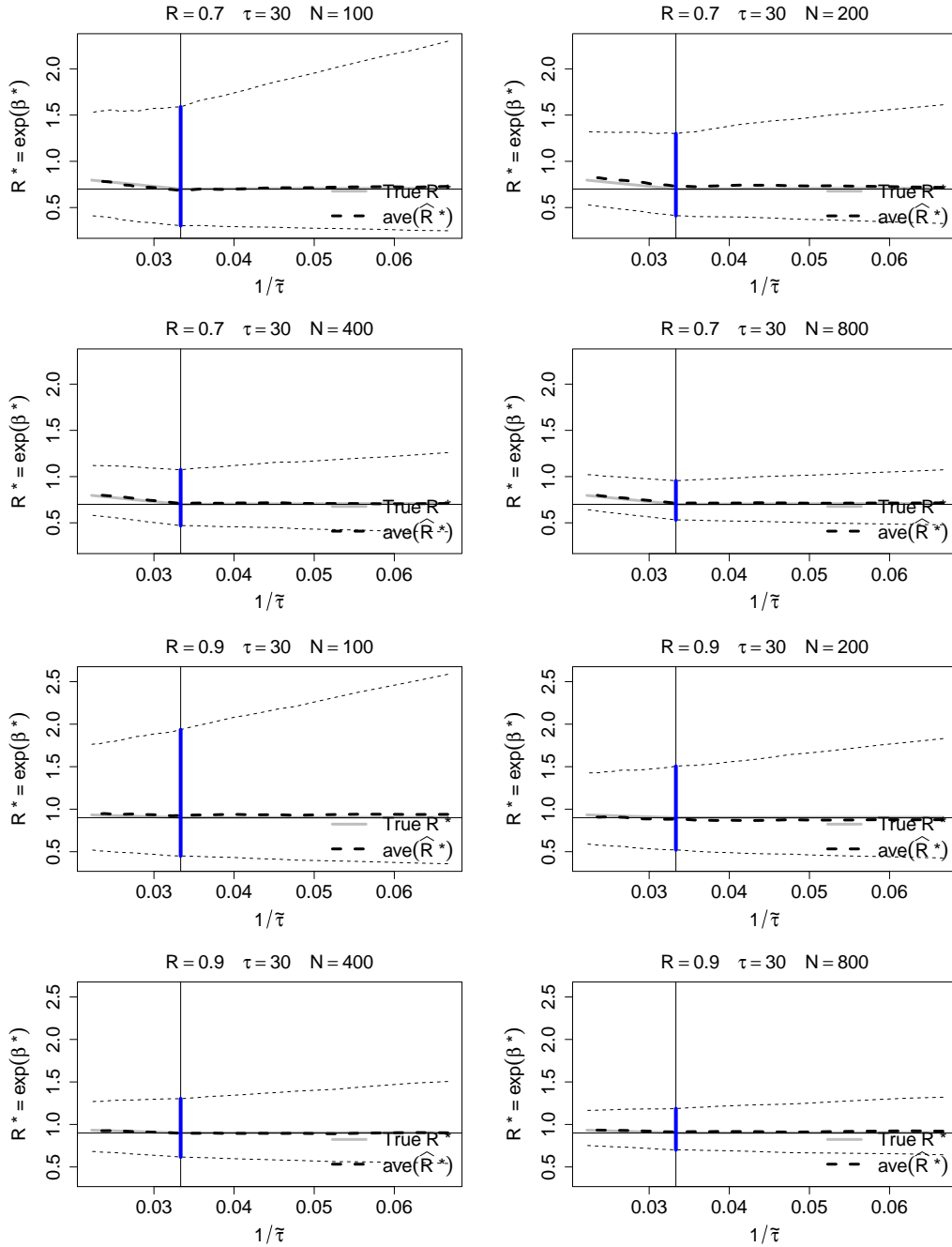


Figure 4: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 30$; $R = 0.7$ and 0.9 displayed in the top and bottom panels, respectively.

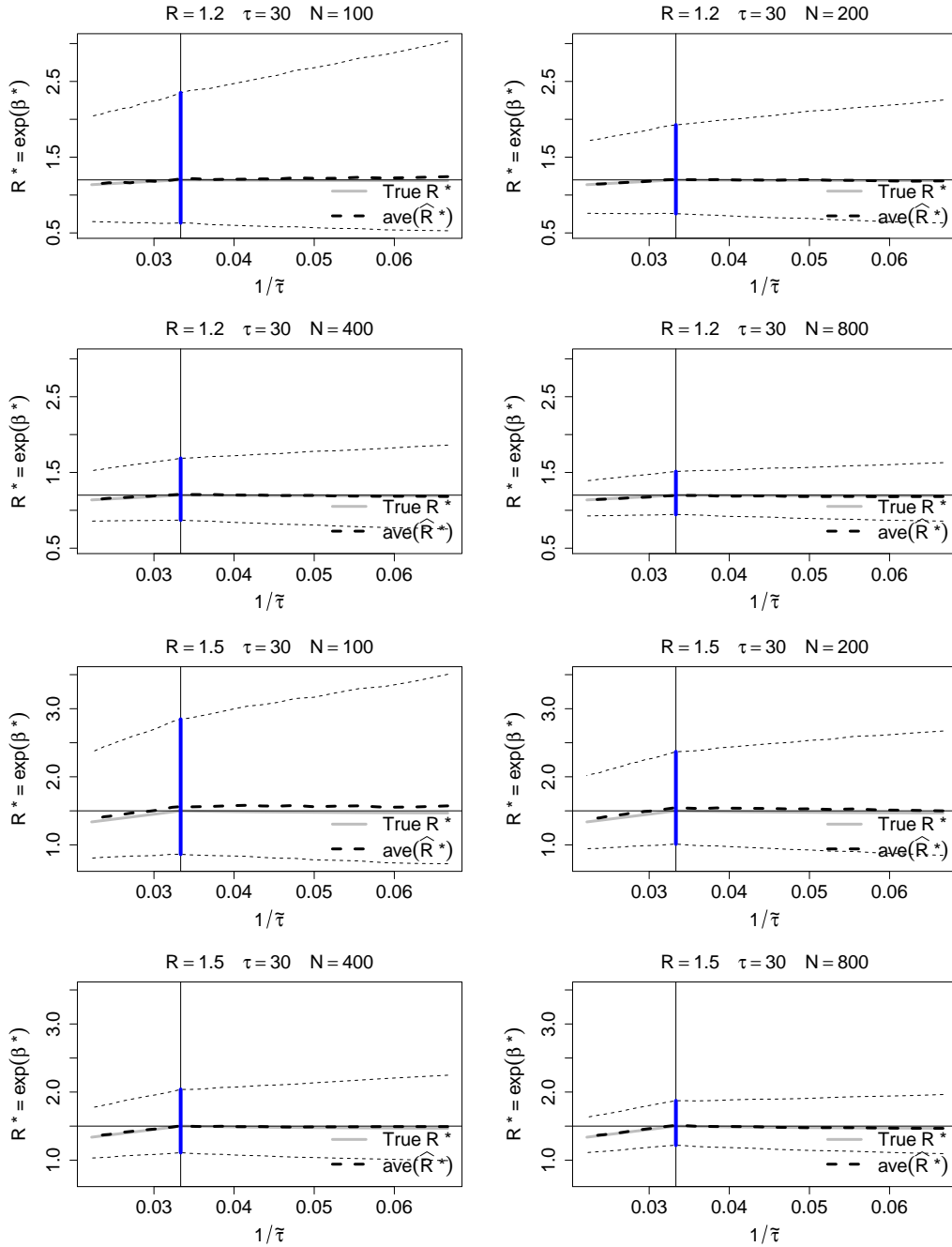


Figure 5: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages (ave(\hat{R}^*)) over 200 simulated datasets. The true risk length is $\tau = 30$. $R = 1.2$ and 1.5 displayed in the top and bottom panels, respectively.

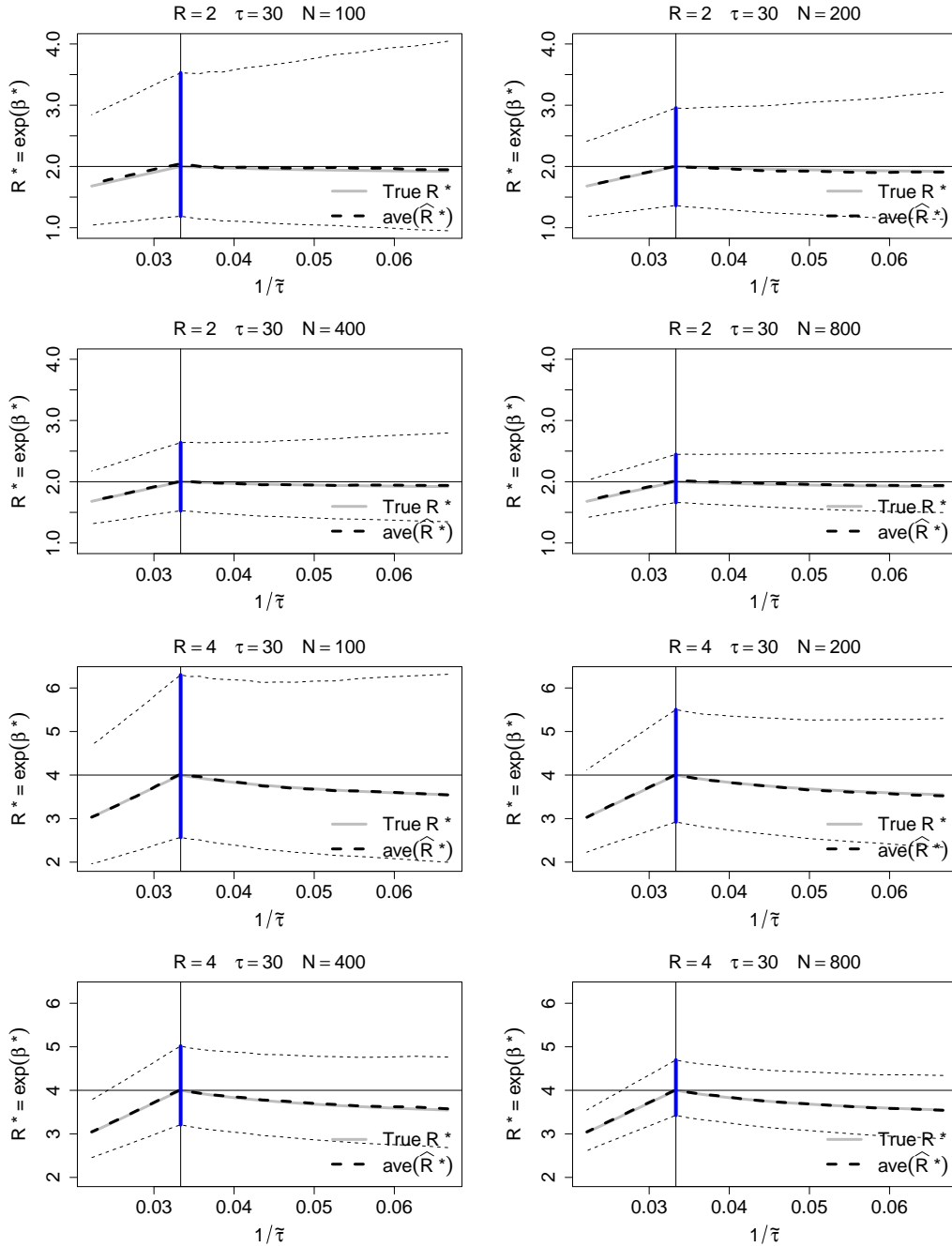


Figure 6: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 30$. $R = 2$ and 4 displayed in the top and bottom panels, respectively.

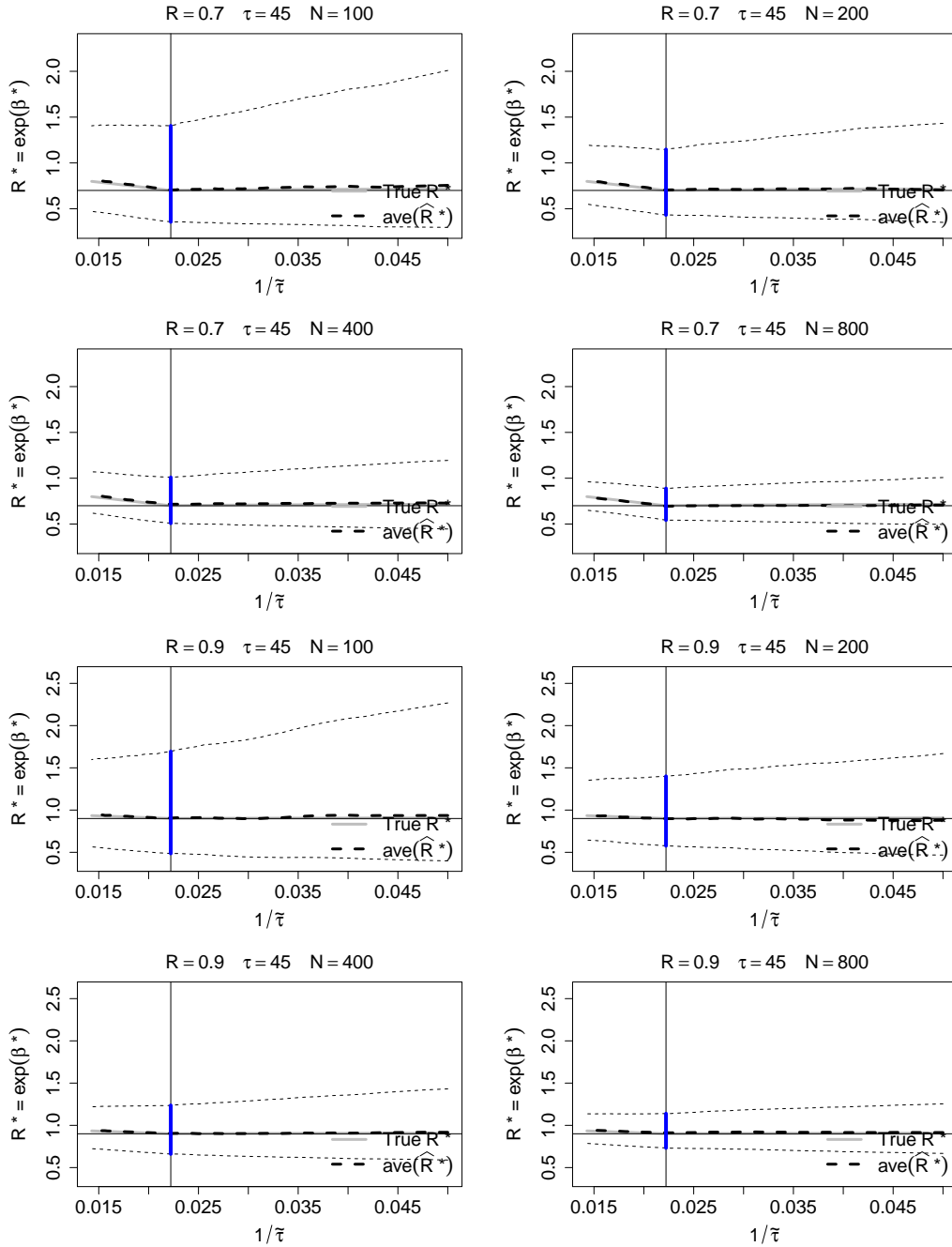


Figure 7: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 45$; $R = 0.7$ and 0.9 displayed in the top and bottom panels, respectively.

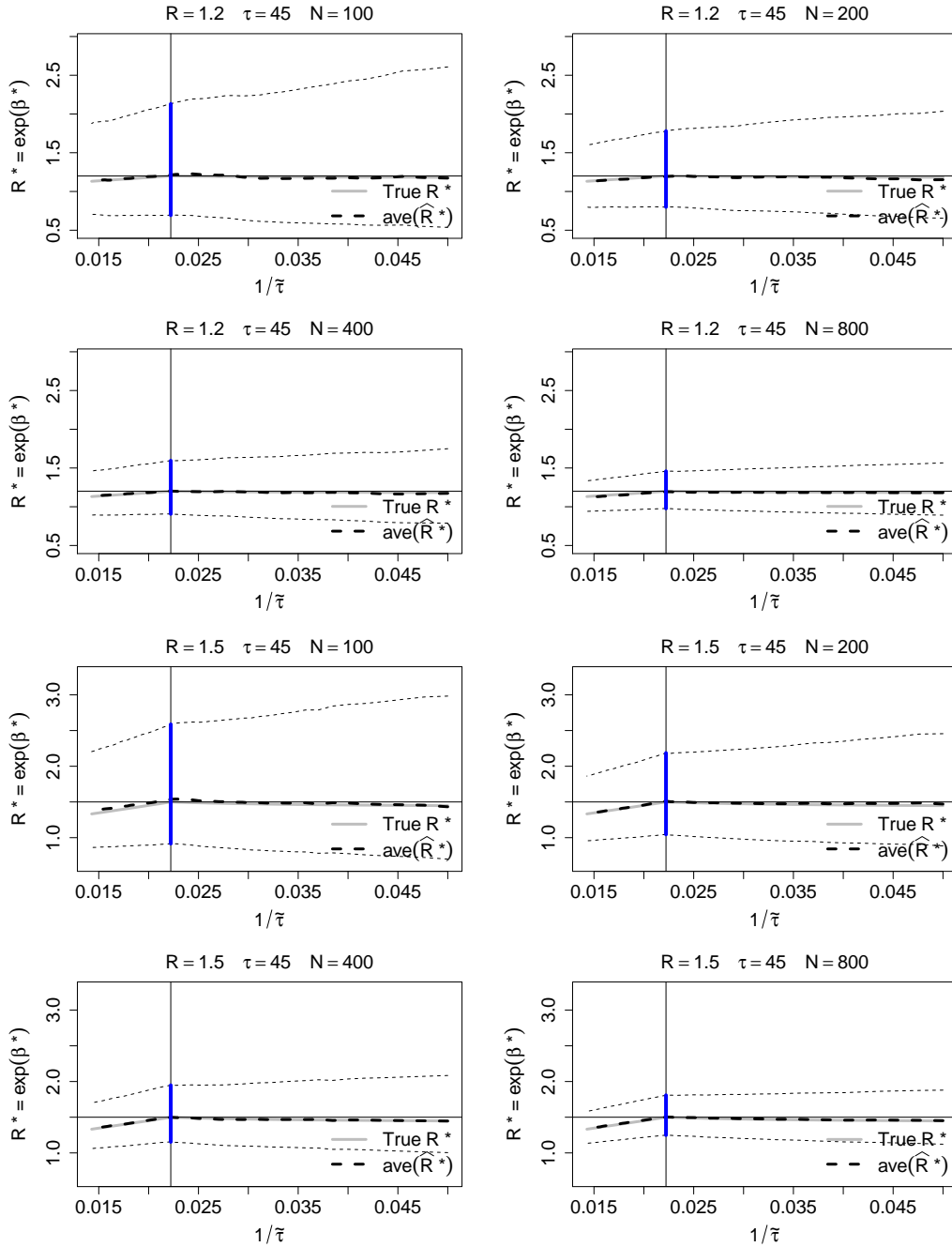


Figure 8: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 45$. $R = 1.2$ and 1.5 displayed in the top and bottom panels, respectively.

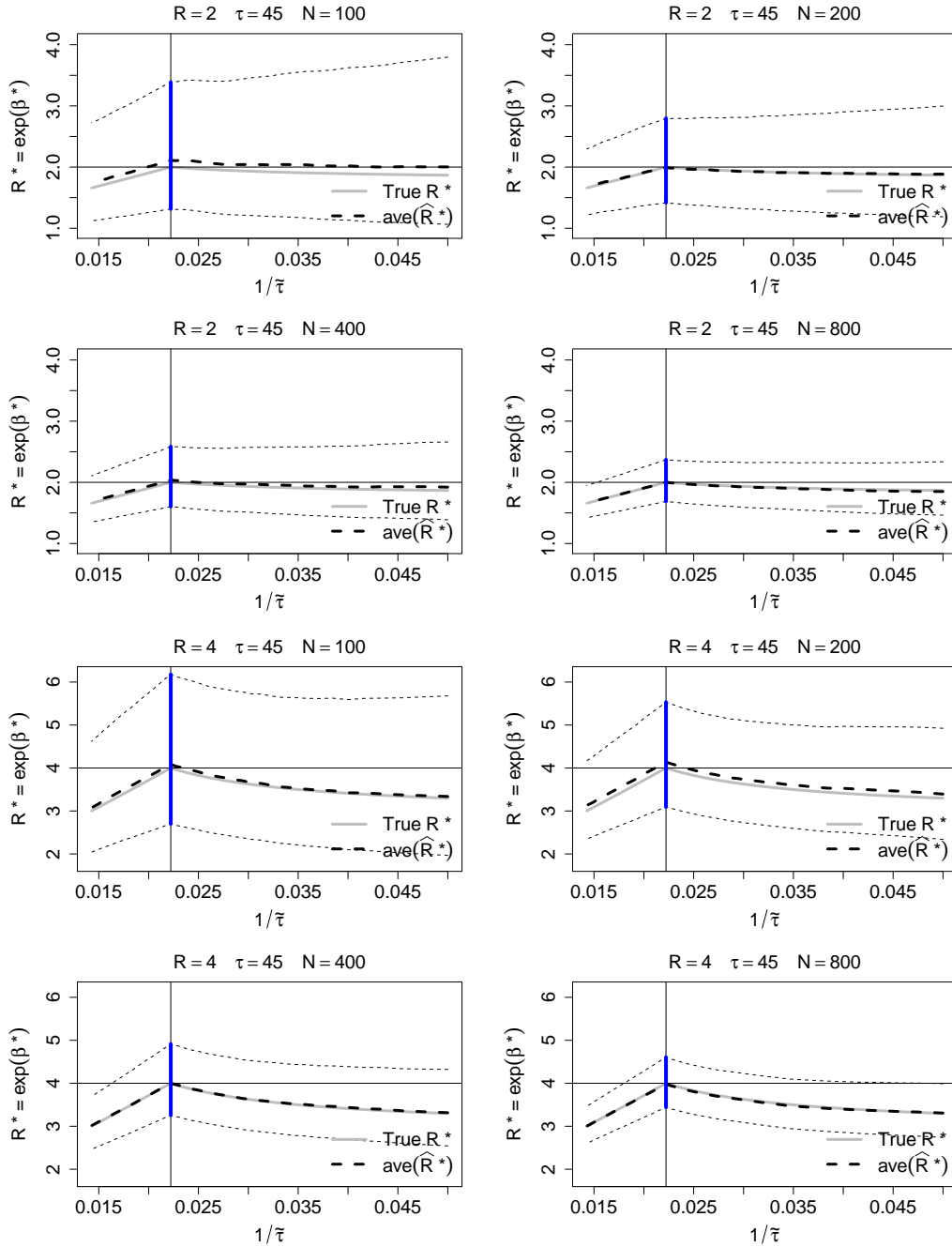


Figure 9: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 45$. $R = 2$ and 4 displayed in the top and bottom panels, respectively.

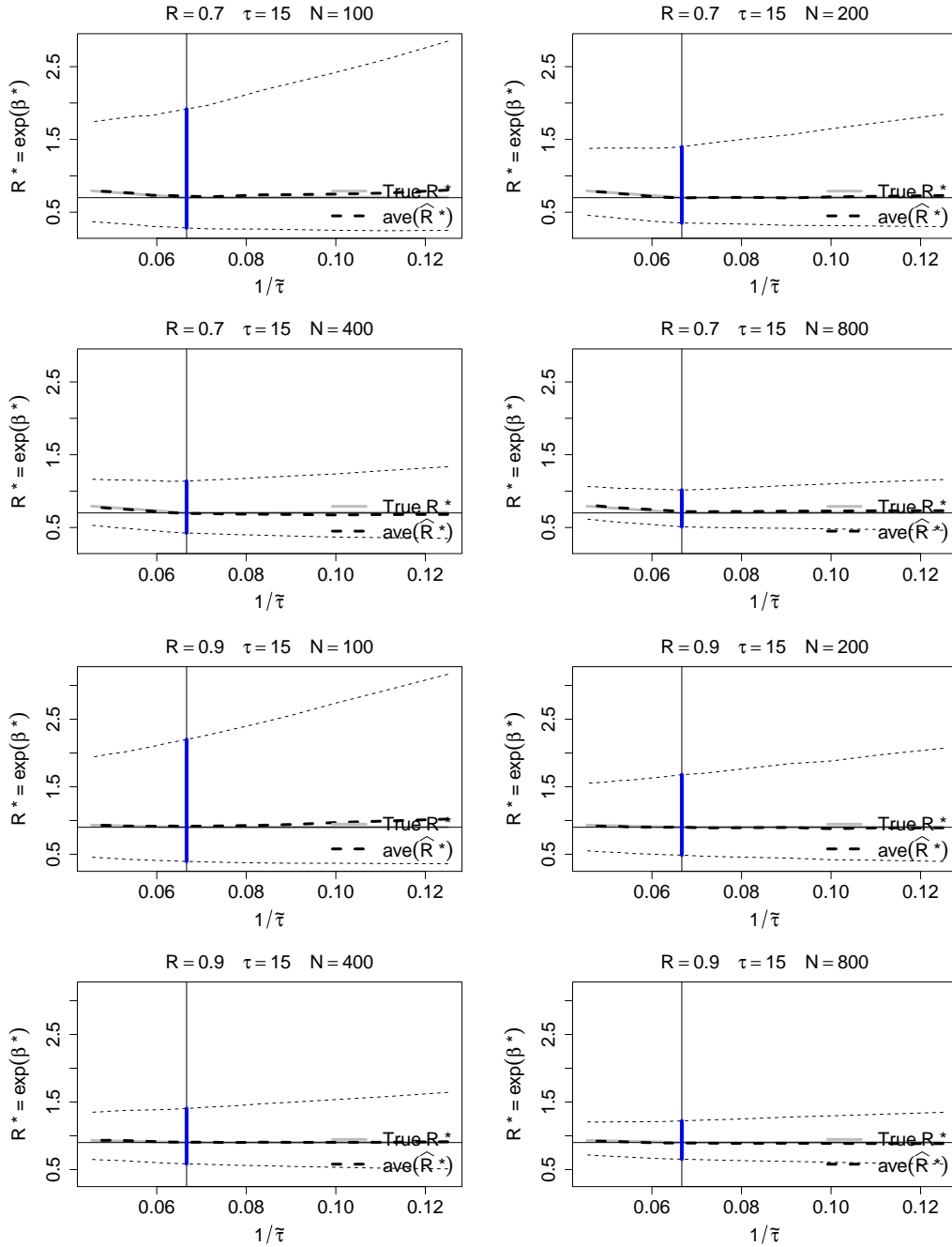


Figure 10: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 15$; $R = 0.7$ and 0.9 displayed in the top and bottom panels, respectively.

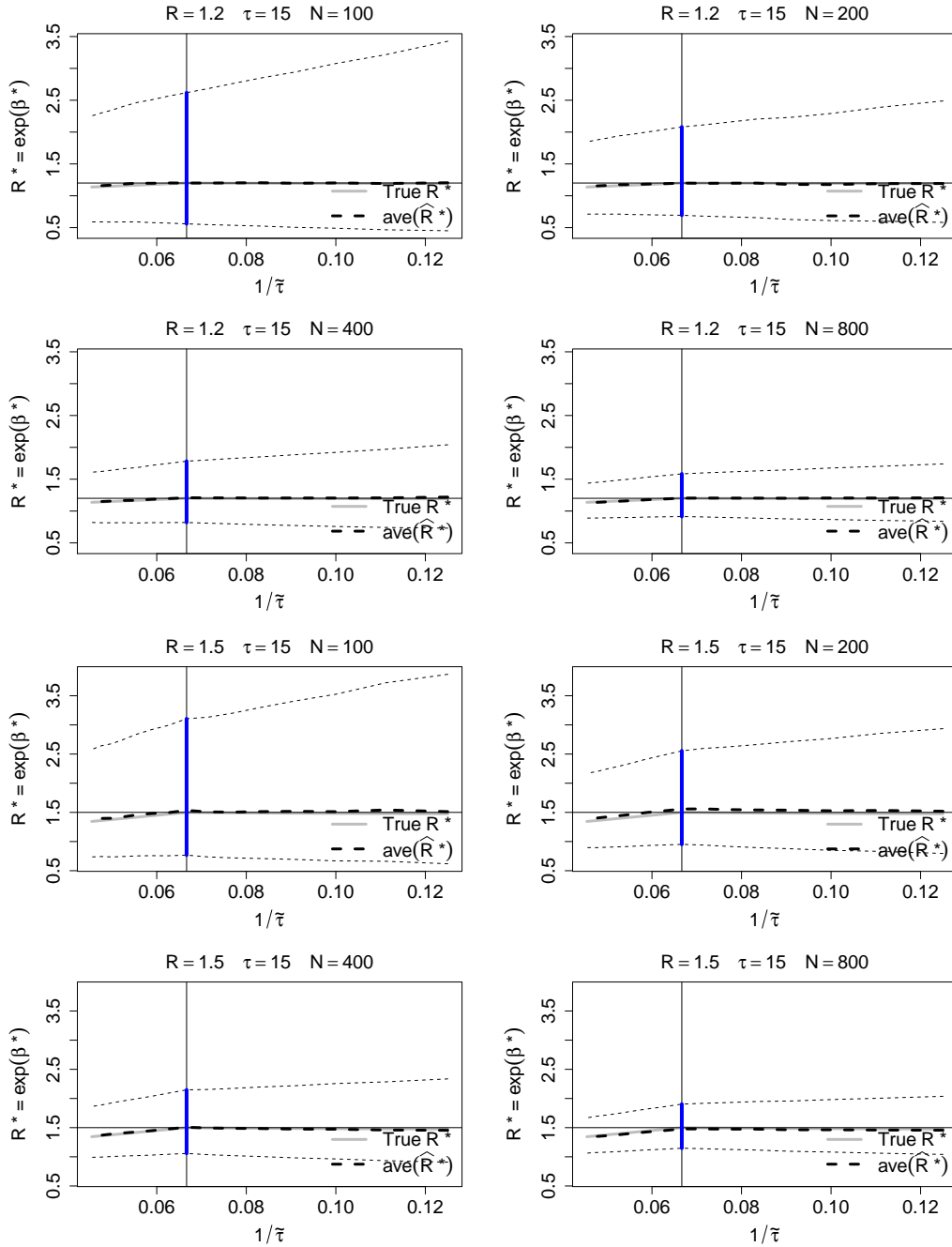


Figure 11: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages (ave(\hat{R}^*)) over 200 simulated datasets. The true risk length is $\tau = 15$. $R = 1.2$ and 1.5 displayed in the top and bottom panels, respectively.

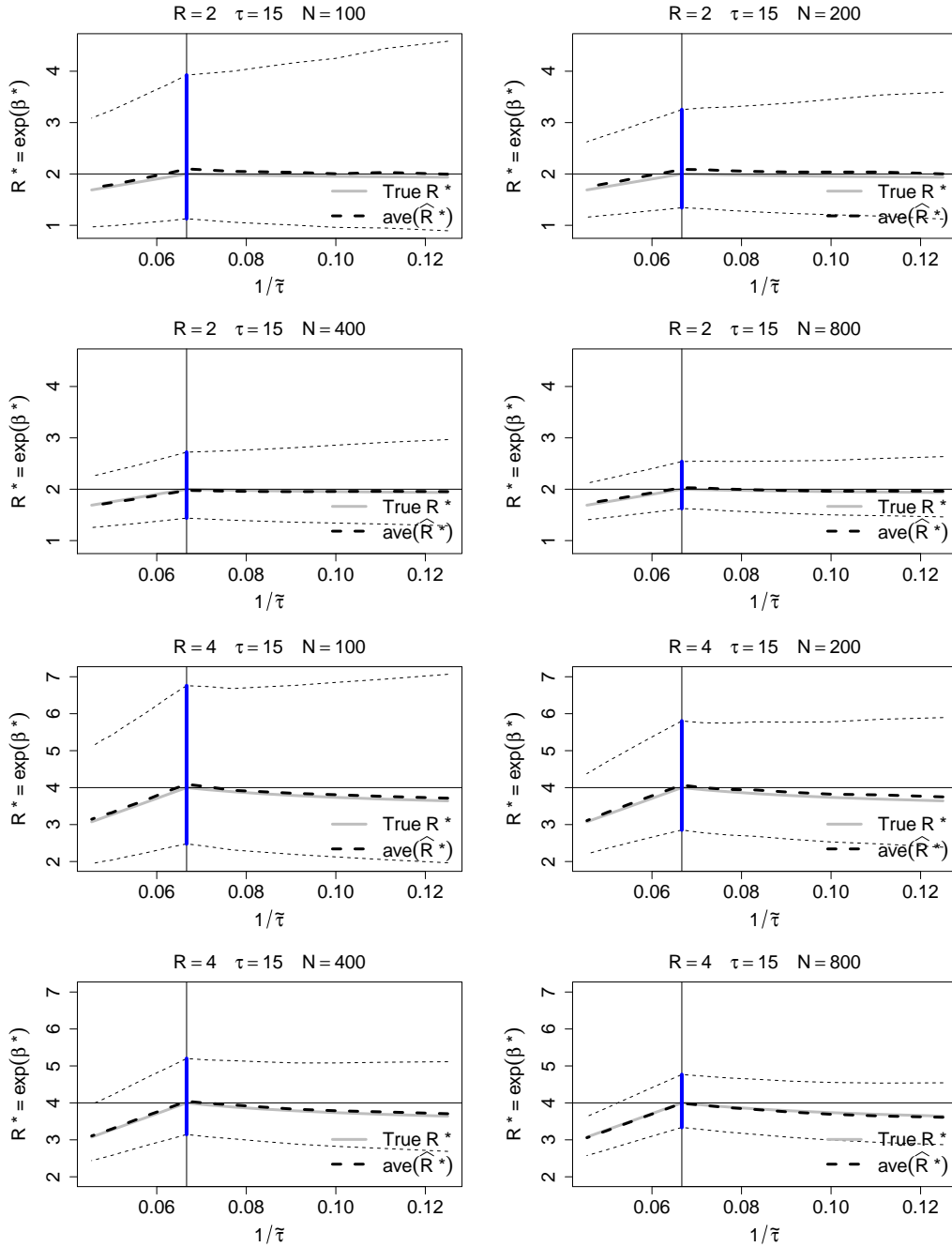


Figure 12: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 15$. $R = 2$ and 4 displayed in the top and bottom panels, respectively.

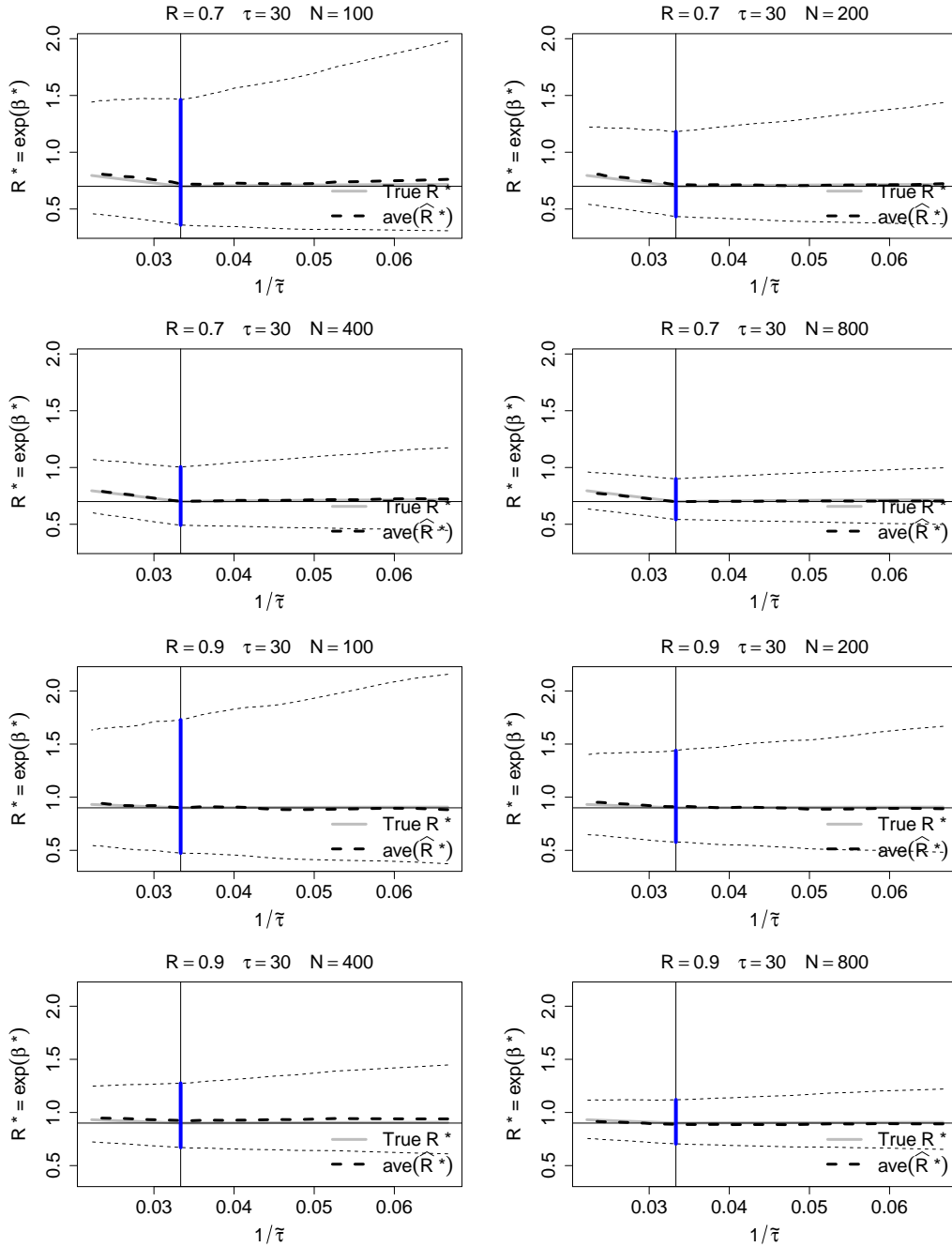


Figure 13: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 30$; $R = 0.7$ and 0.9 displayed in the top and bottom panels, respectively.

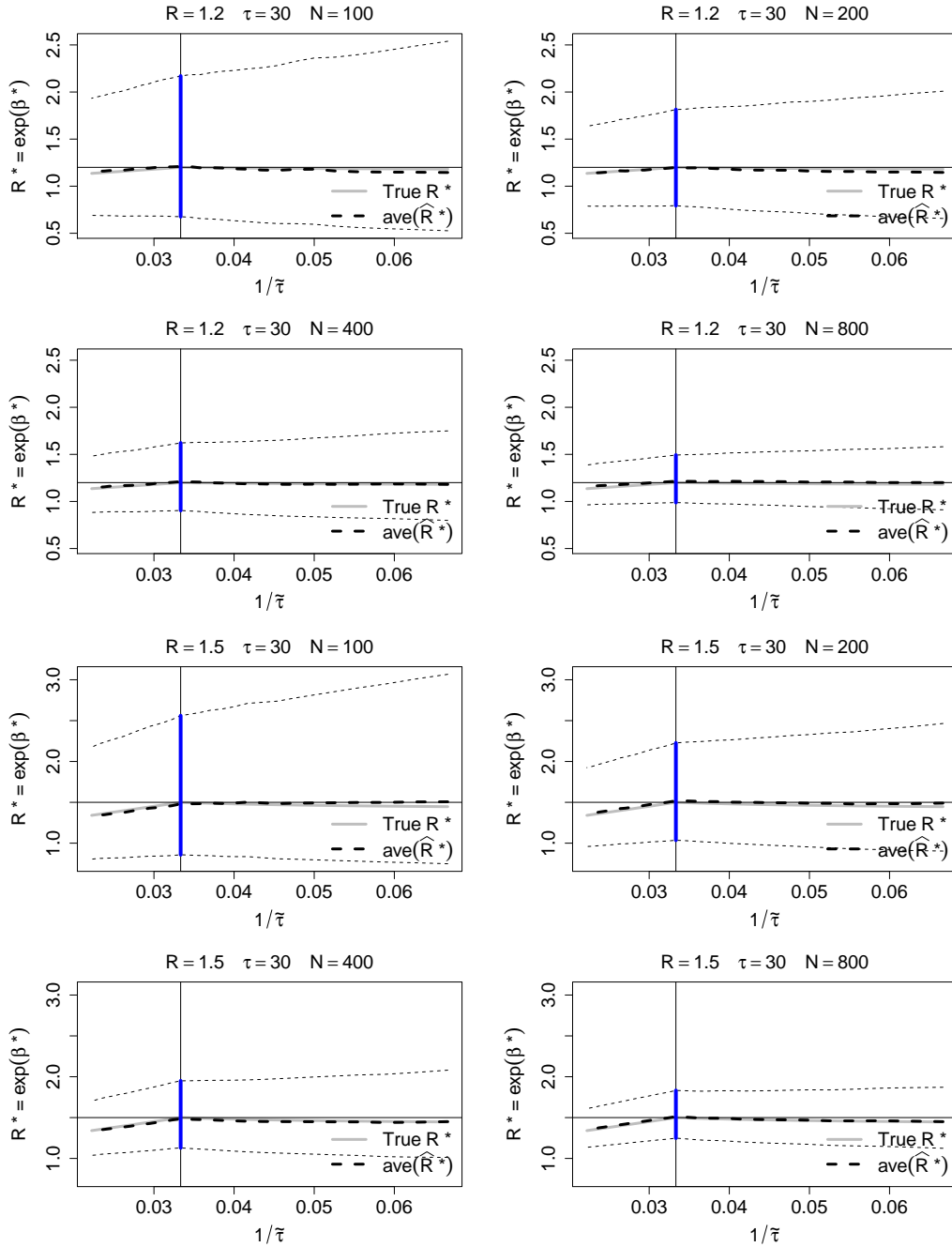


Figure 14: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 30$. $R = 1.2$ and 1.5 displayed in the top and bottom panels, respectively.

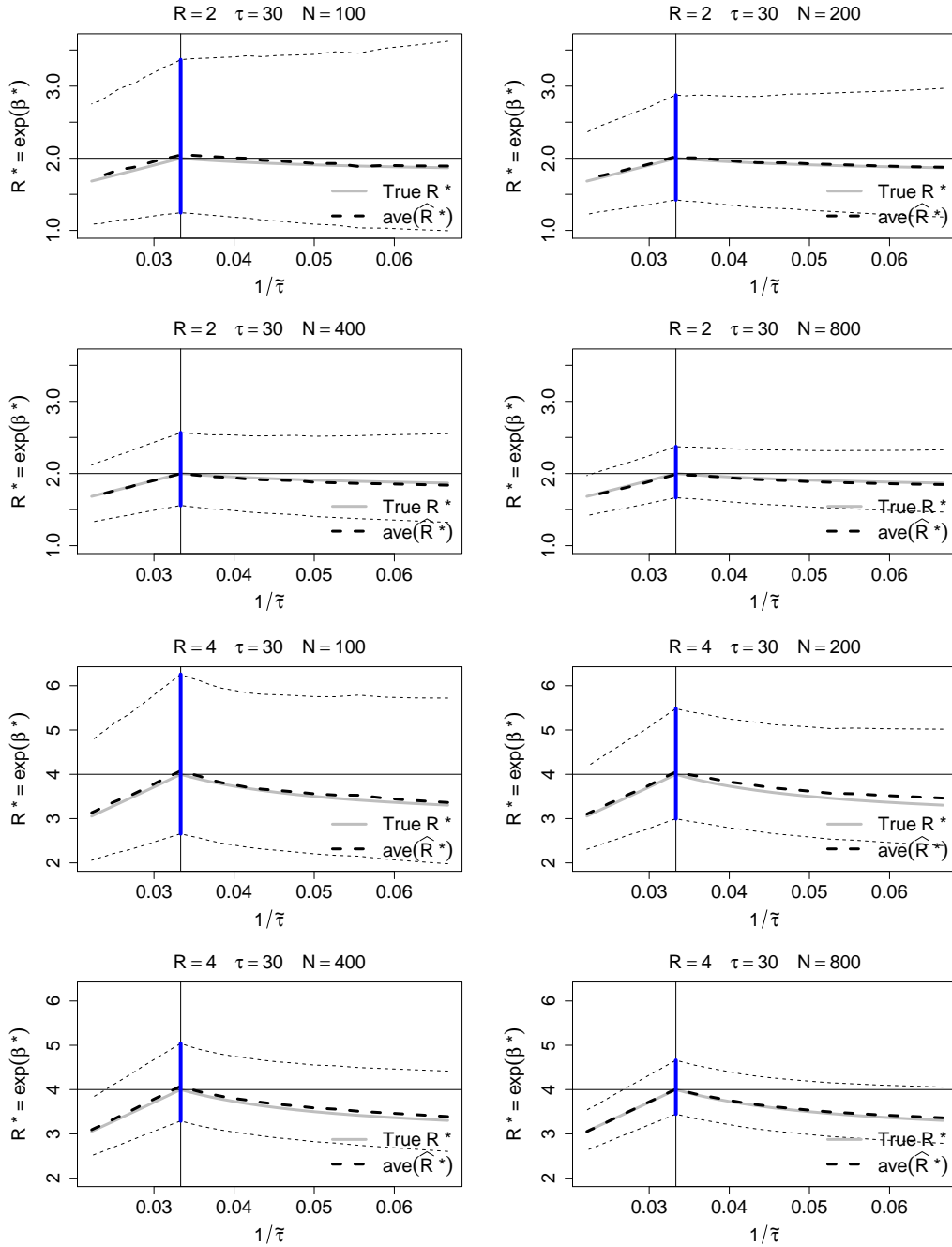


Figure 15: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 30$. $R = 2$ and 4 displayed in the top and bottom panels, respectively.

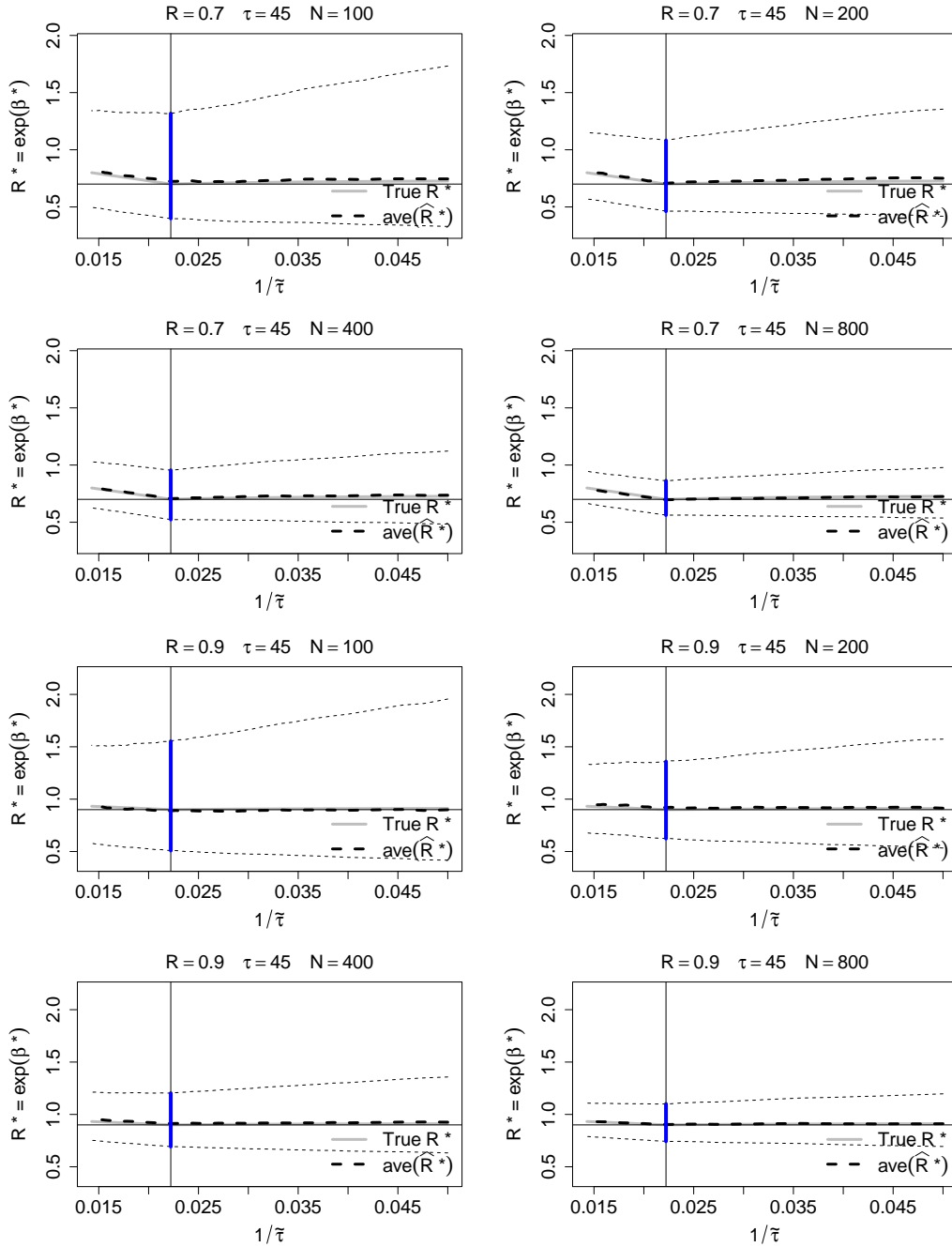


Figure 16: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 45$; $R = 0.7$ and 0.9 displayed in the top and bottom panels, respectively.

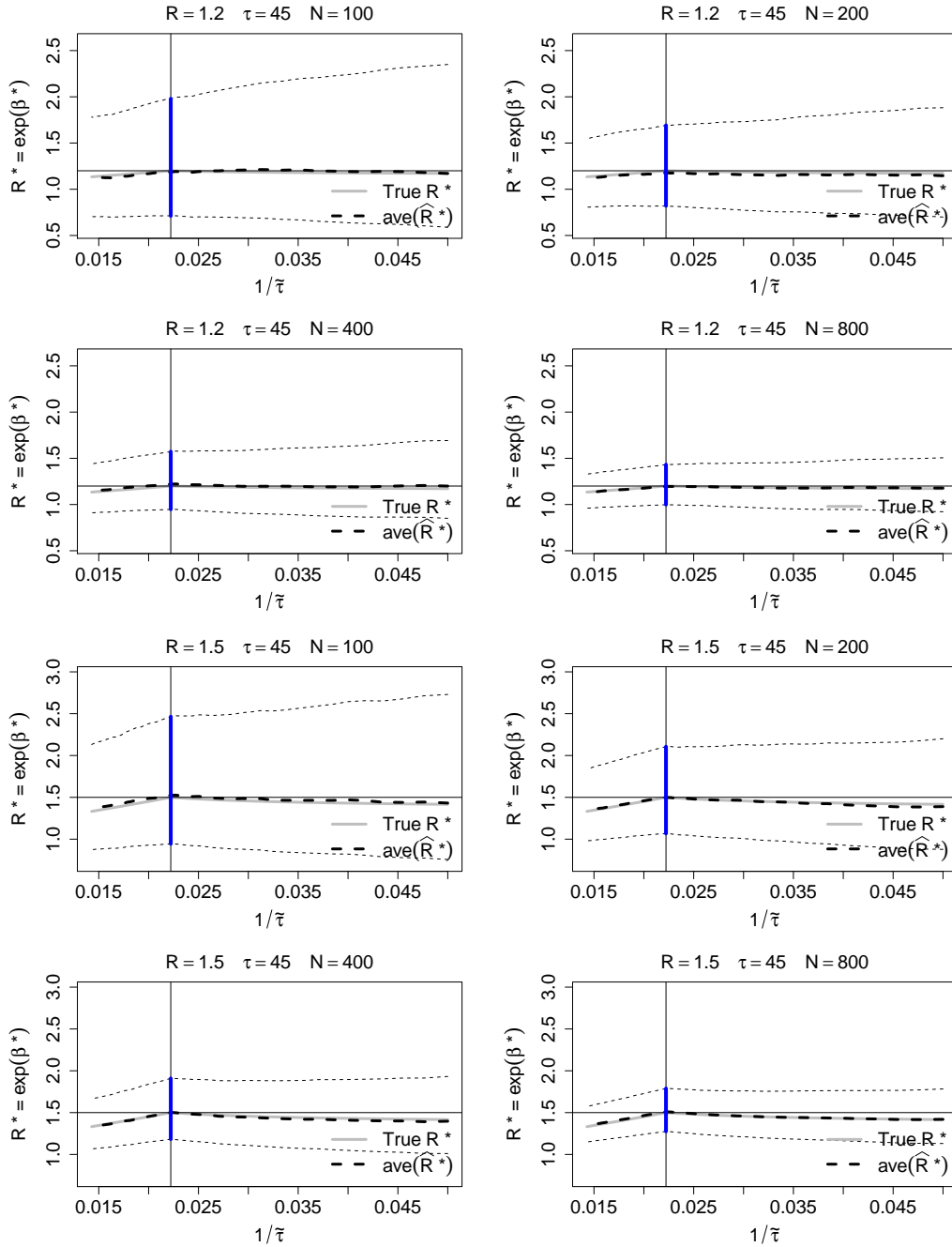


Figure 17: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 45$. $R = 1.2$ and 1.5 displayed in the top and bottom panels, respectively.

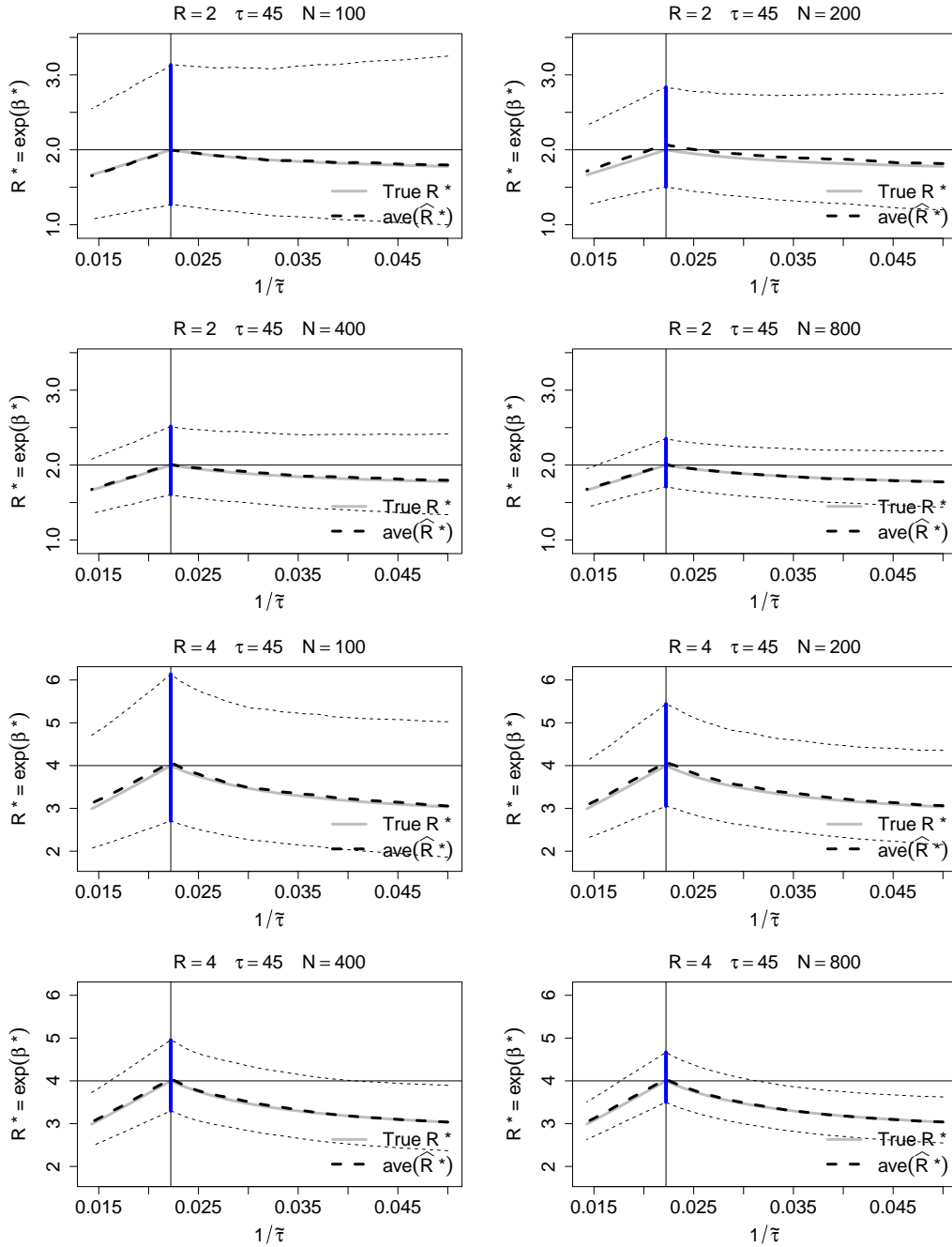


Figure 18: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 45$. $R = 2$ and 4 displayed in the top and bottom panels, respectively.

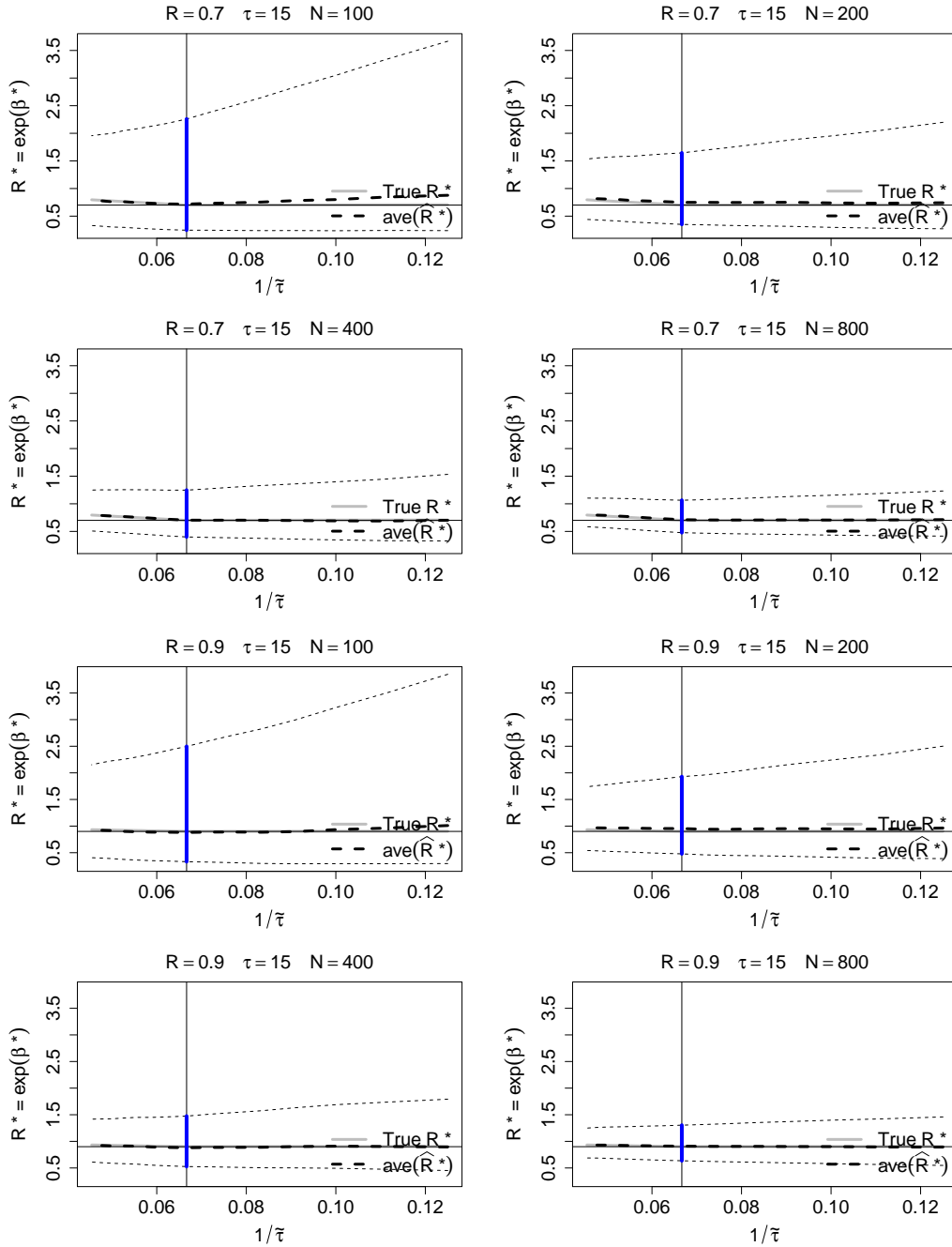


Figure 19: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 15$; $R = 0.7$ and 0.9 displayed in the top and bottom panels, respectively.

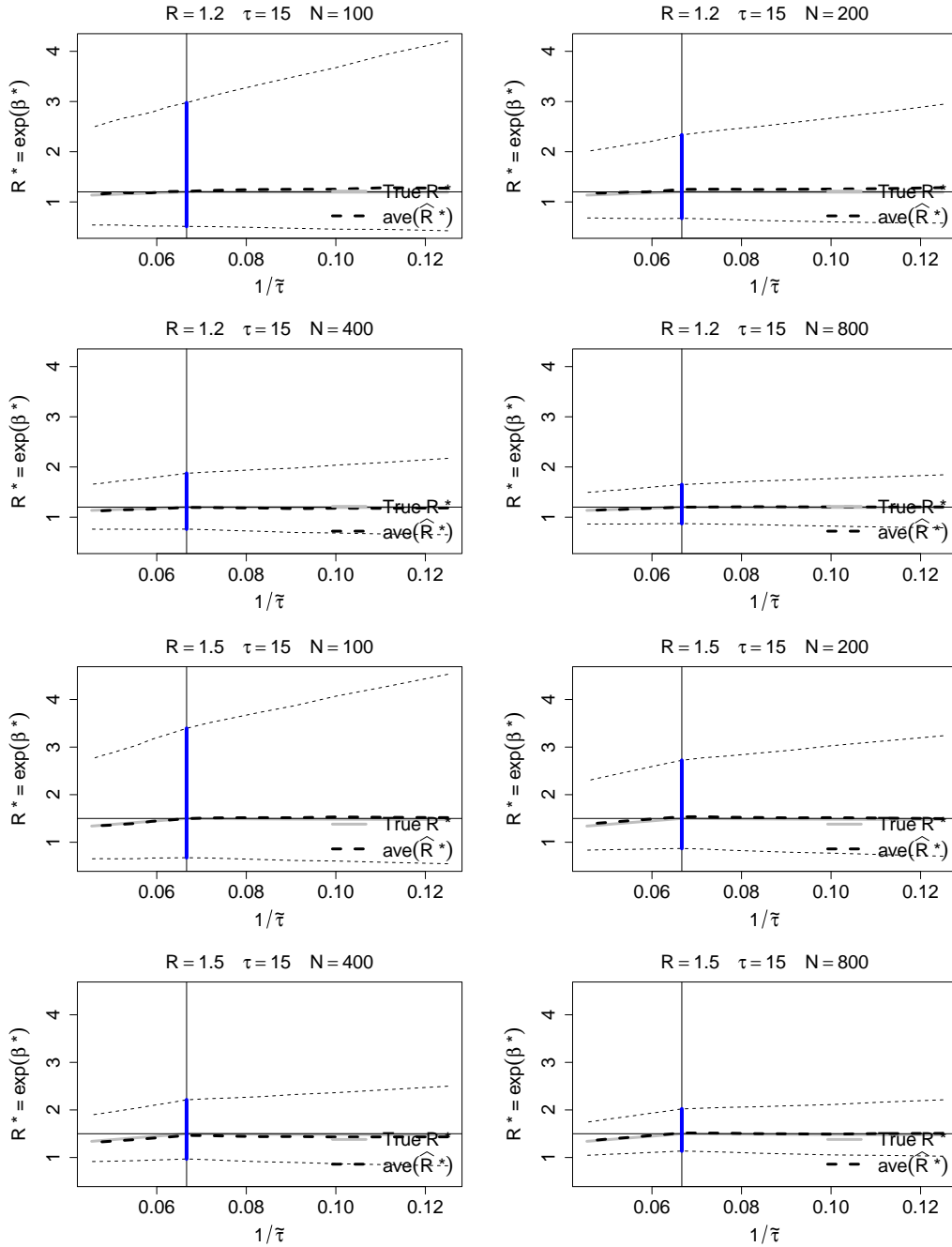


Figure 20: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 15$. $R = 1.2$ and 1.5 displayed in the top and bottom panels, respectively.

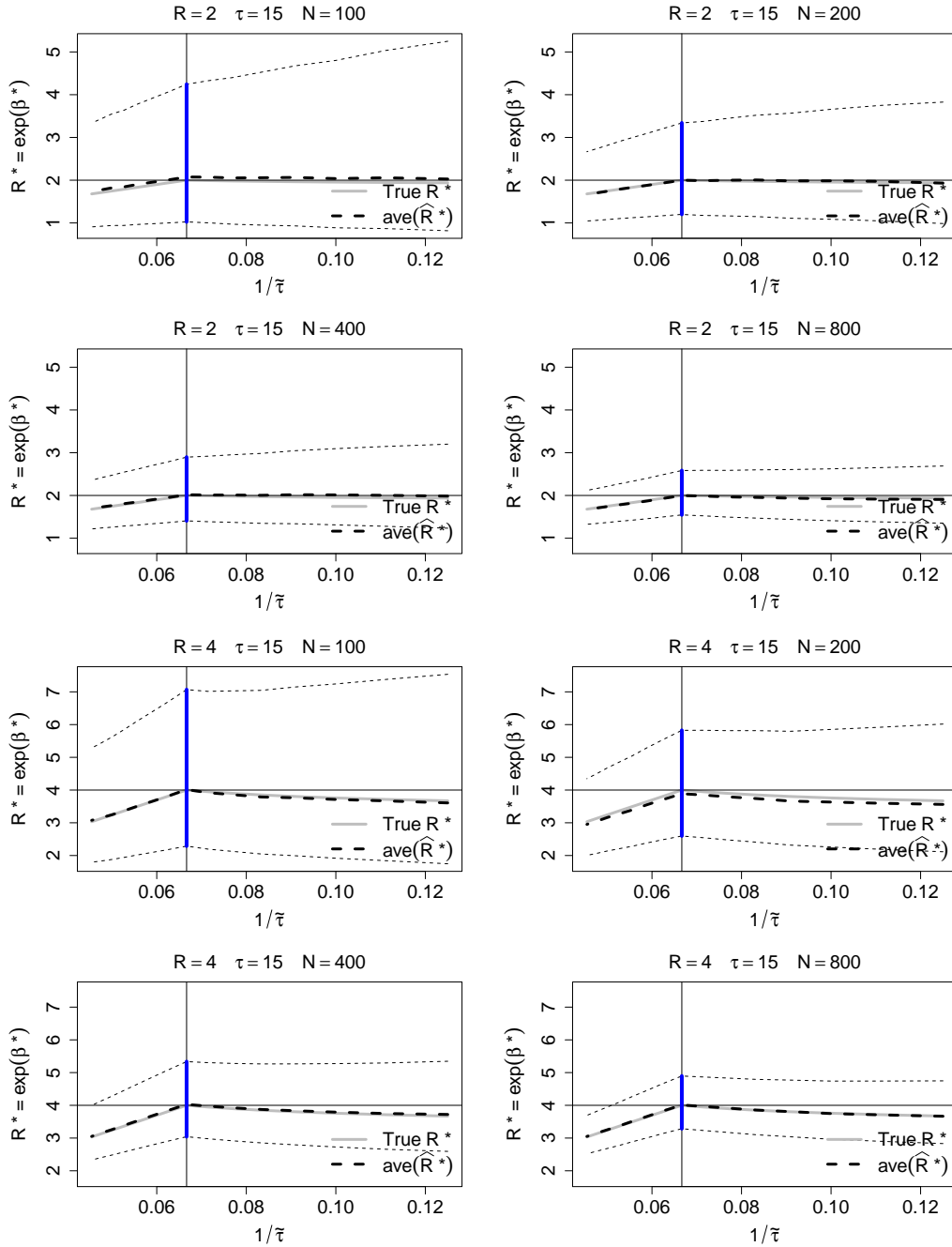


Figure 21: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 15$. $R = 2$ and 4 displayed in the top and bottom panels, respectively.

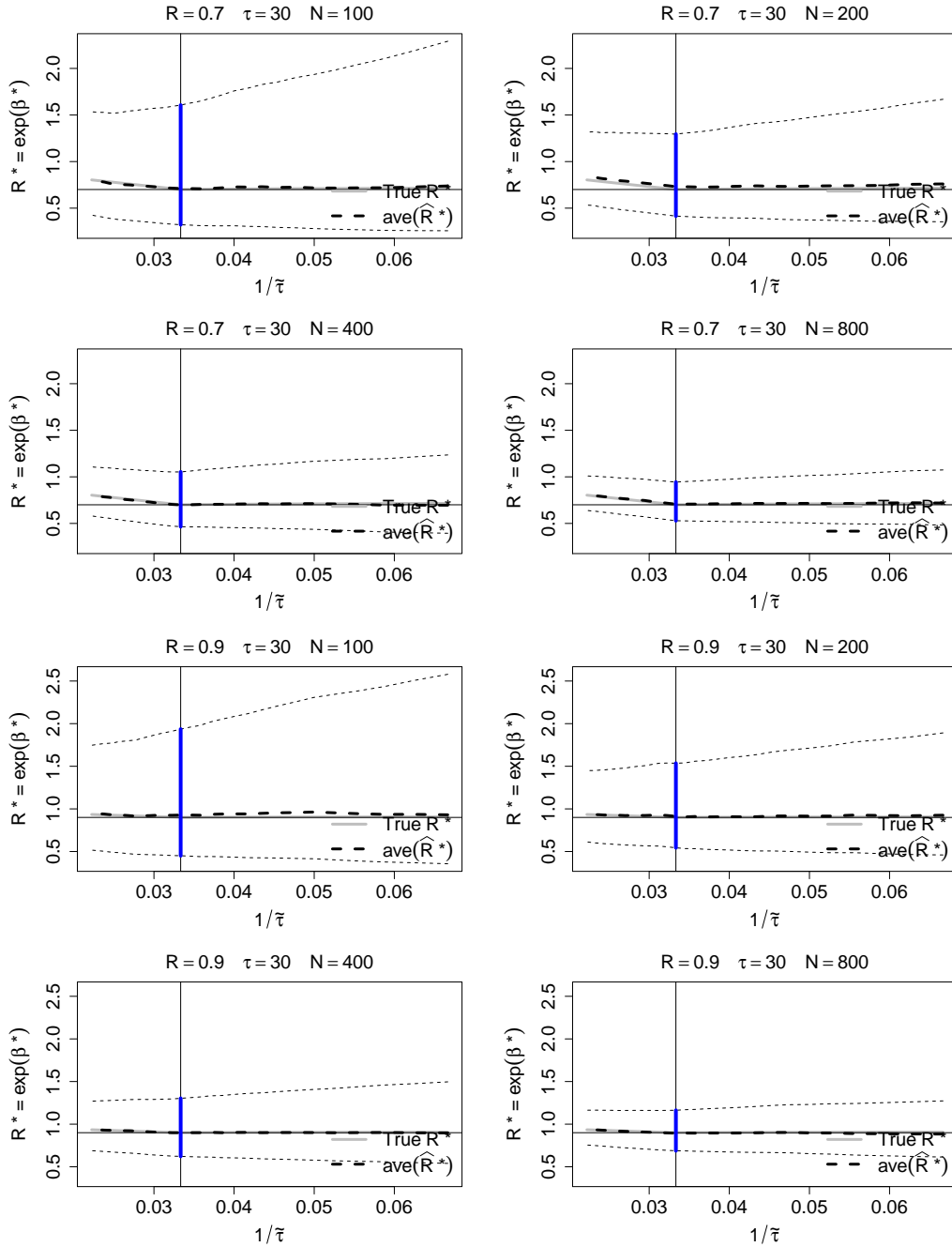


Figure 22: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 30$; $R = 0.7$ and 0.9 displayed in the top and bottom panels, respectively.

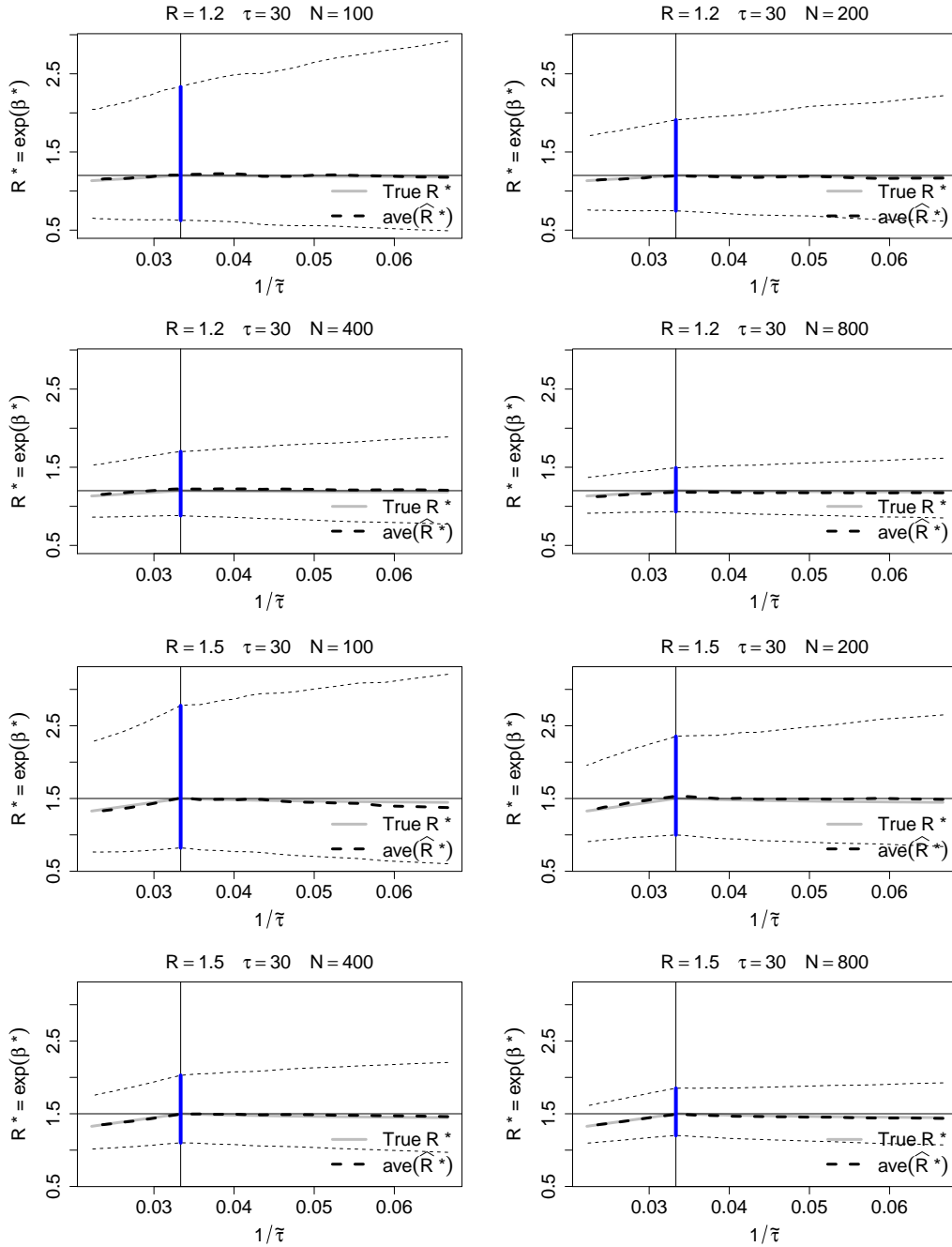


Figure 23: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 30$. $R = 1.2$ and 1.5 displayed in the top and bottom panels, respectively.

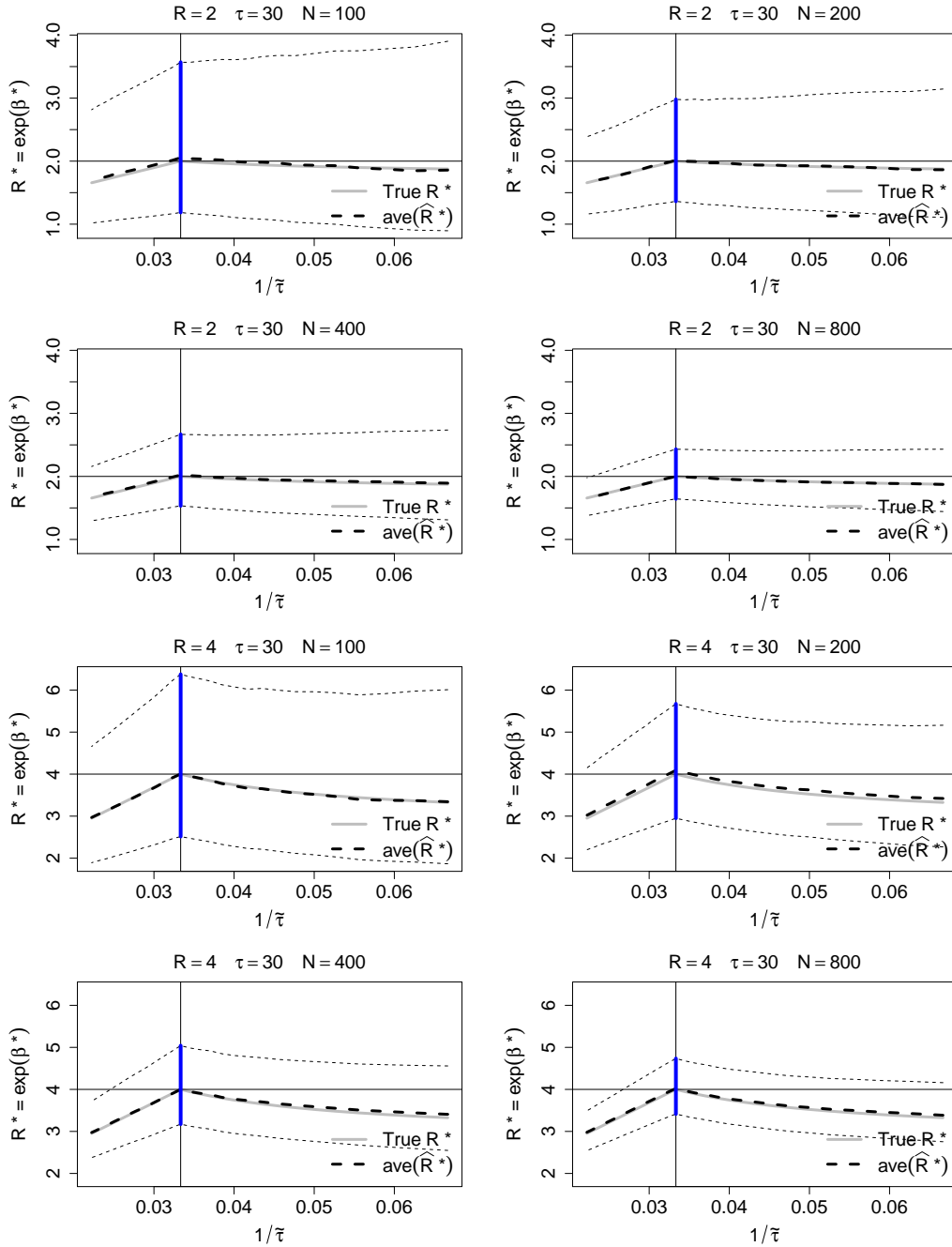


Figure 24: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 30$. $R = 2$ and 4 displayed in the top and bottom panels, respectively.

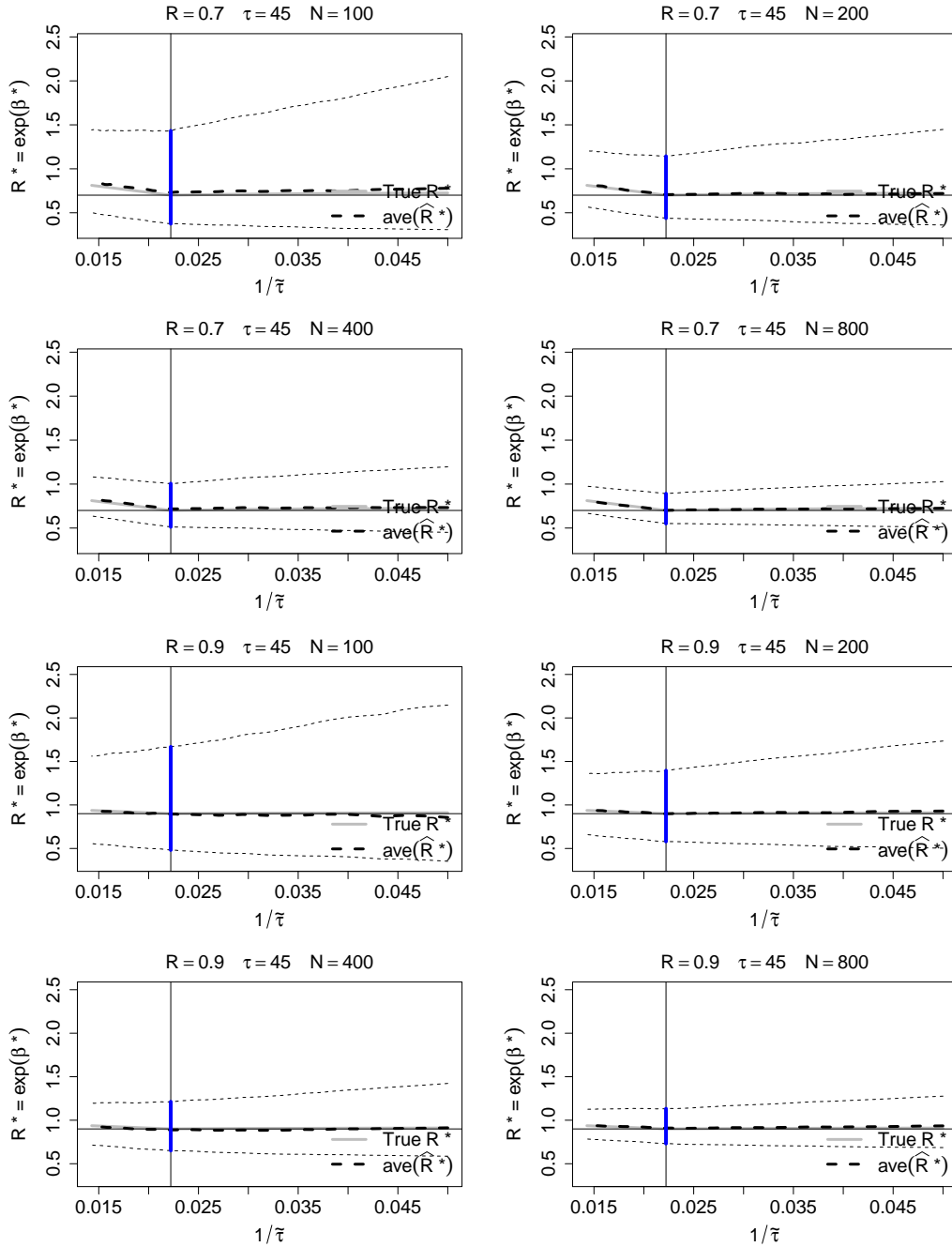


Figure 25: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 45$; $R = 0.7$ and 0.9 displayed in the top and bottom panels, respectively.

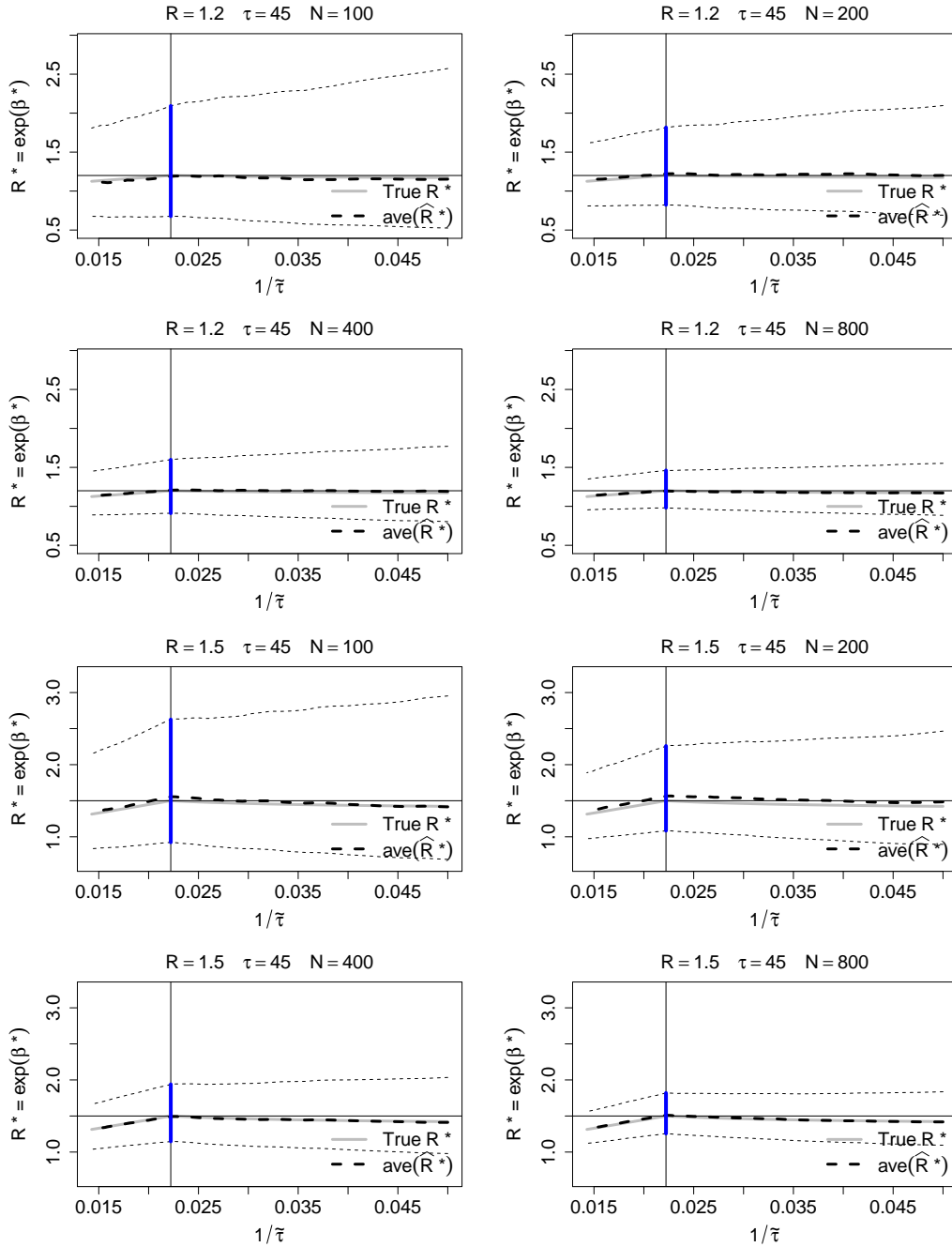


Figure 26: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 45$. $R = 1.2$ and 1.5 displayed in the top and bottom panels, respectively.

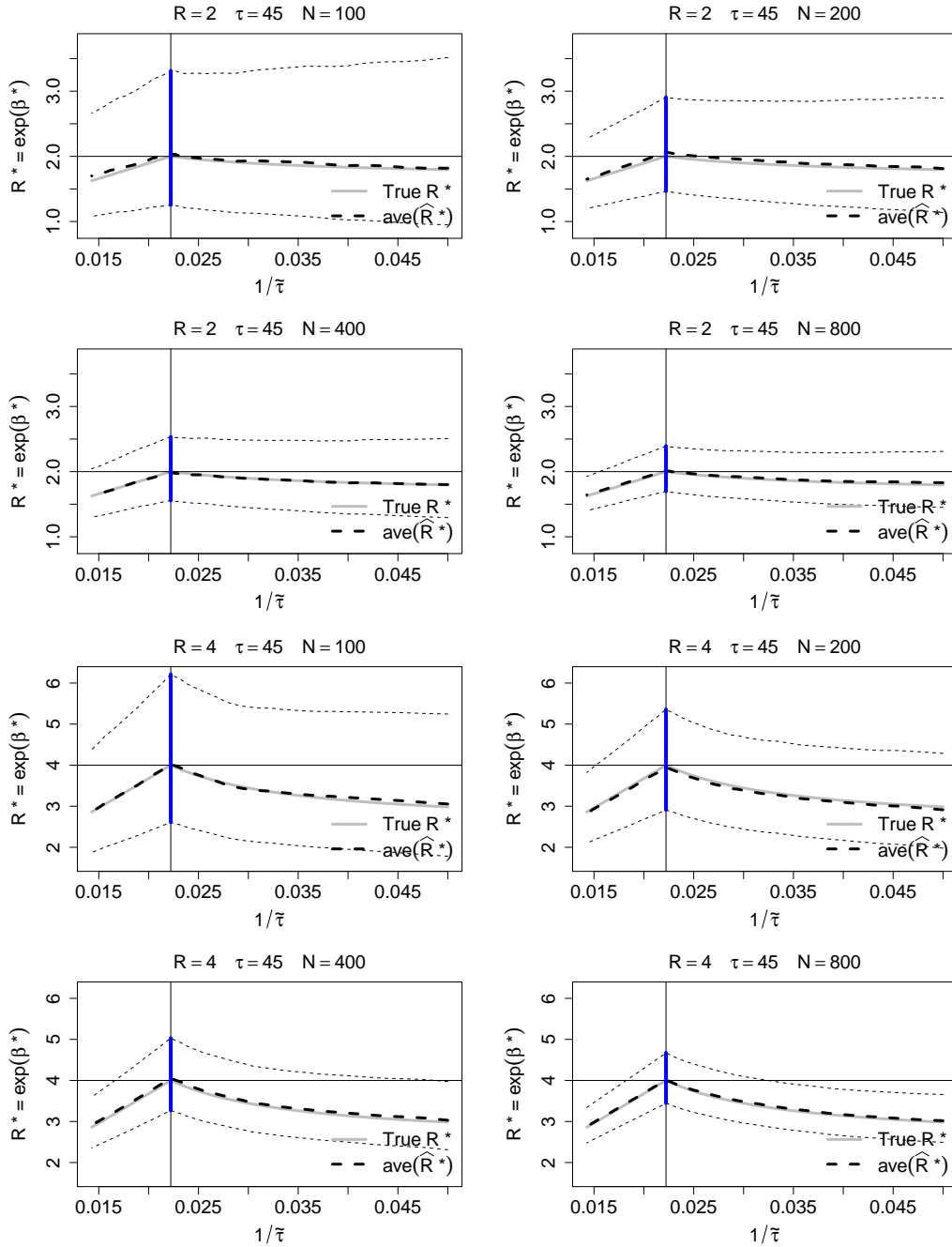


Figure 27: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 45$. $R = 2$ and 4 displayed in the top and bottom panels, respectively.

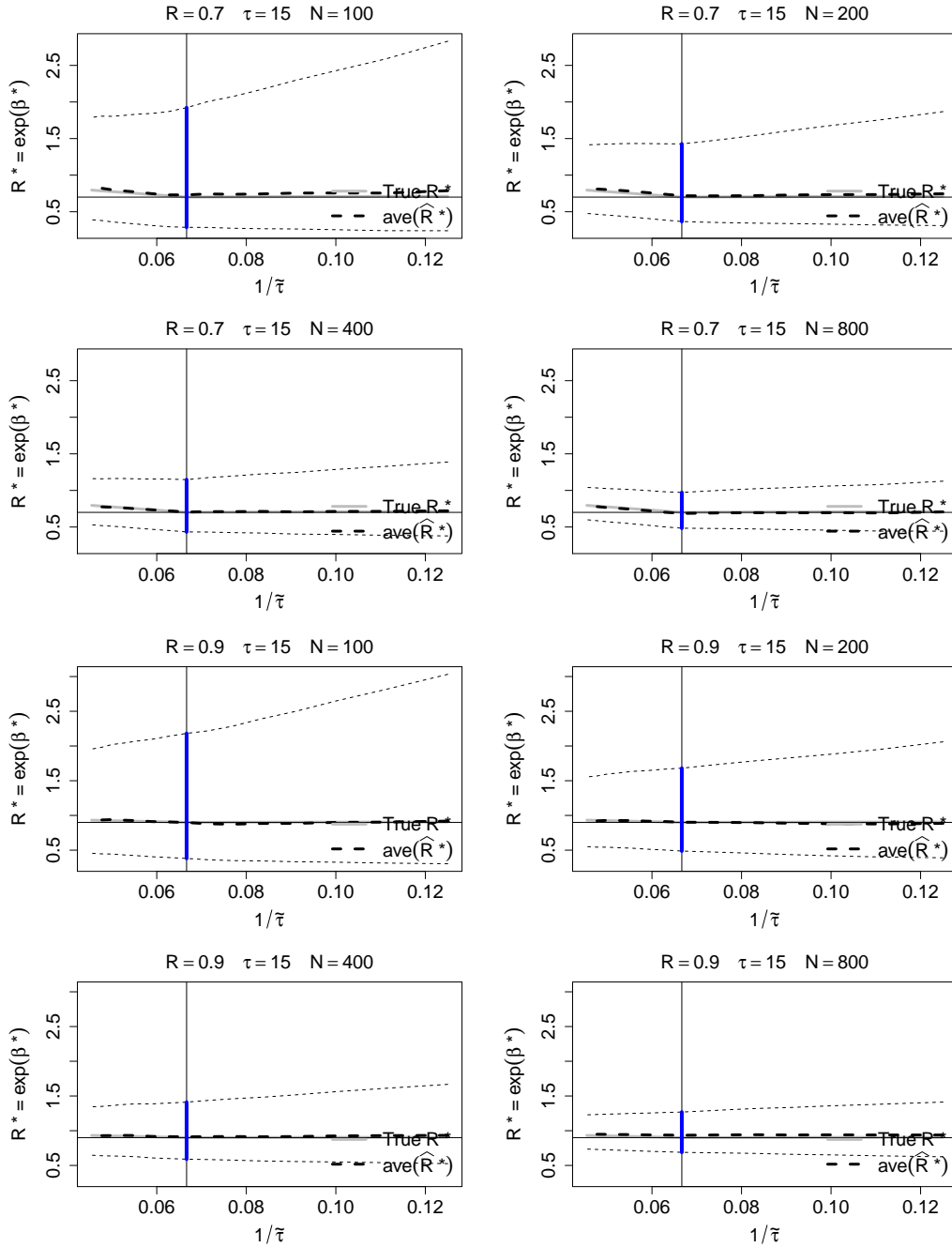


Figure 28: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 15$; $R = 0.7$ and 0.9 displayed in the top and bottom panels, respectively.

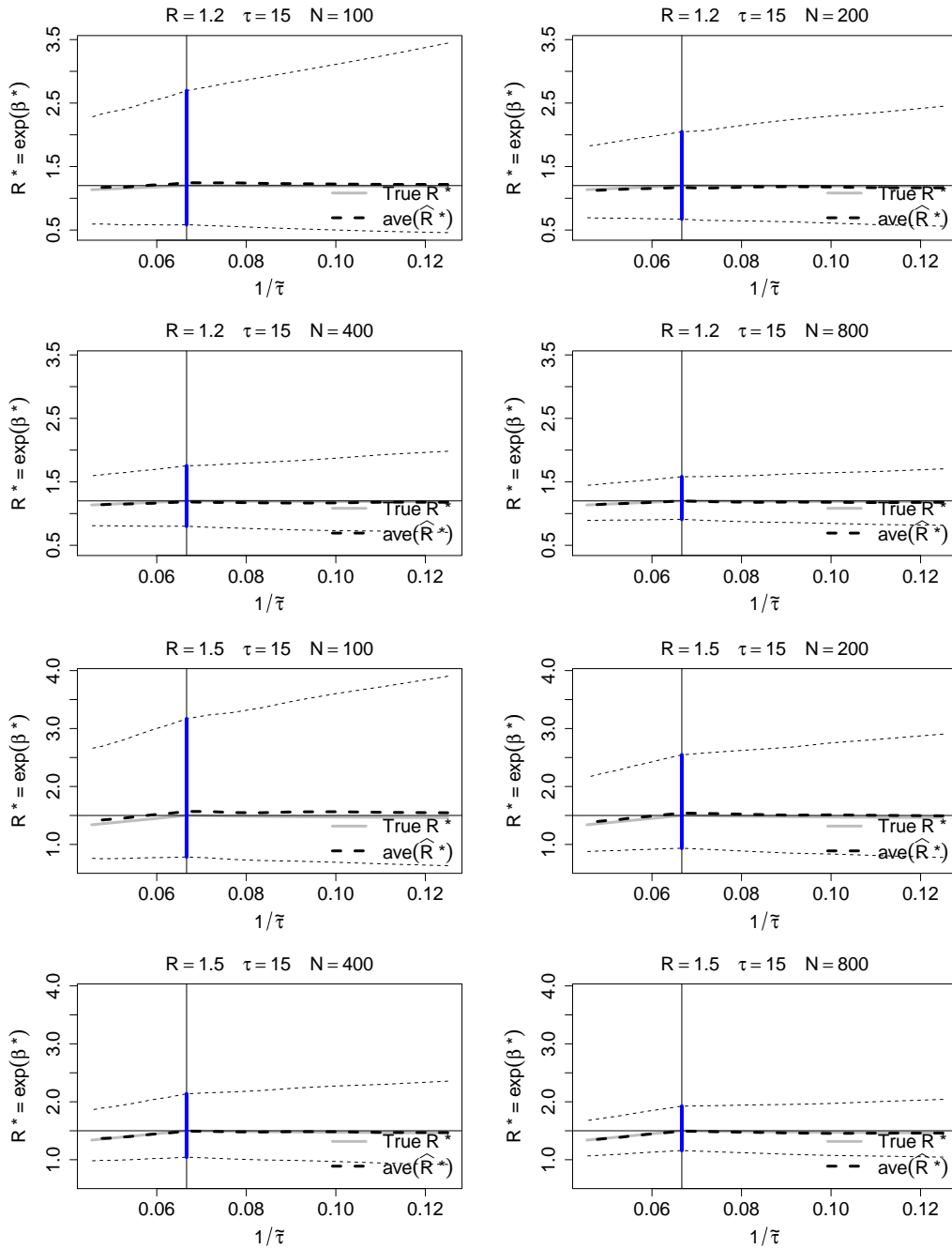


Figure 29: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 15$. $R = 1.2$ and 1.5 displayed in the top and bottom panels, respectively.

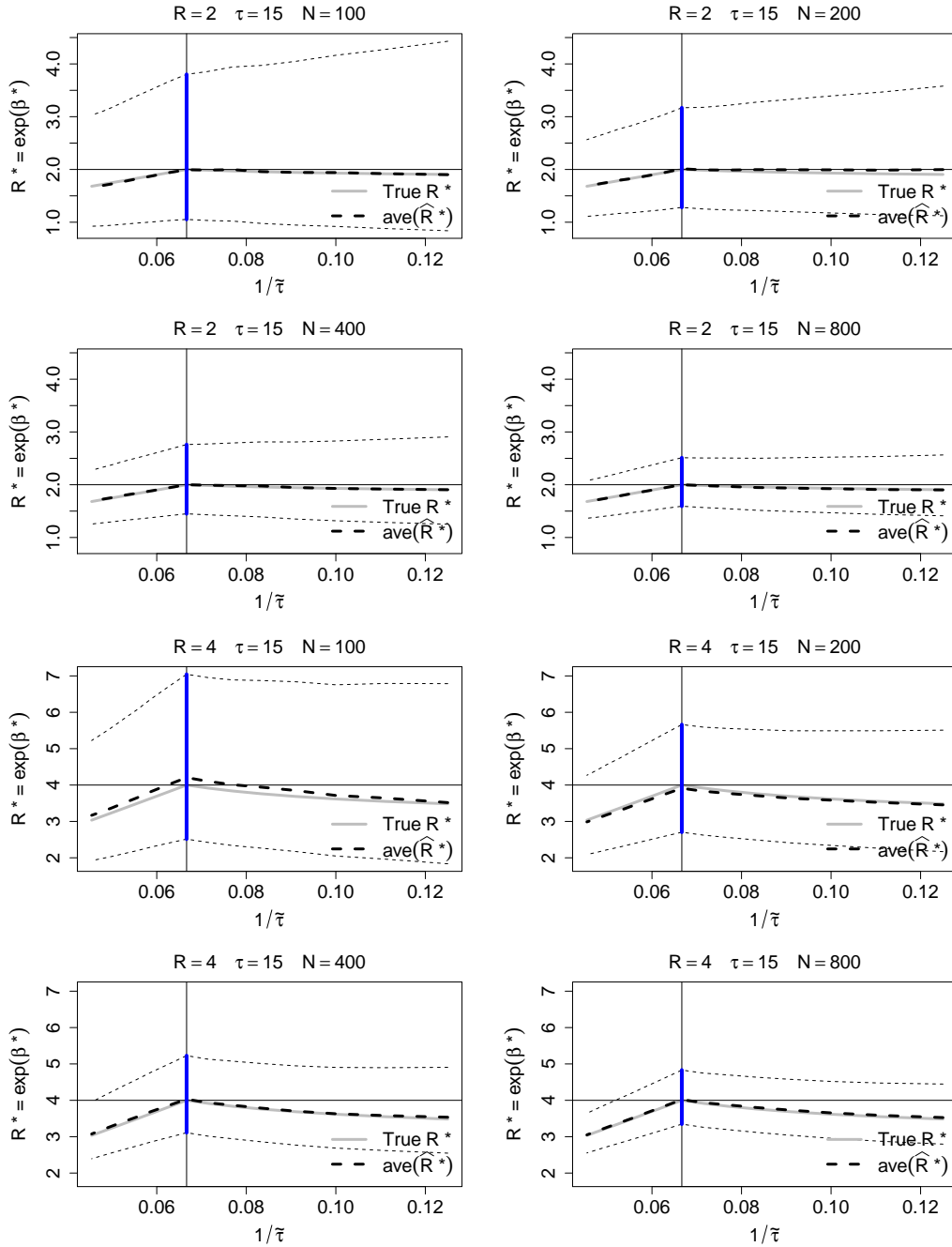


Figure 30: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 15$. $R = 2$ and 4 displayed in the top and bottom panels, respectively.

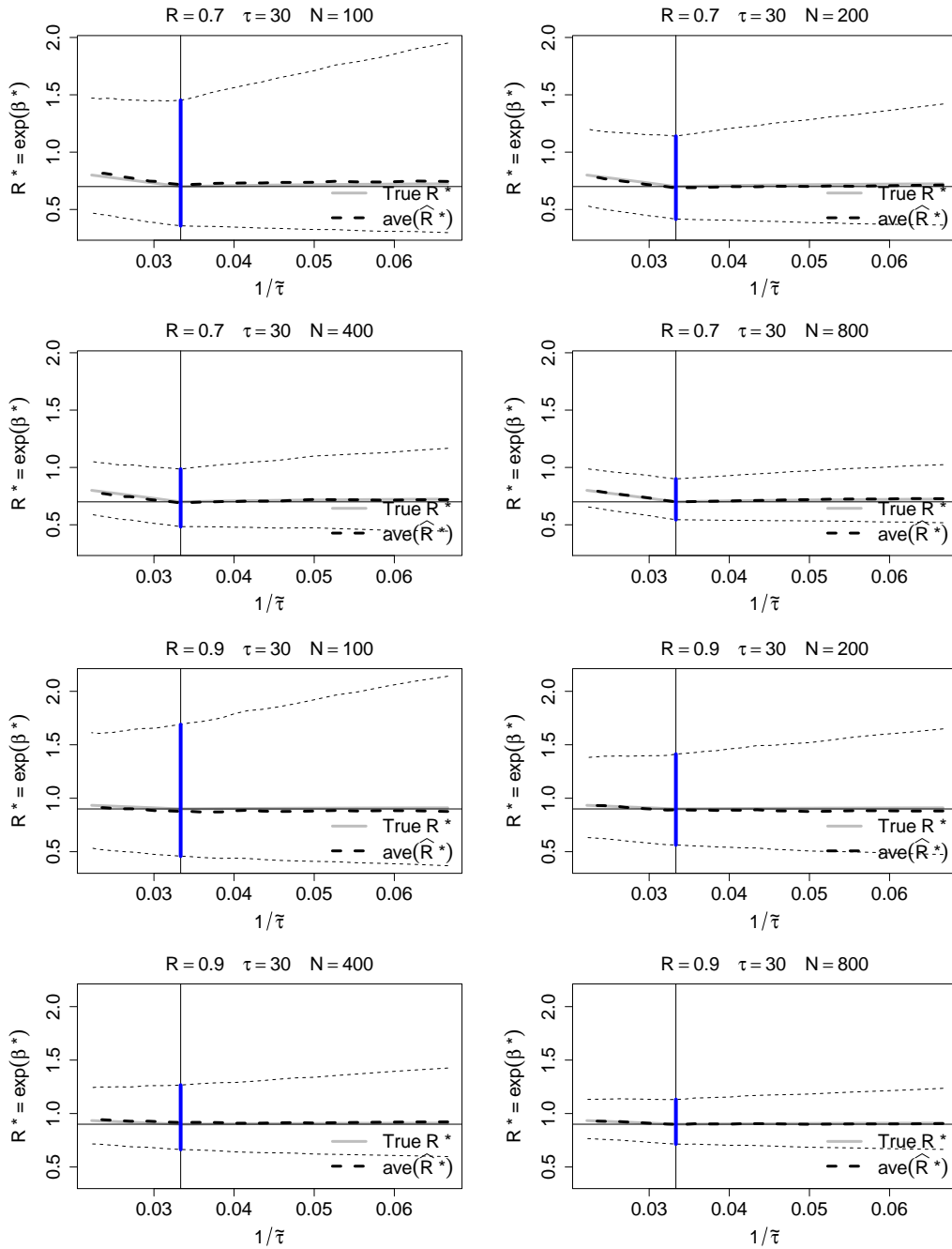


Figure 31: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 30$; $R = 0.7$ and 0.9 displayed in the top and bottom panels, respectively.

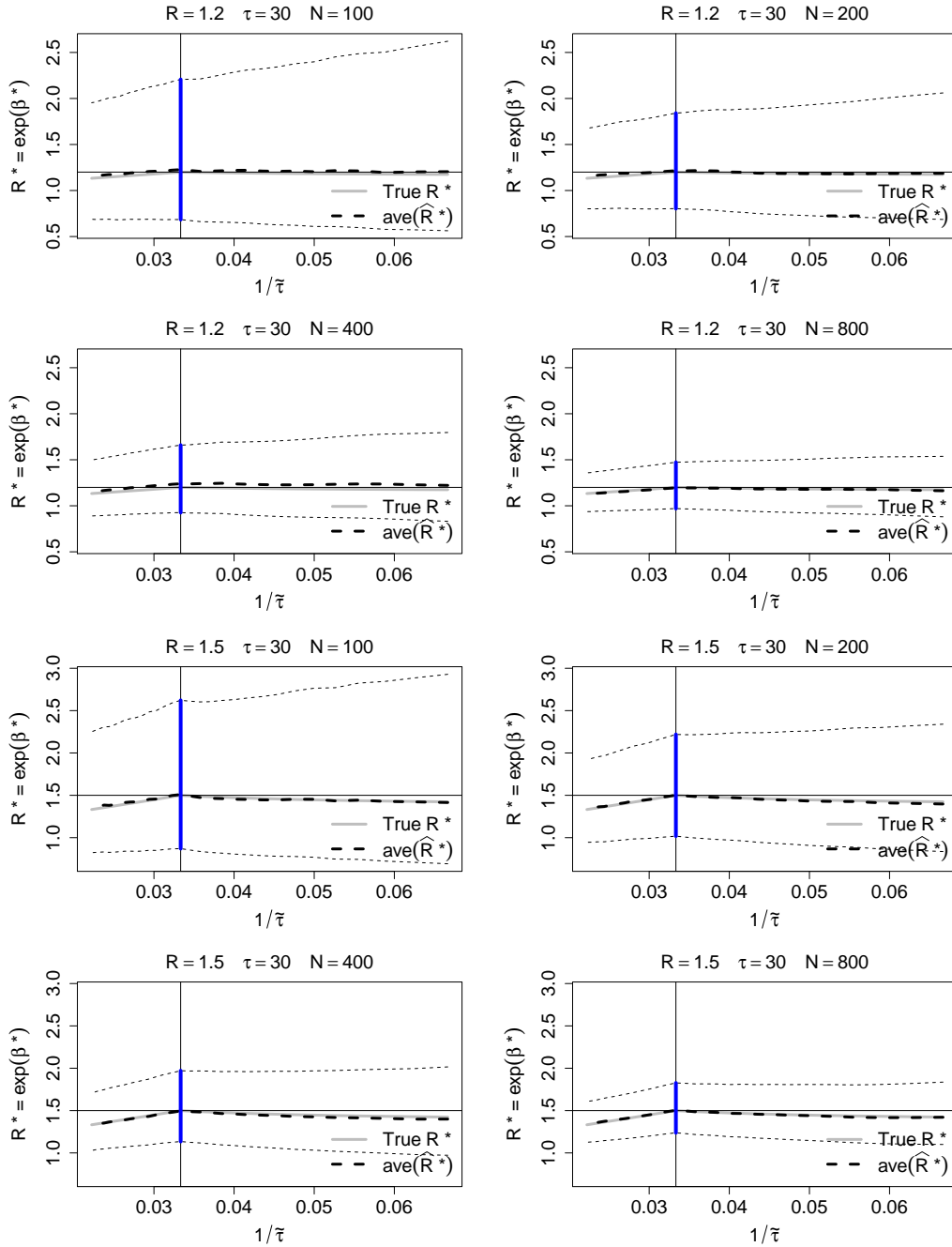


Figure 32: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 30$. $R = 1.2$ and 1.5 displayed in the top and bottom panels, respectively.

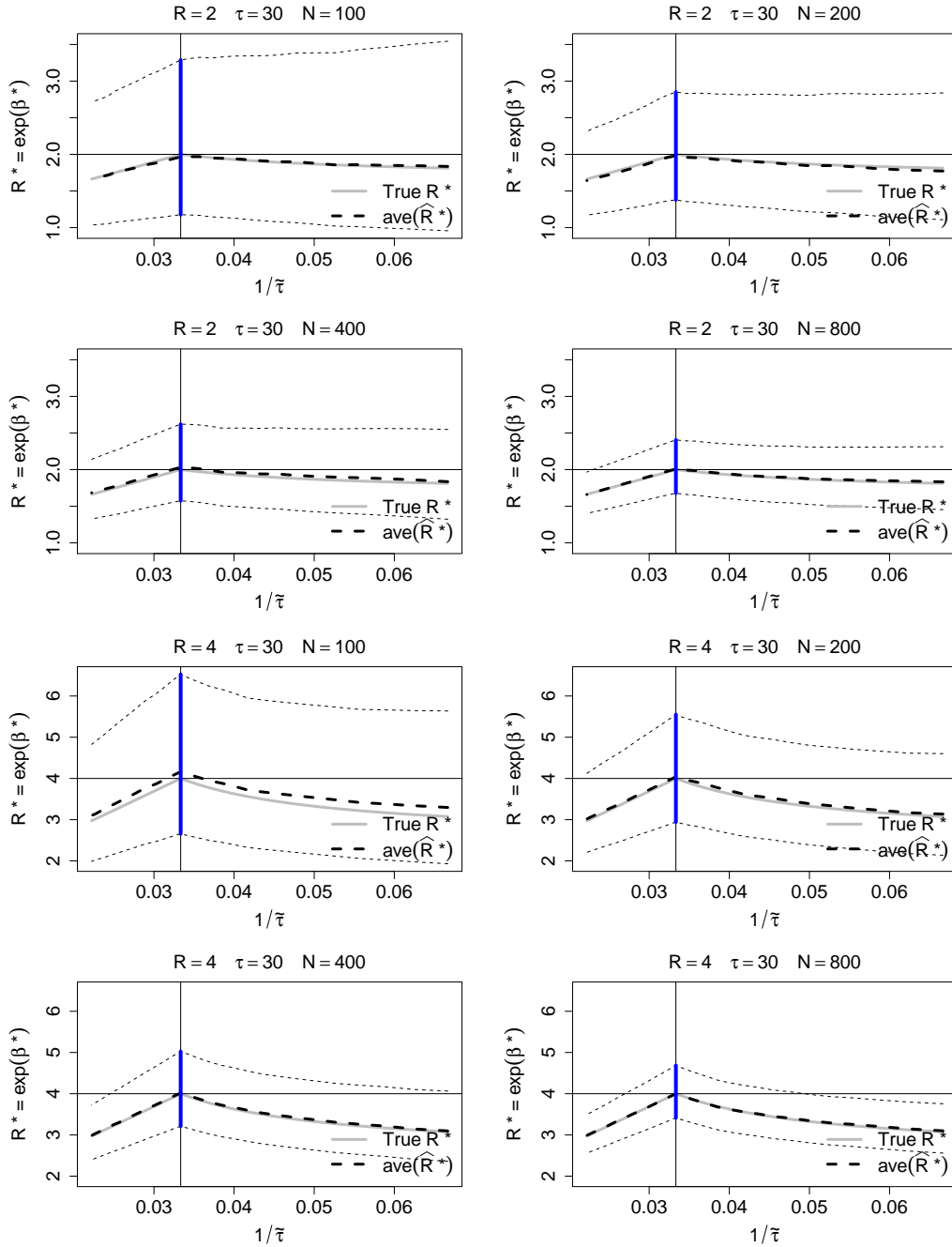


Figure 33: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 30$. $R = 2$ and 4 displayed in the top and bottom panels, respectively.

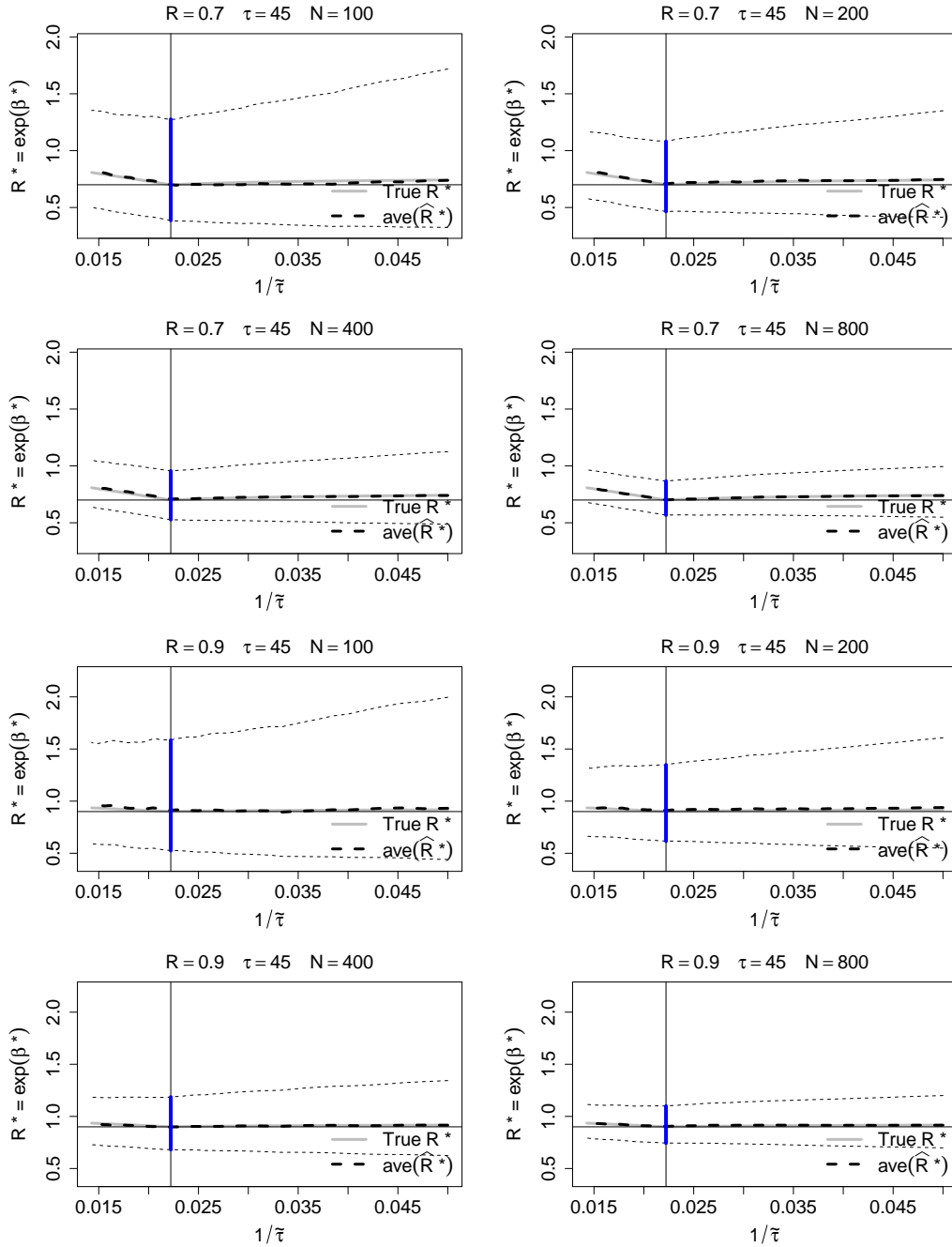


Figure 34: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages (ave(\hat{R}^*)) over 200 simulated datasets. The true risk length is $\tau = 45$; $R = 0.7$ and 0.9 displayed in the top and bottom panels, respectively.

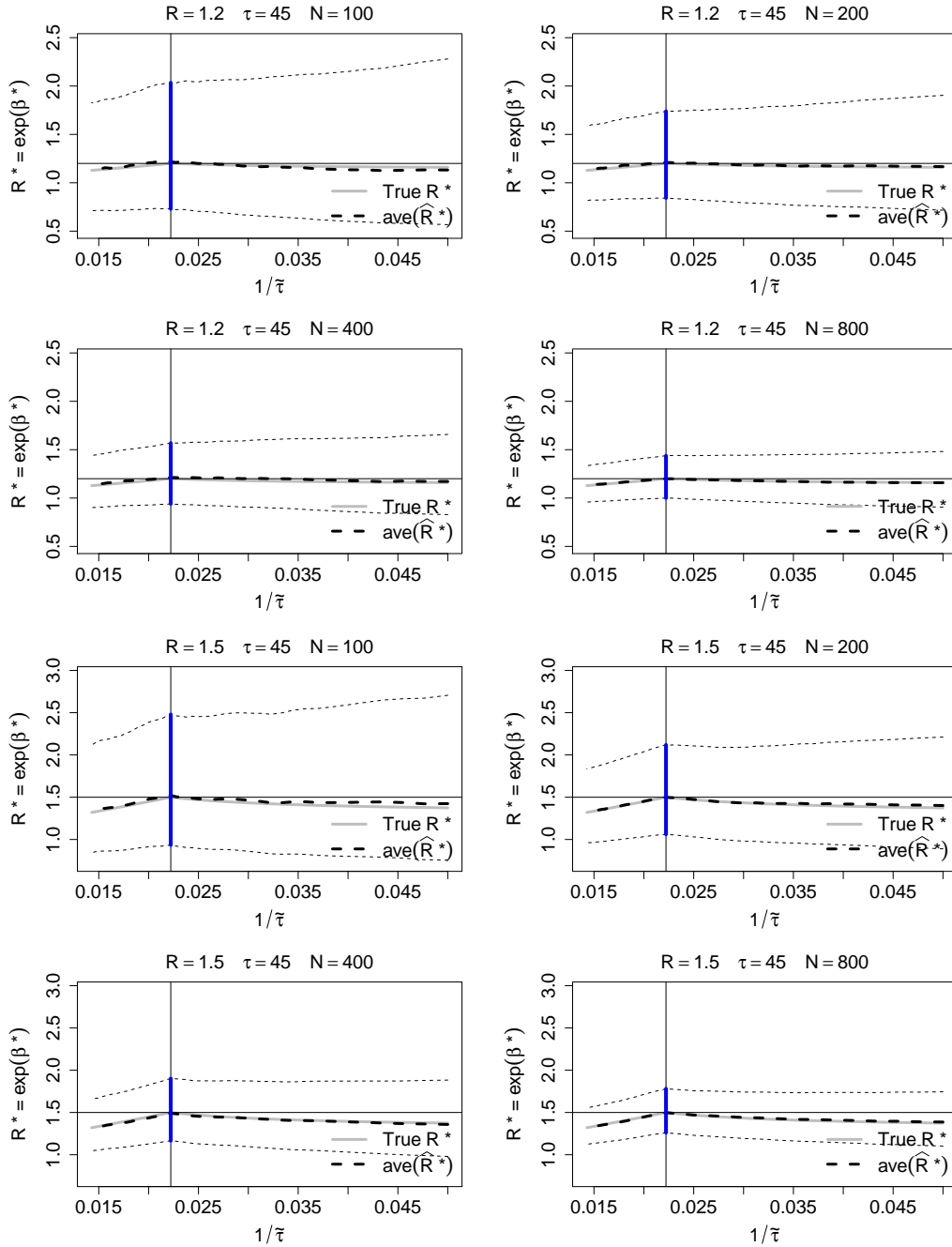


Figure 35: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 45$. $R = 1.2$ and 1.5 displayed in the top and bottom panels, respectively.

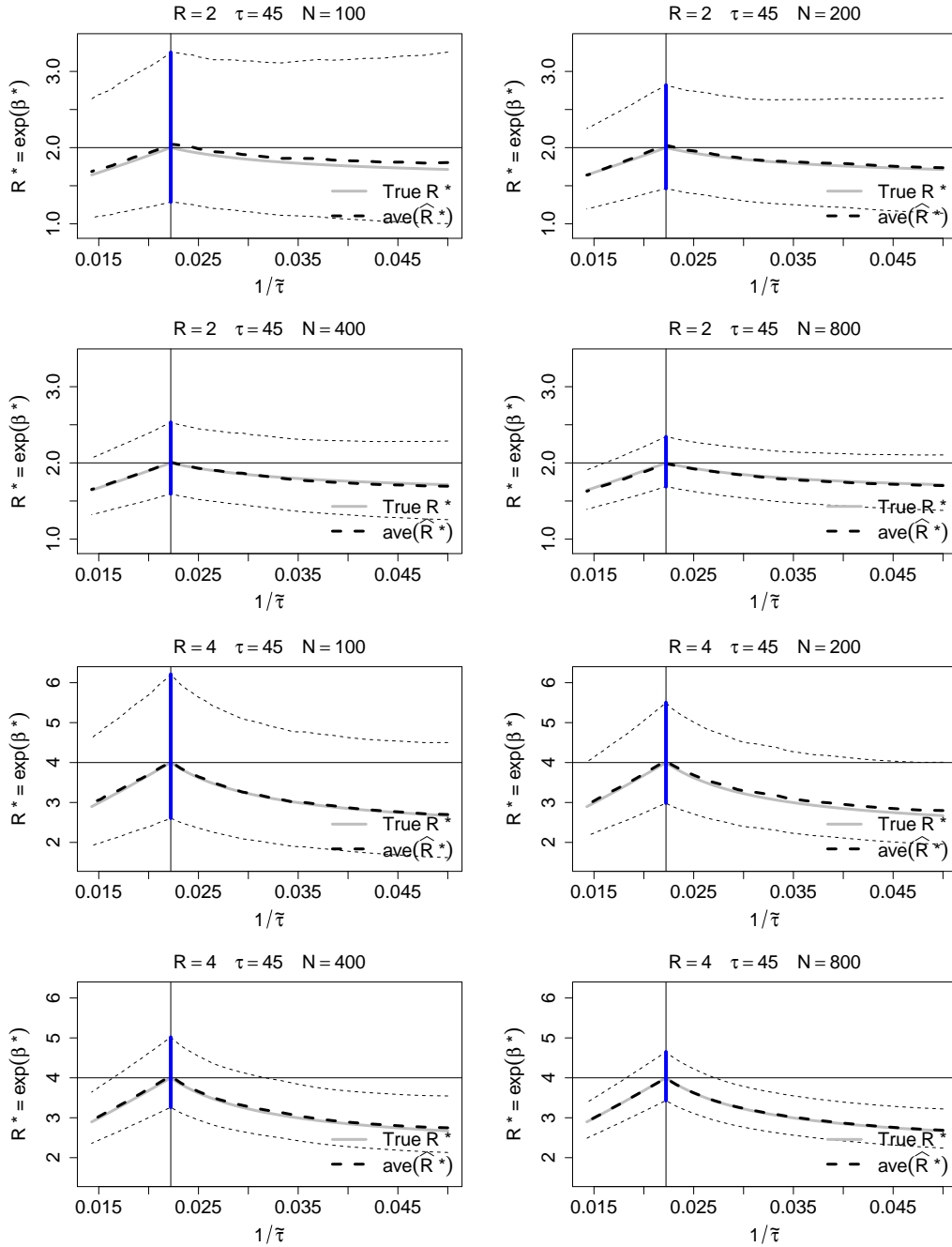


Figure 36: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the relative incidence estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\hat{R}^*)$) over 200 simulated datasets. The true risk length is $\tau = 45$. $R = 2$ and 4 displayed in the top and bottom panels, respectively.

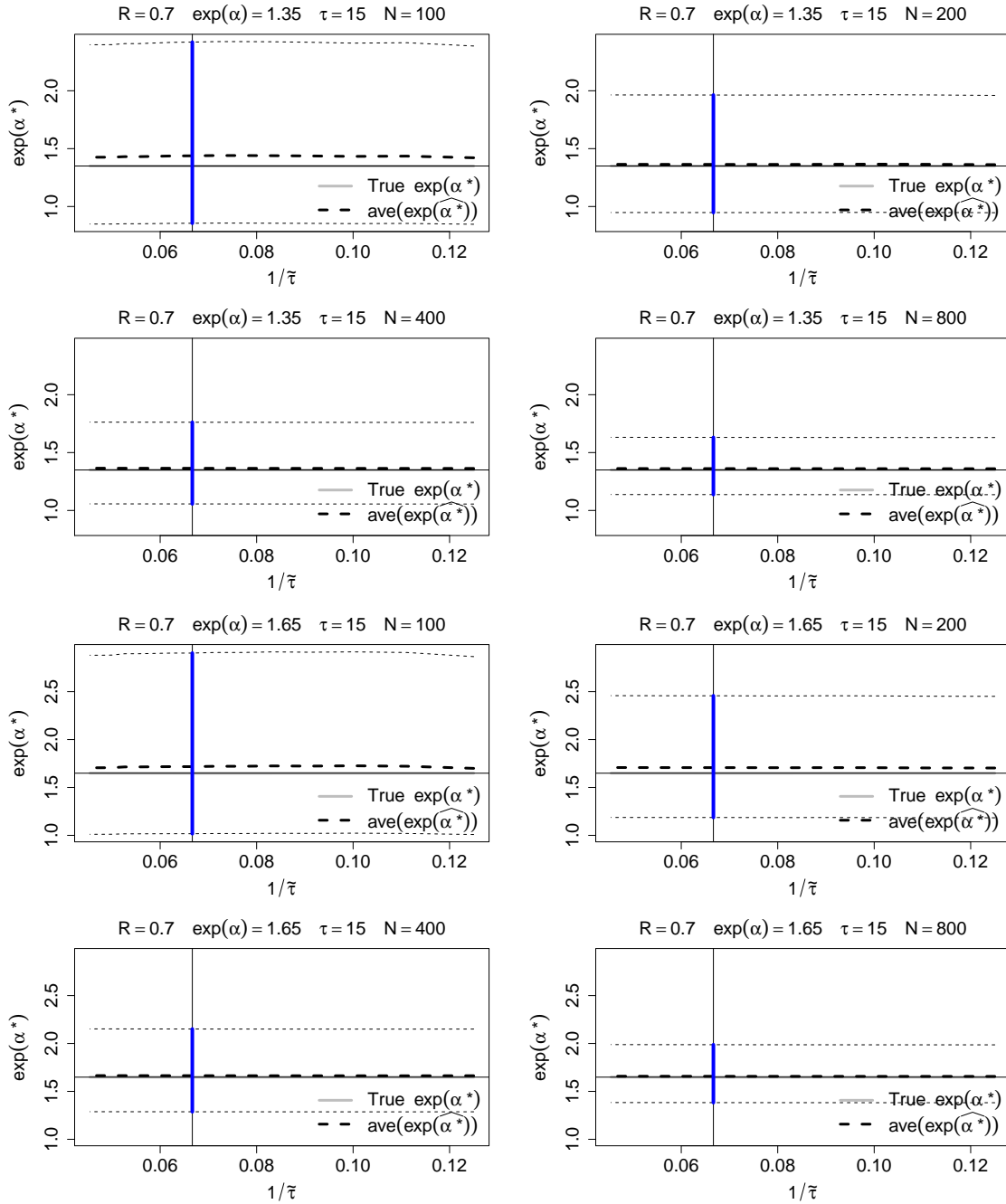


Figure 37: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

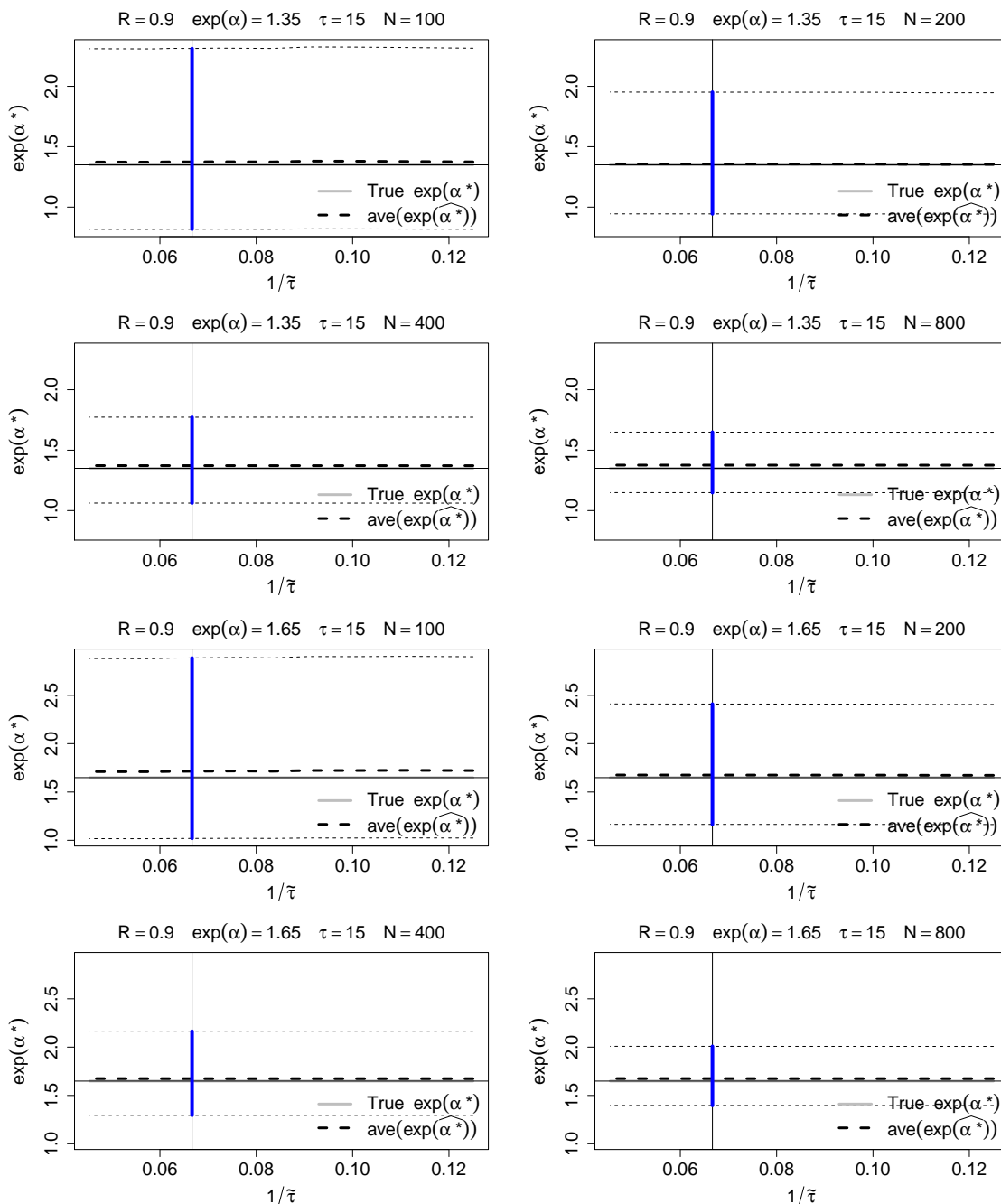


Figure 38: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

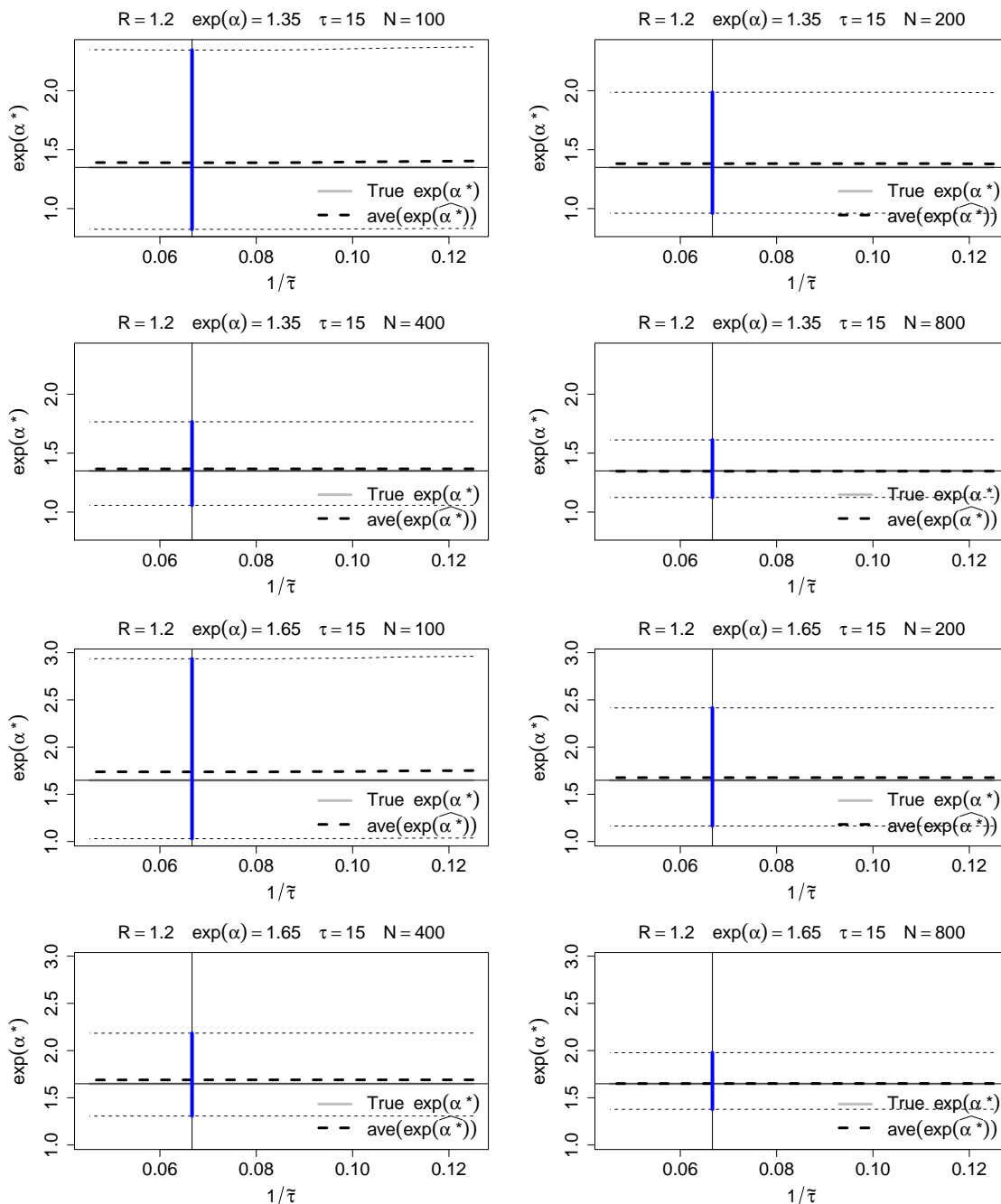


Figure 39: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

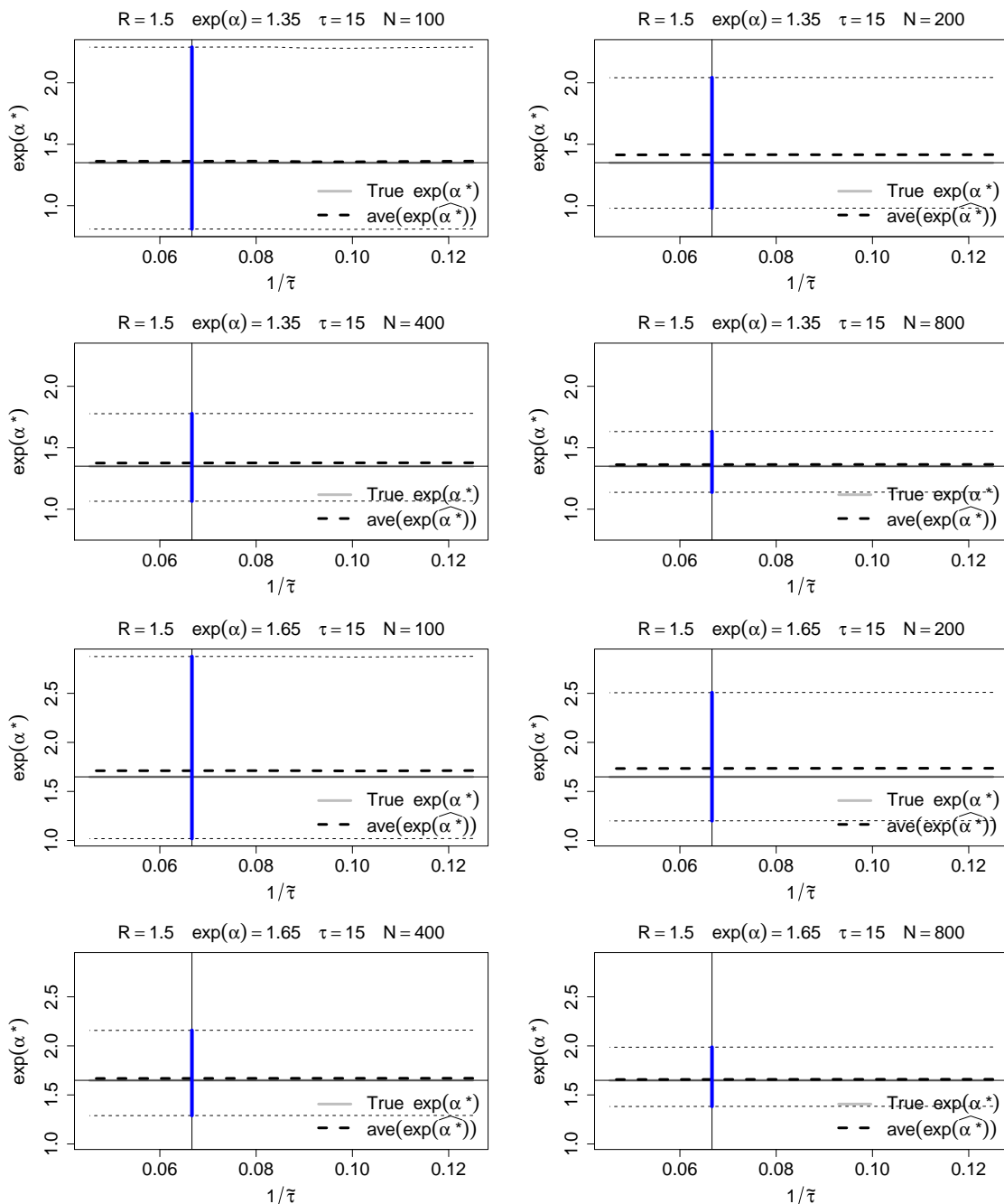


Figure 40: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

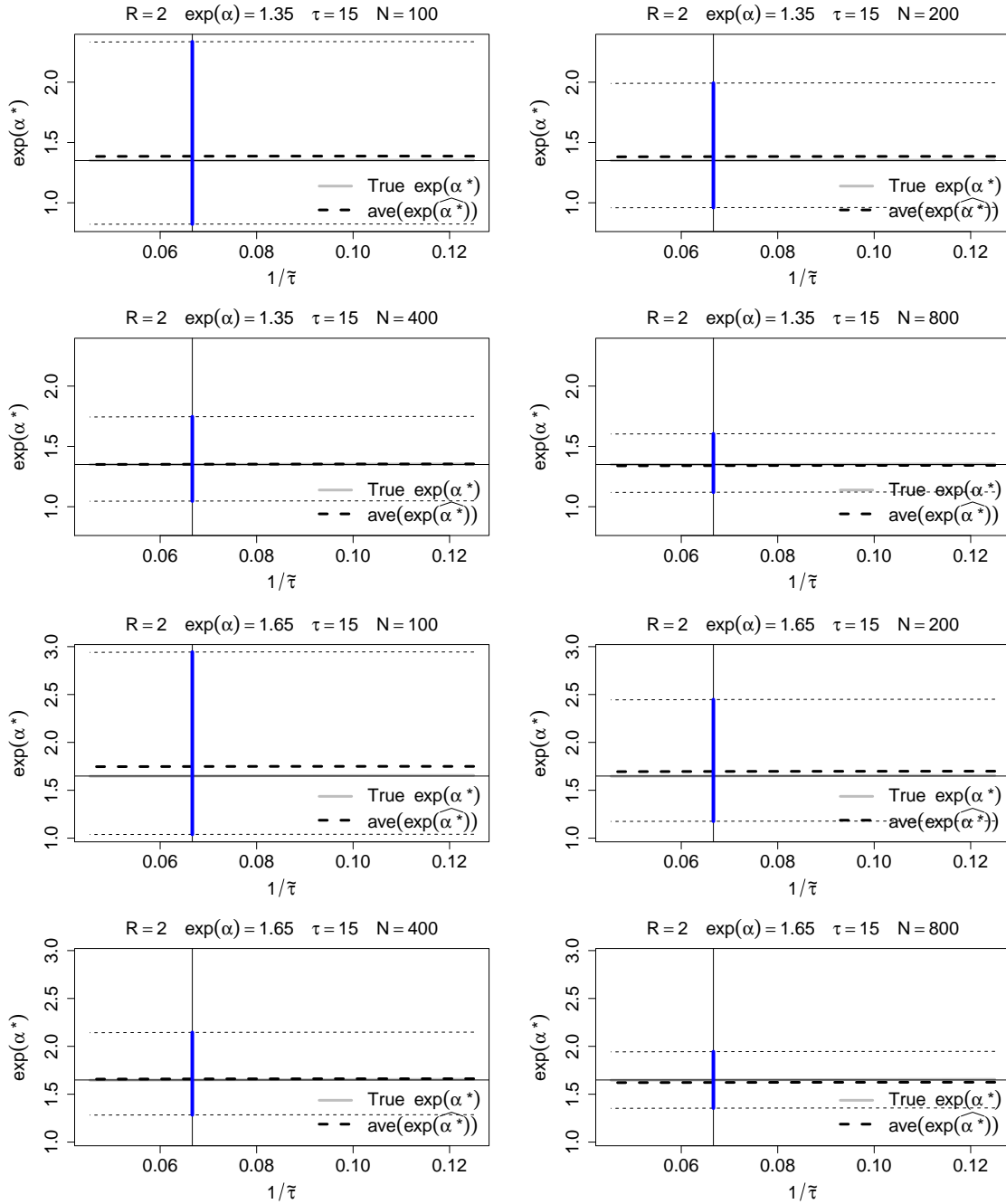


Figure 41: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

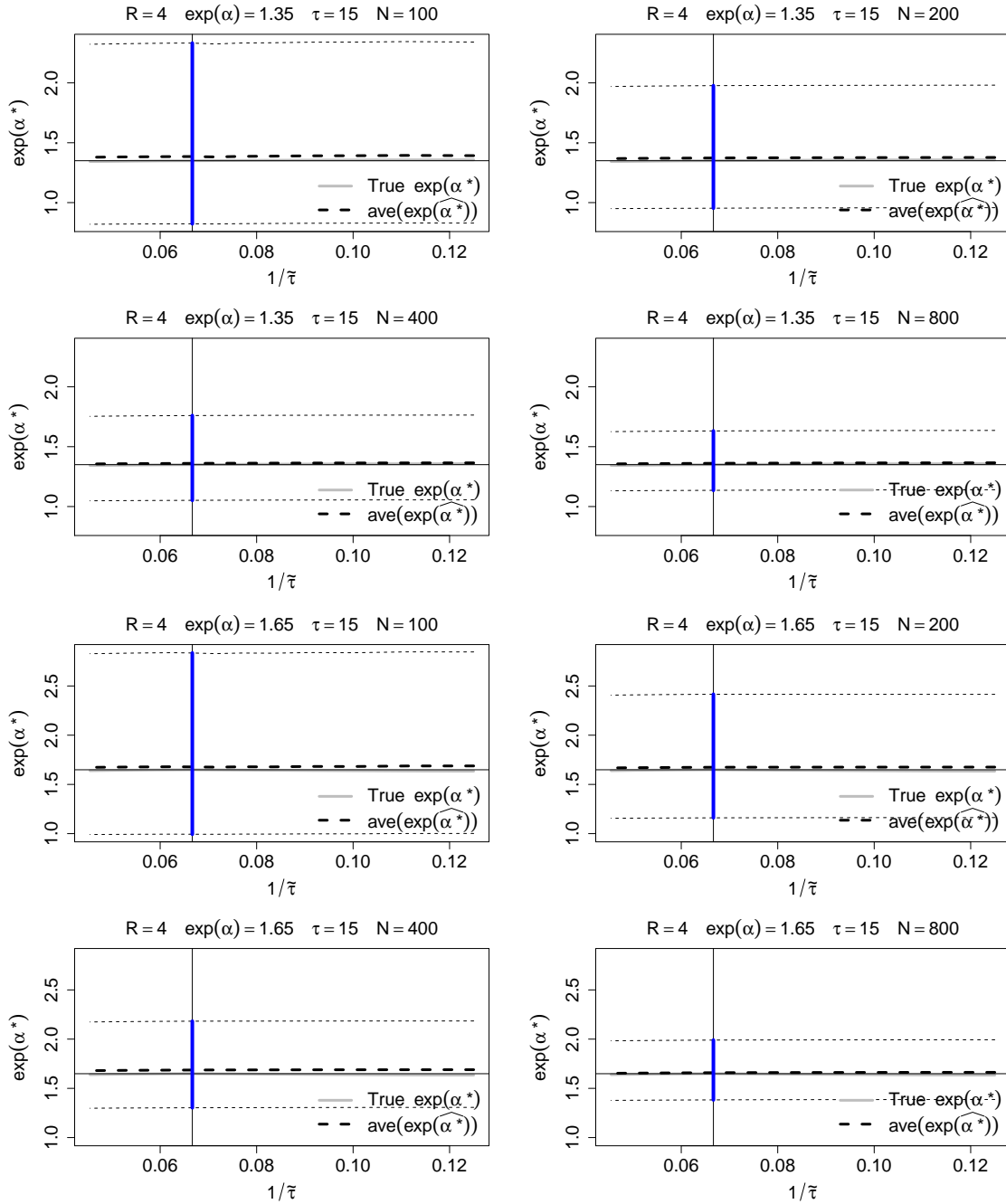


Figure 42: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

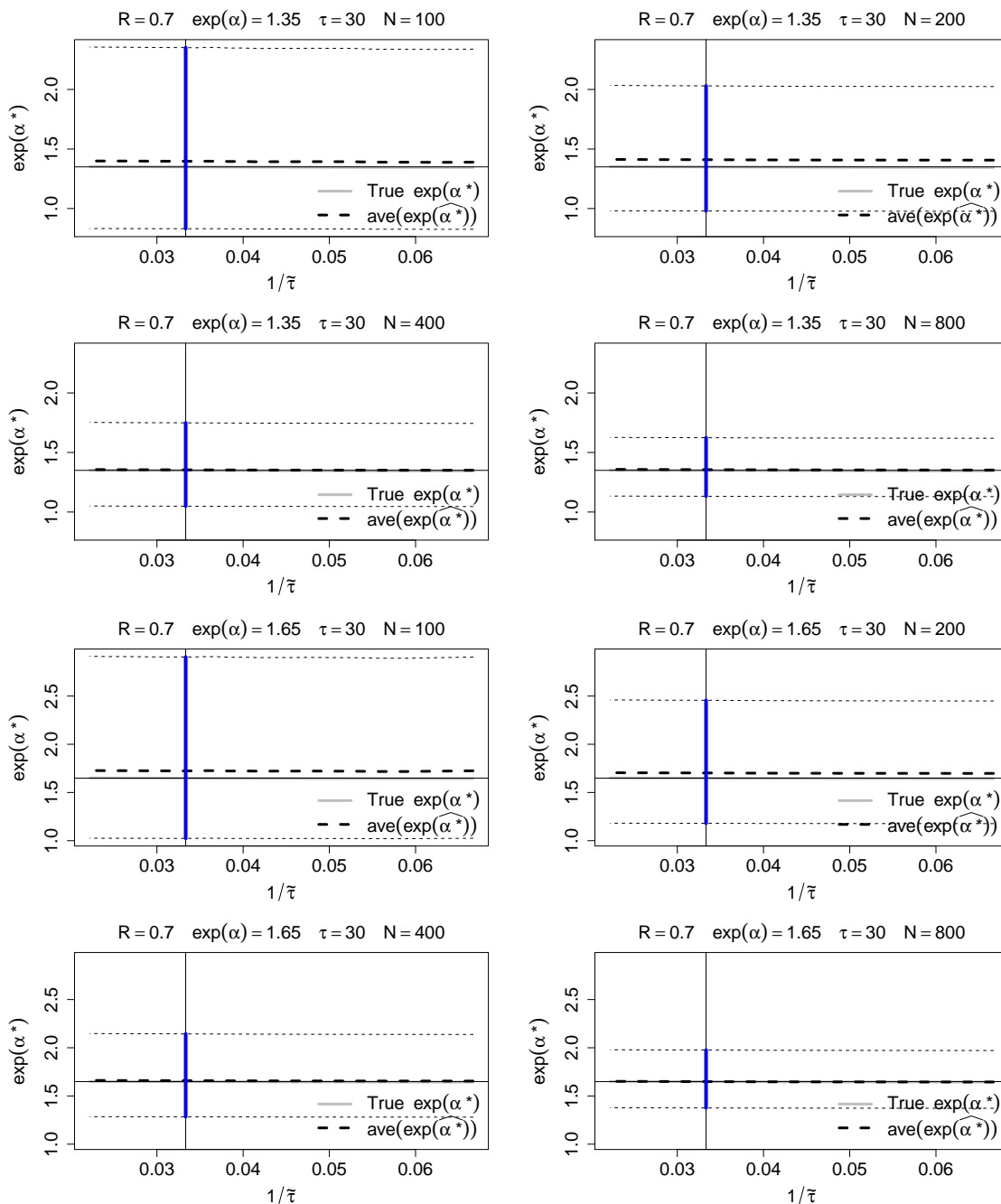


Figure 43: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

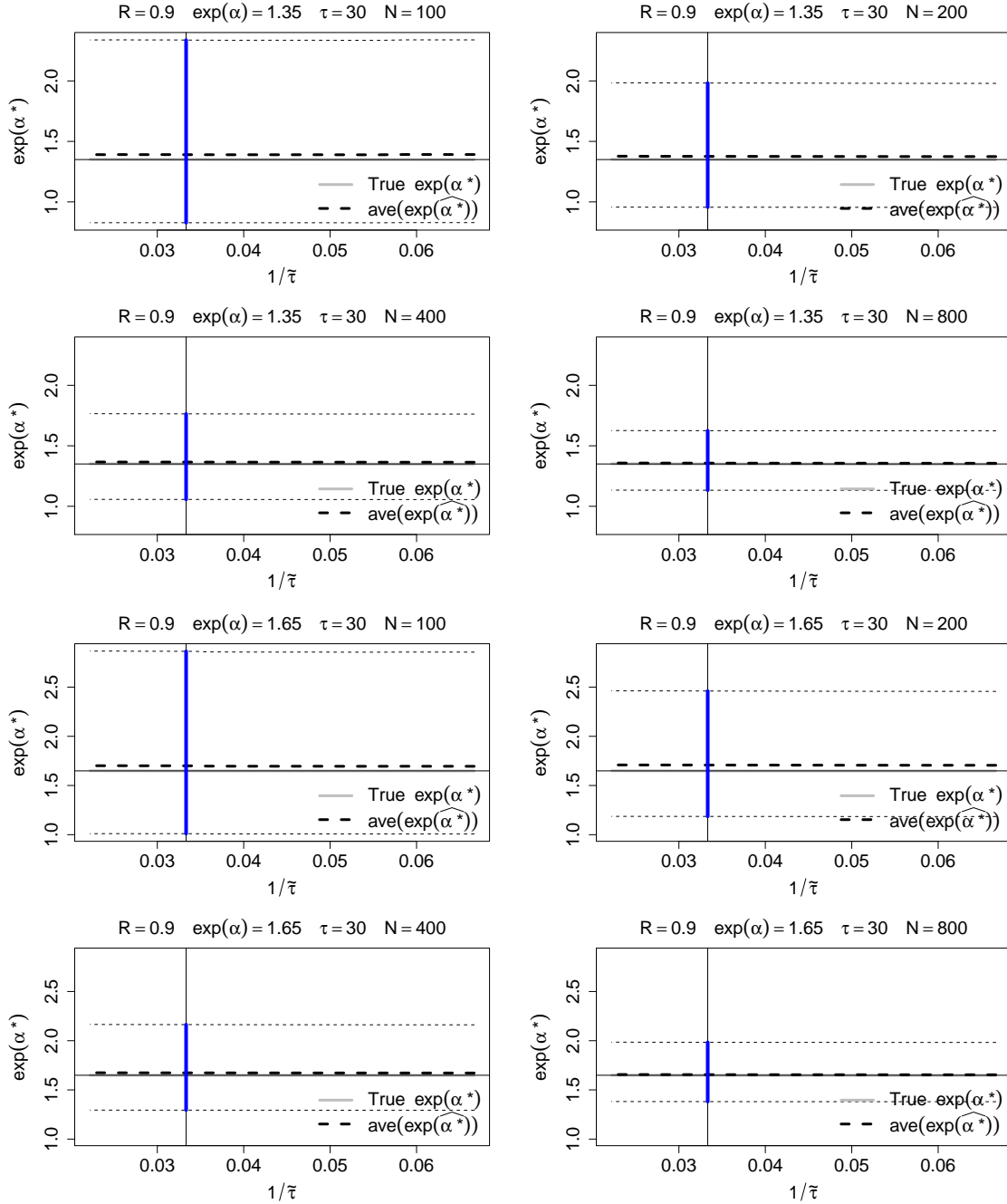


Figure 44: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

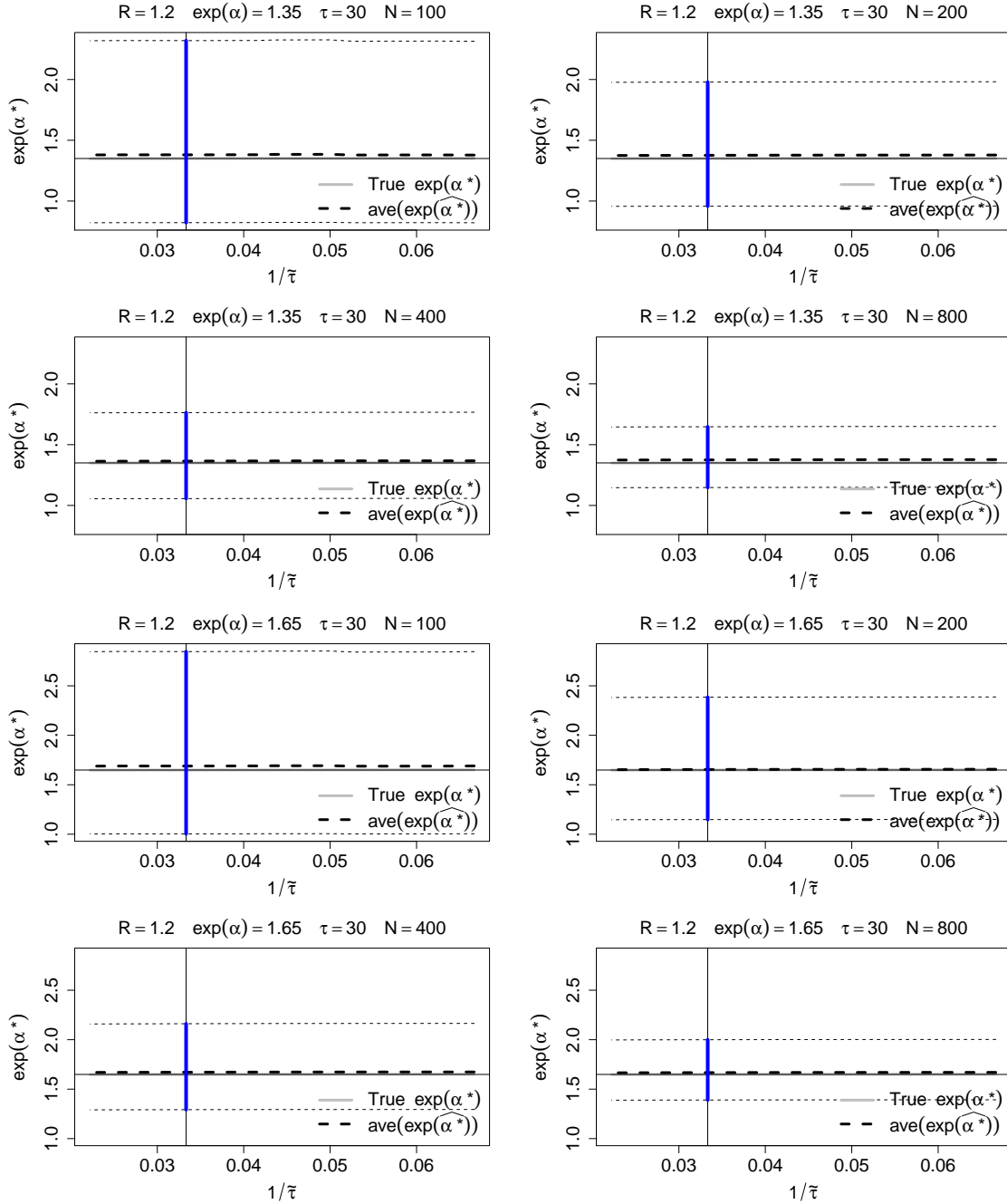


Figure 45: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

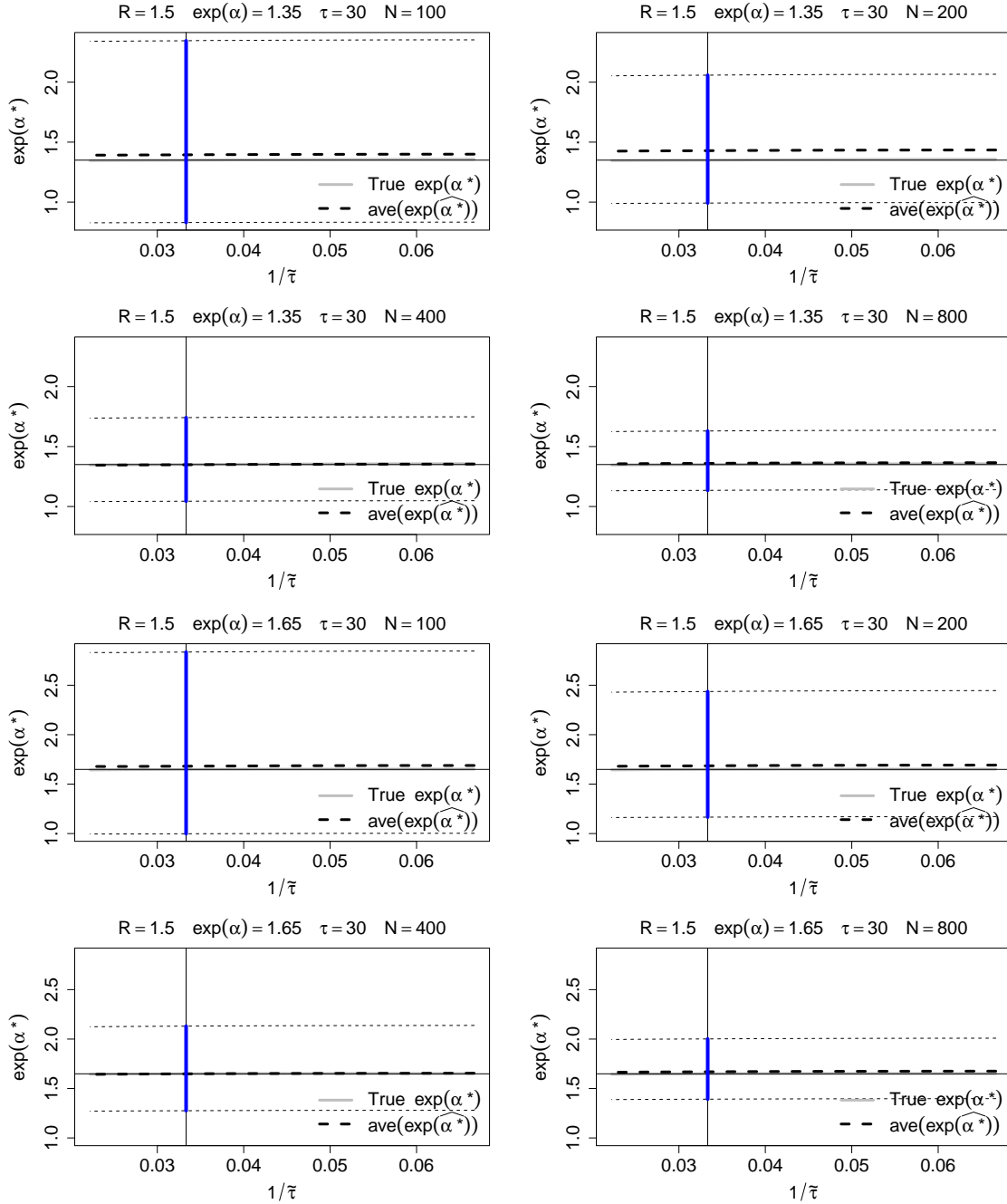


Figure 46: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

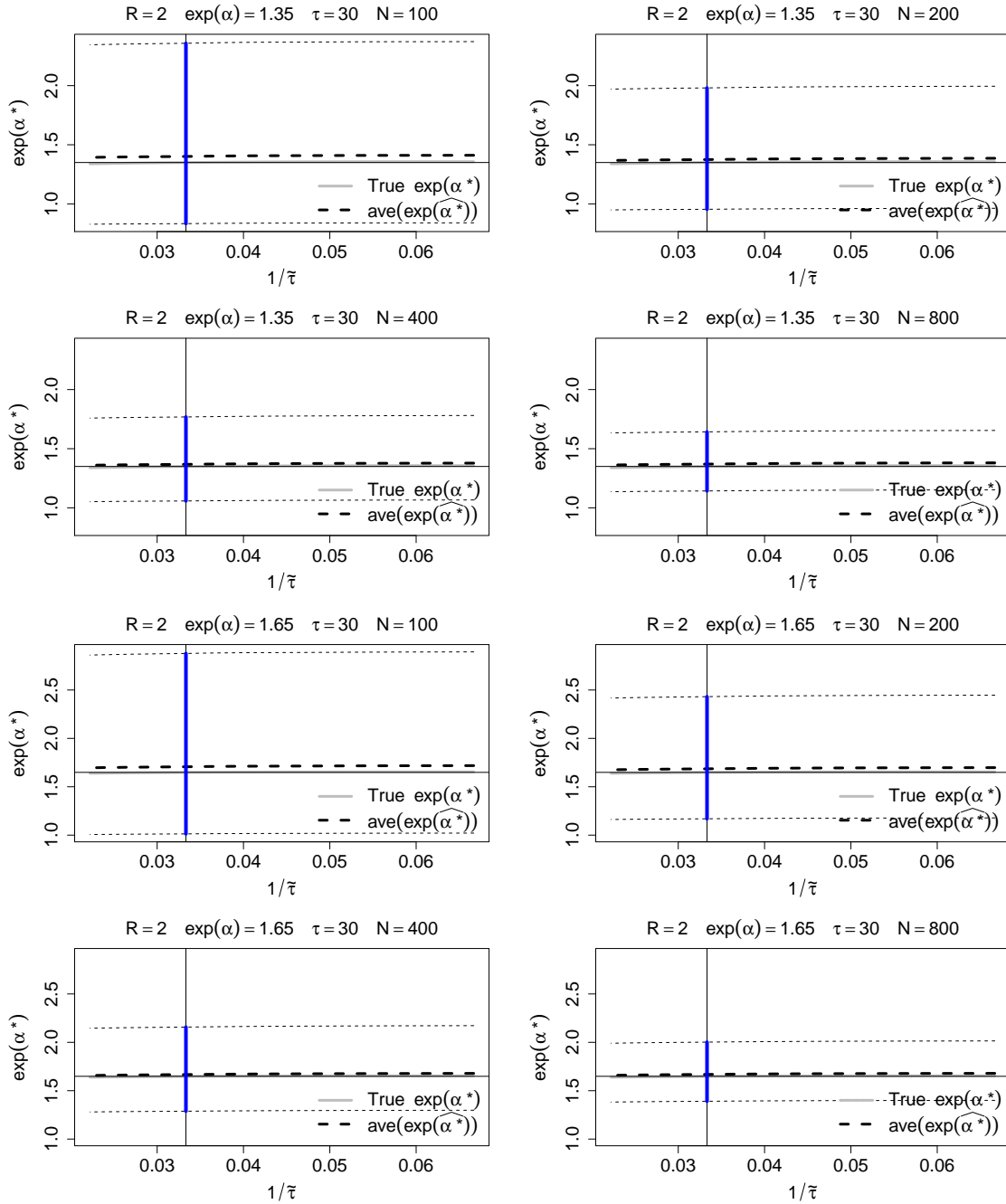


Figure 47: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages (ave(exp($\hat{\alpha}_j^*$))) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

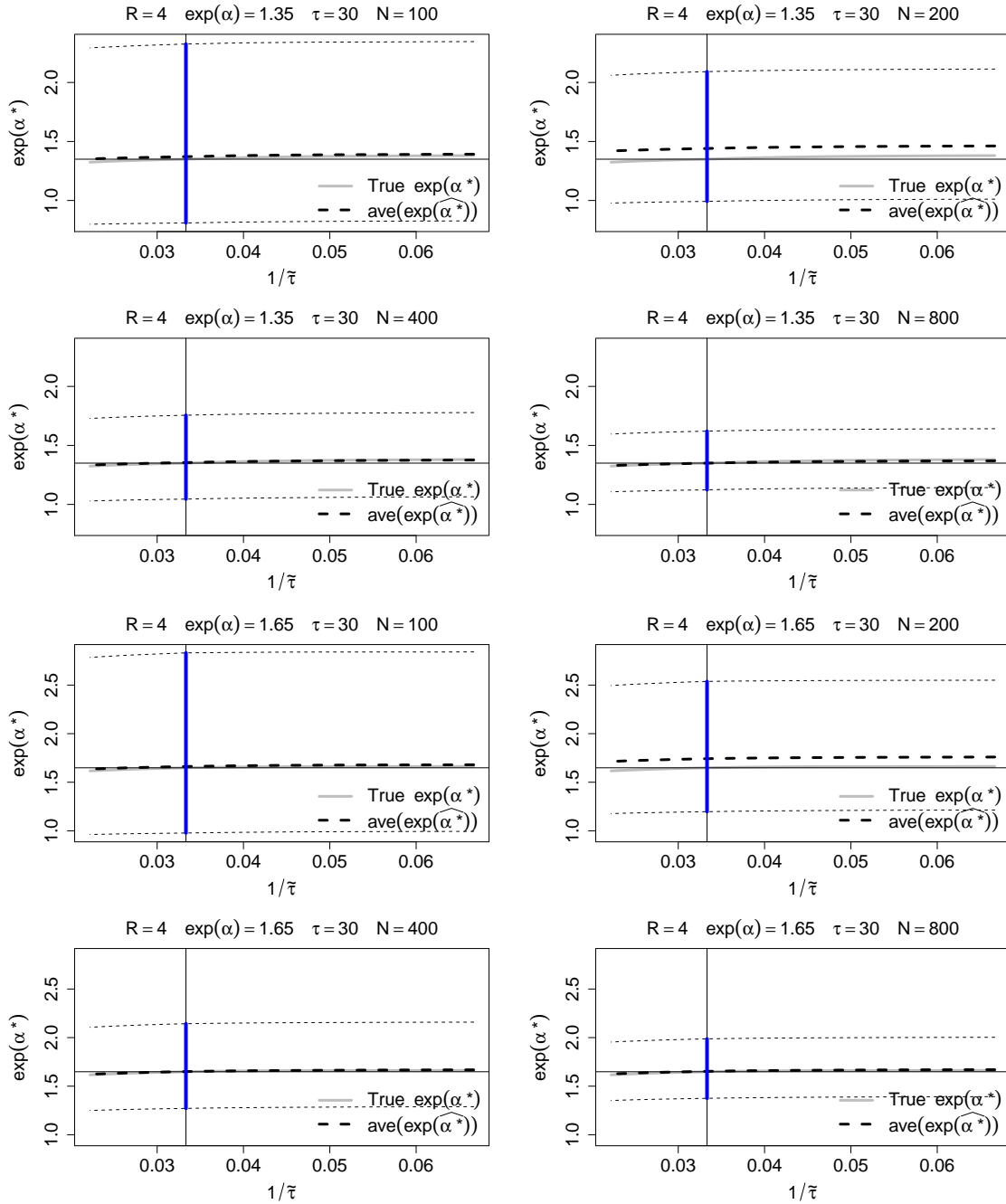


Figure 48: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

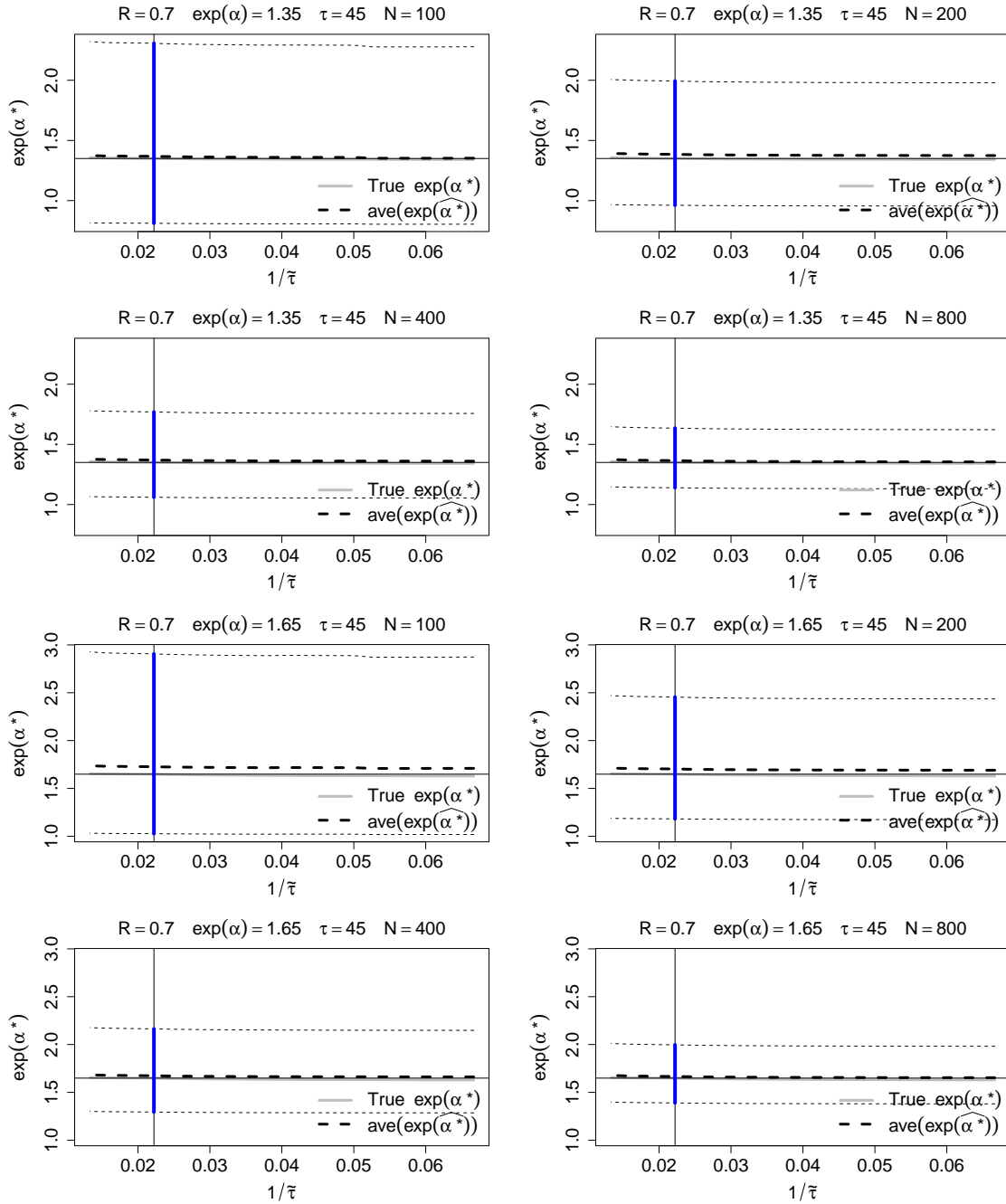


Figure 49: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

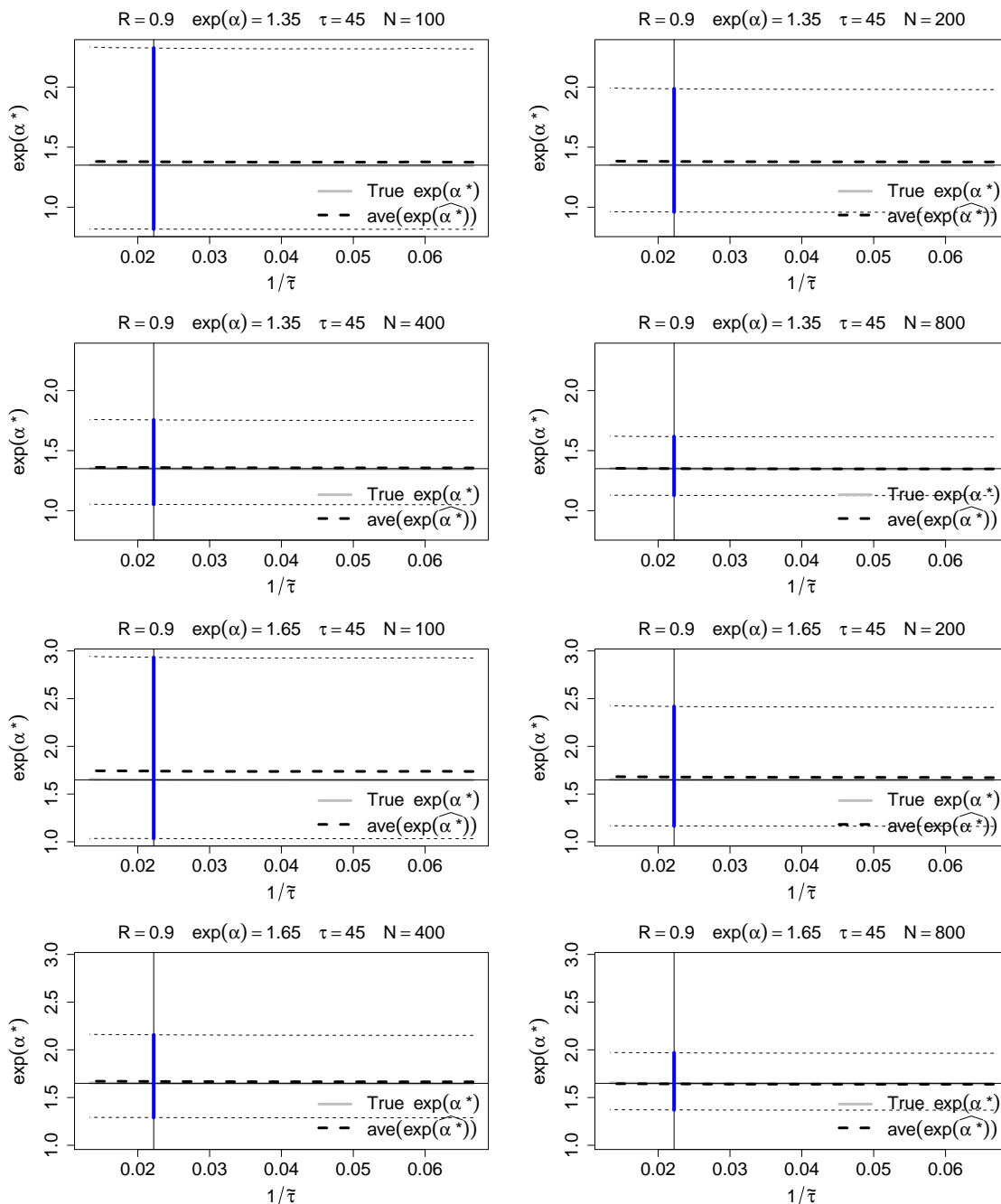


Figure 50: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

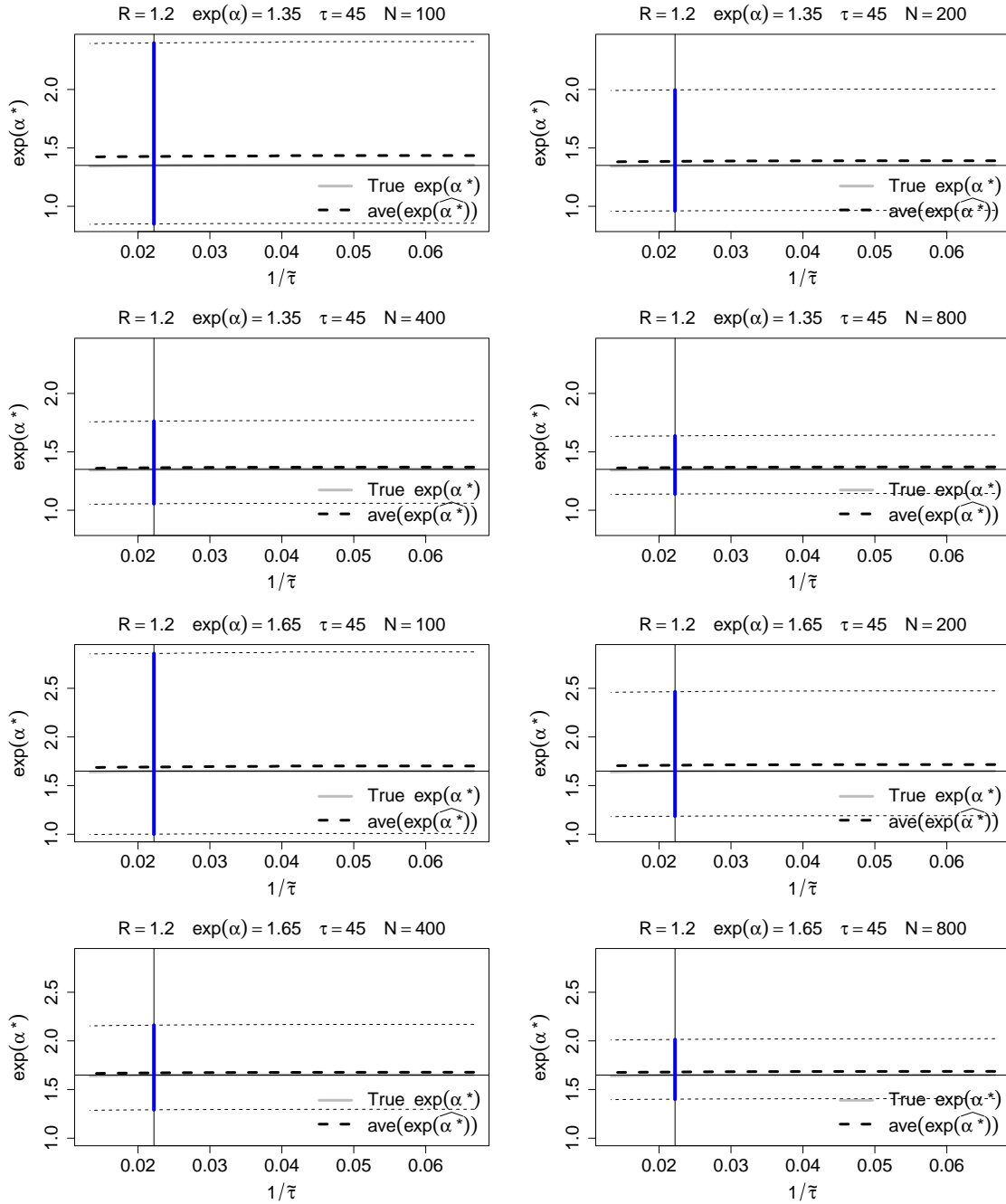


Figure 51: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

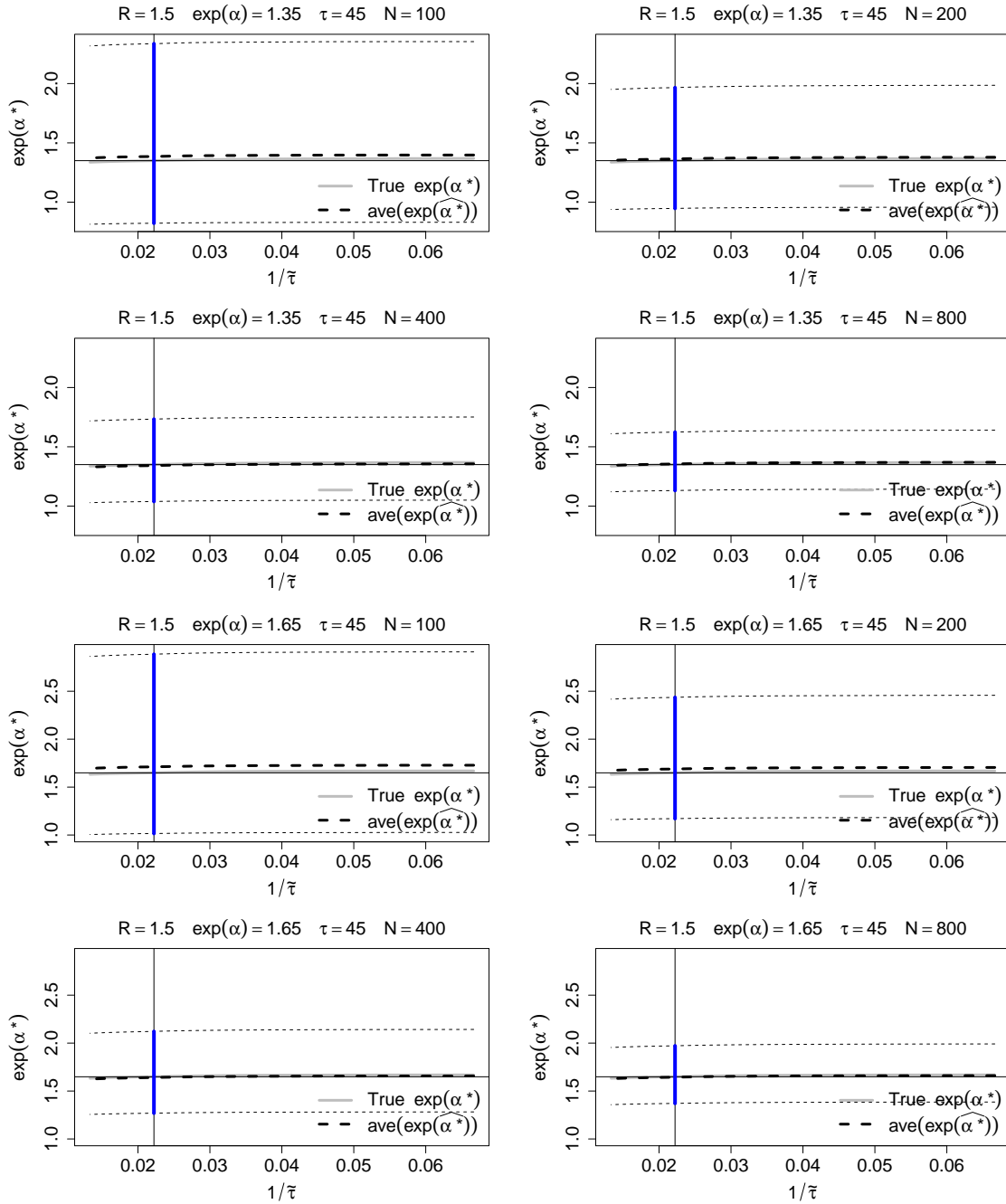


Figure 52: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

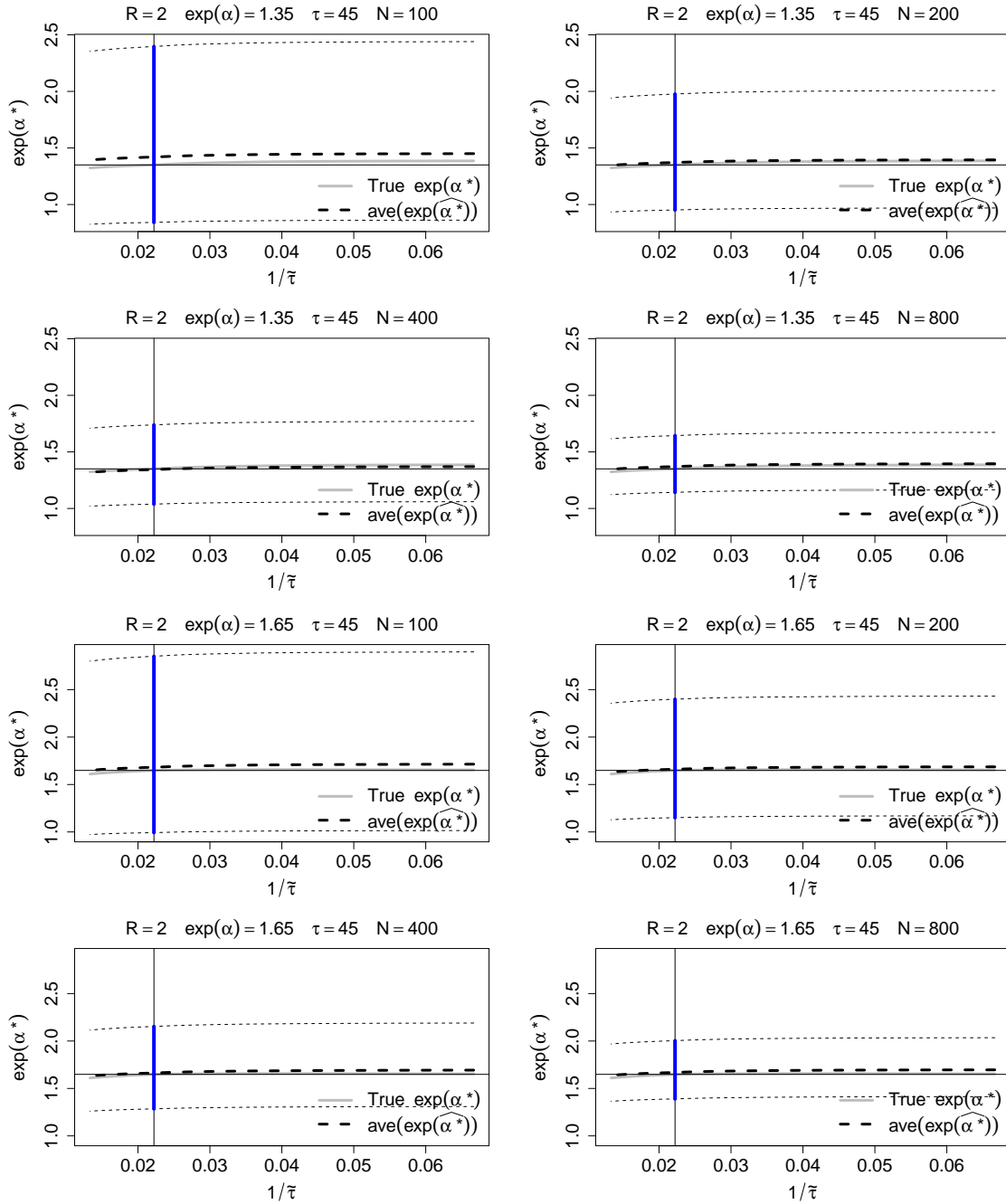


Figure 53: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

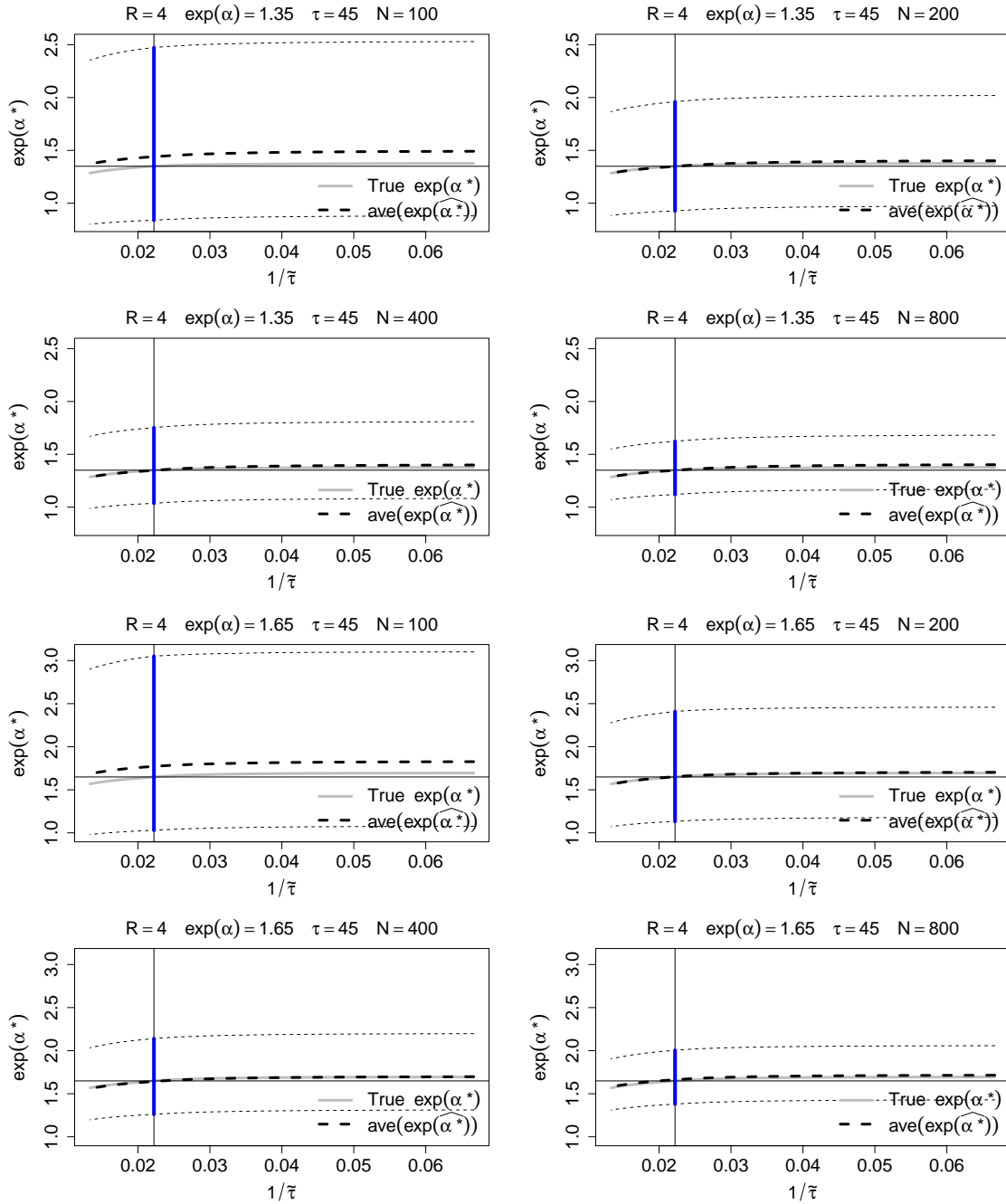


Figure 54: **Single Uniformly distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

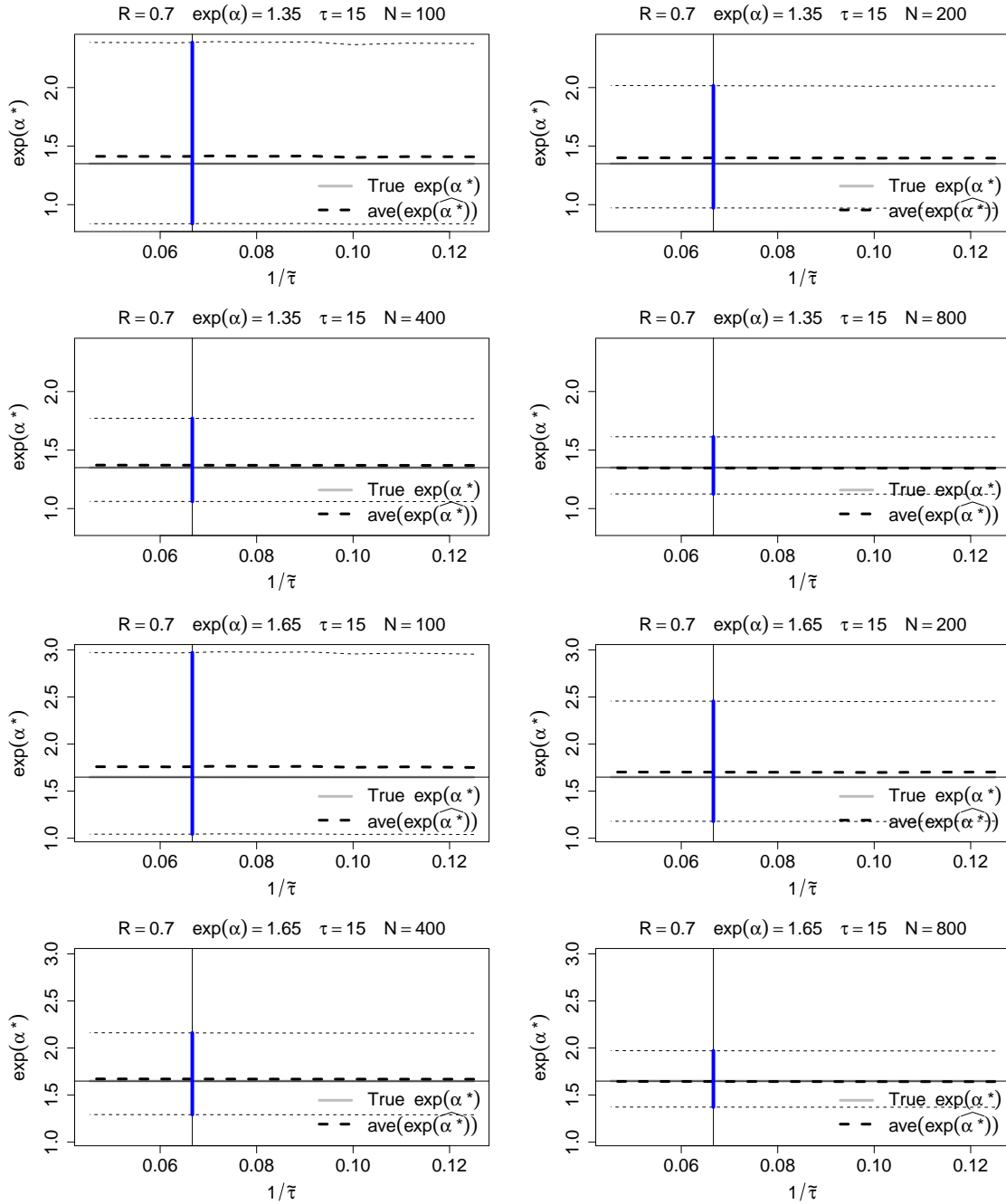


Figure 55: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

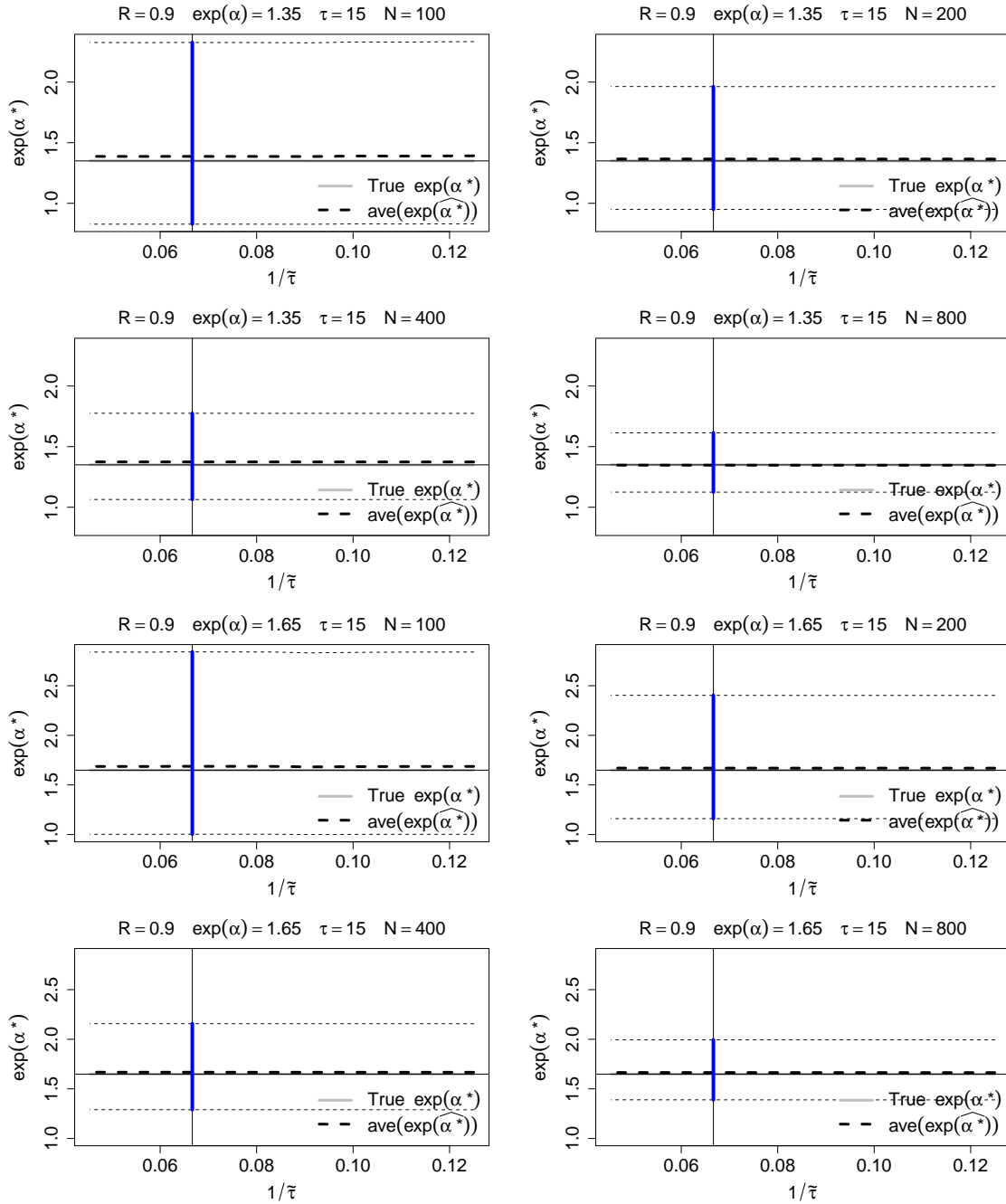


Figure 56: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

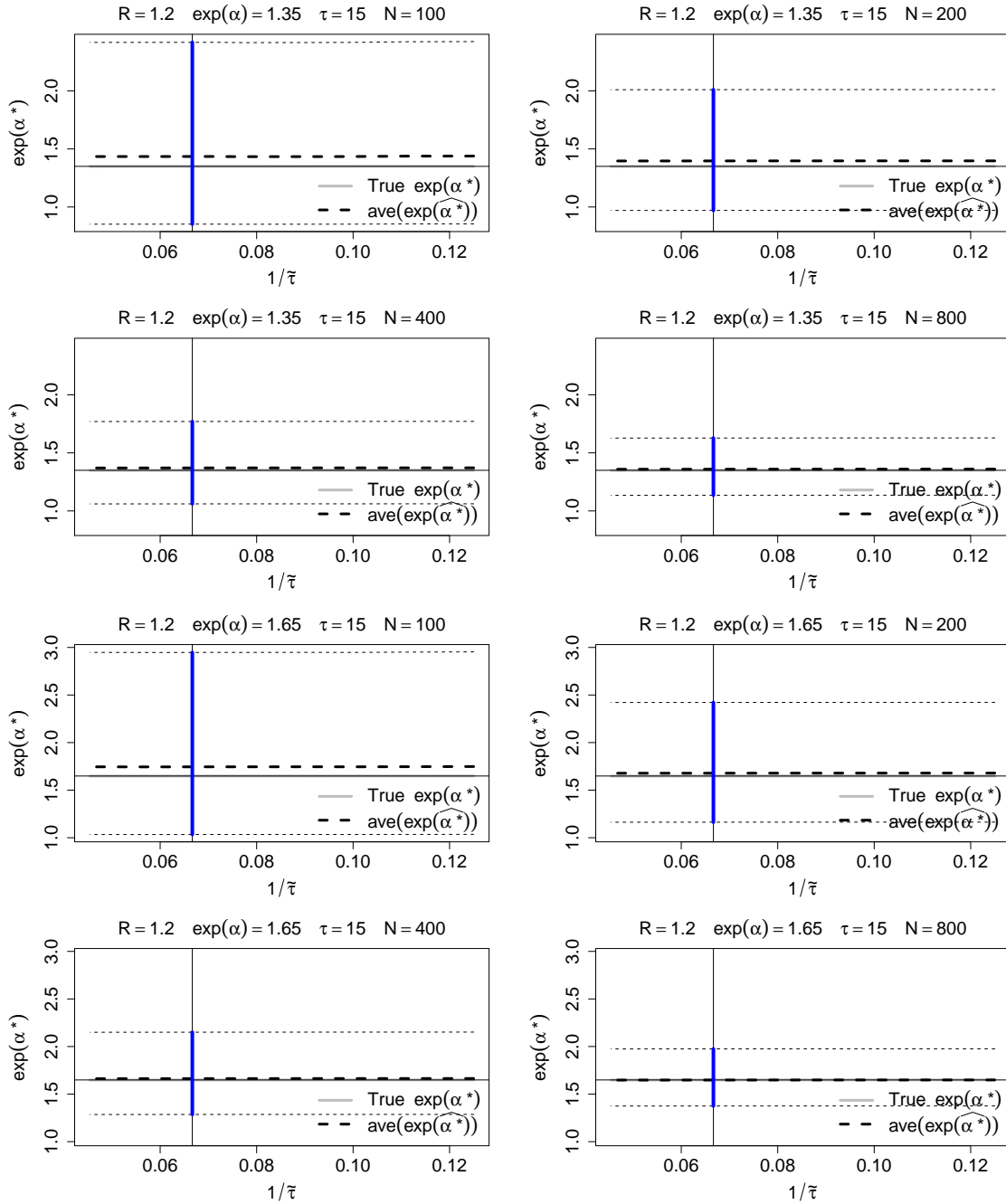


Figure 57: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

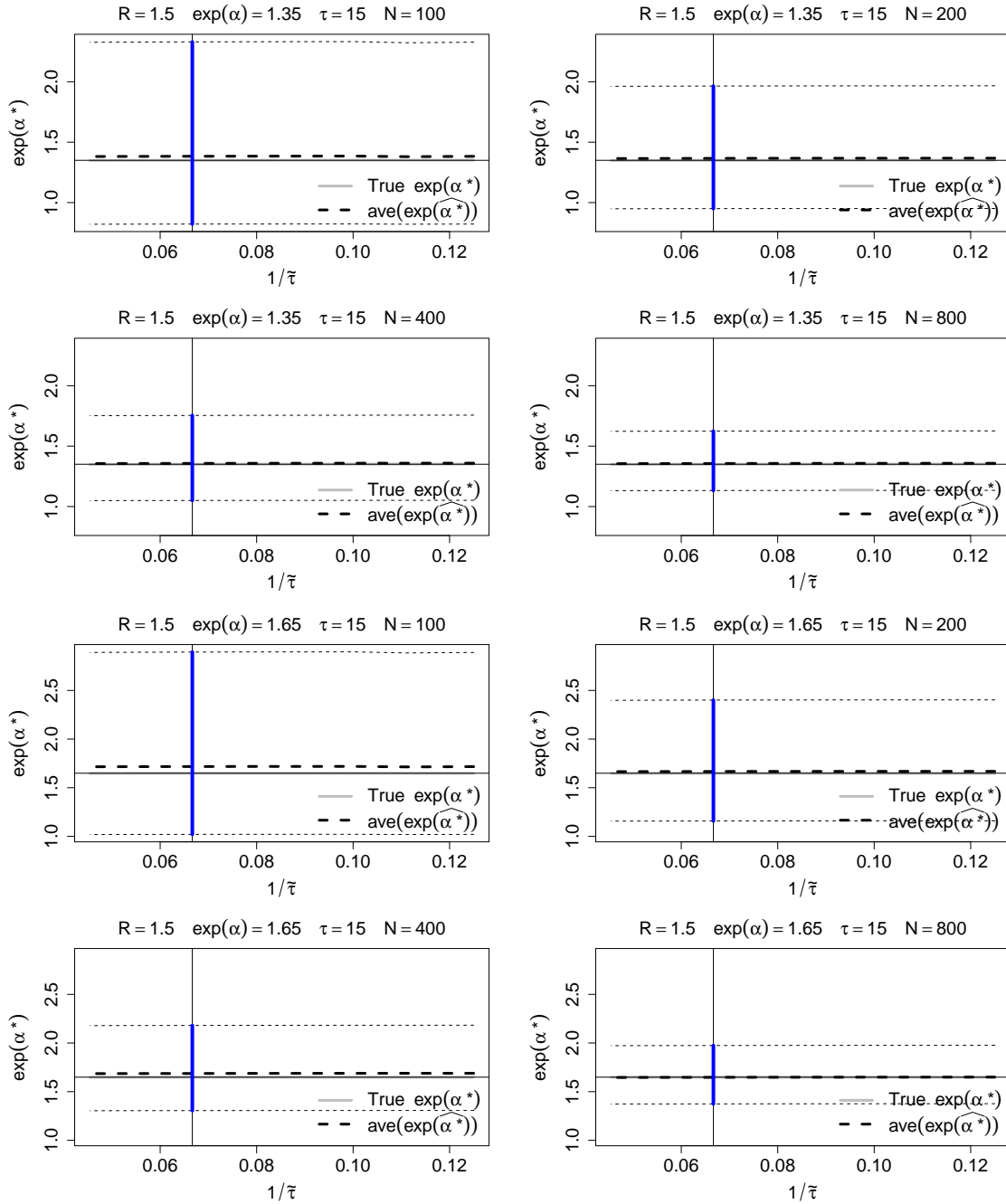


Figure 58: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

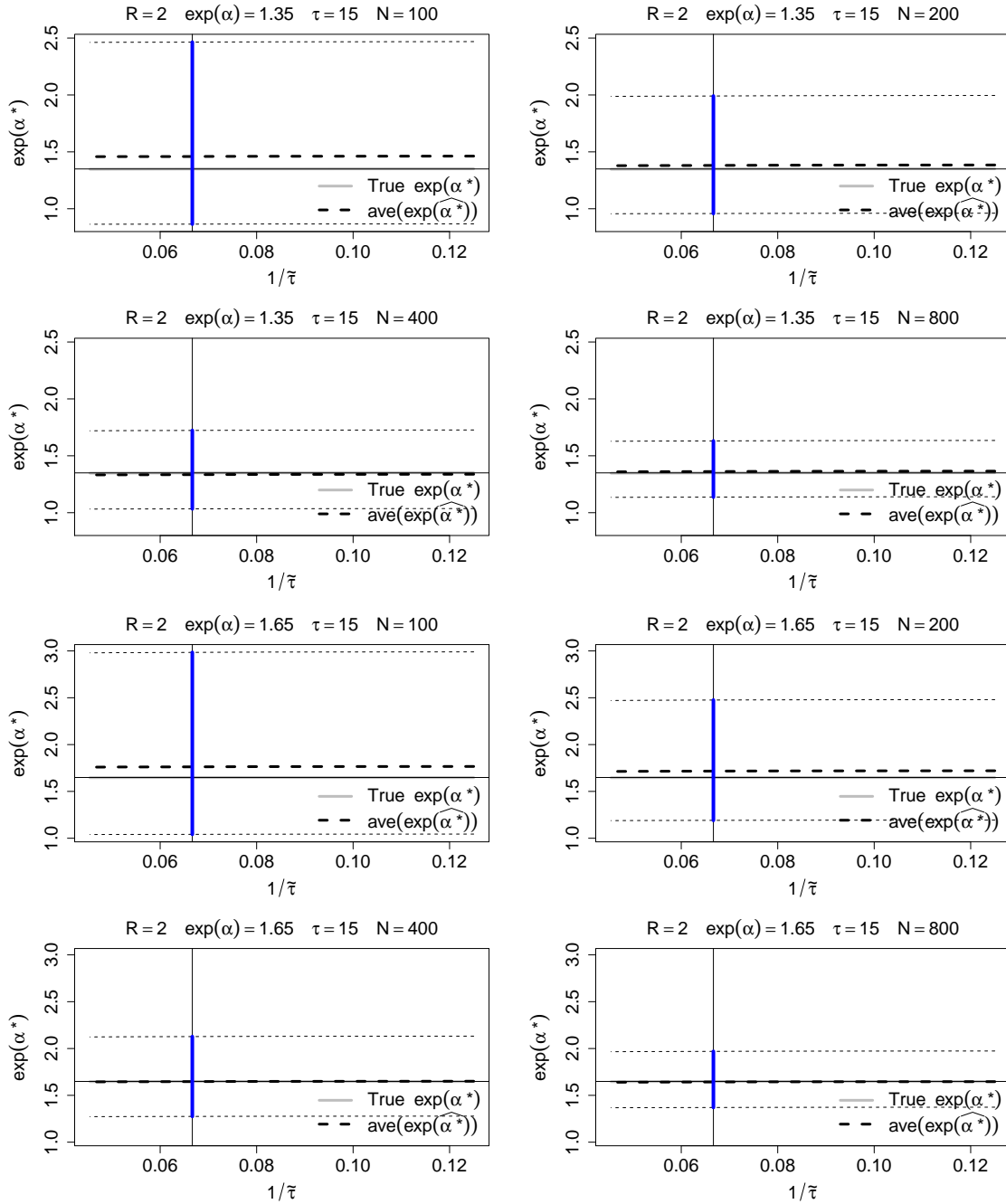


Figure 59: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

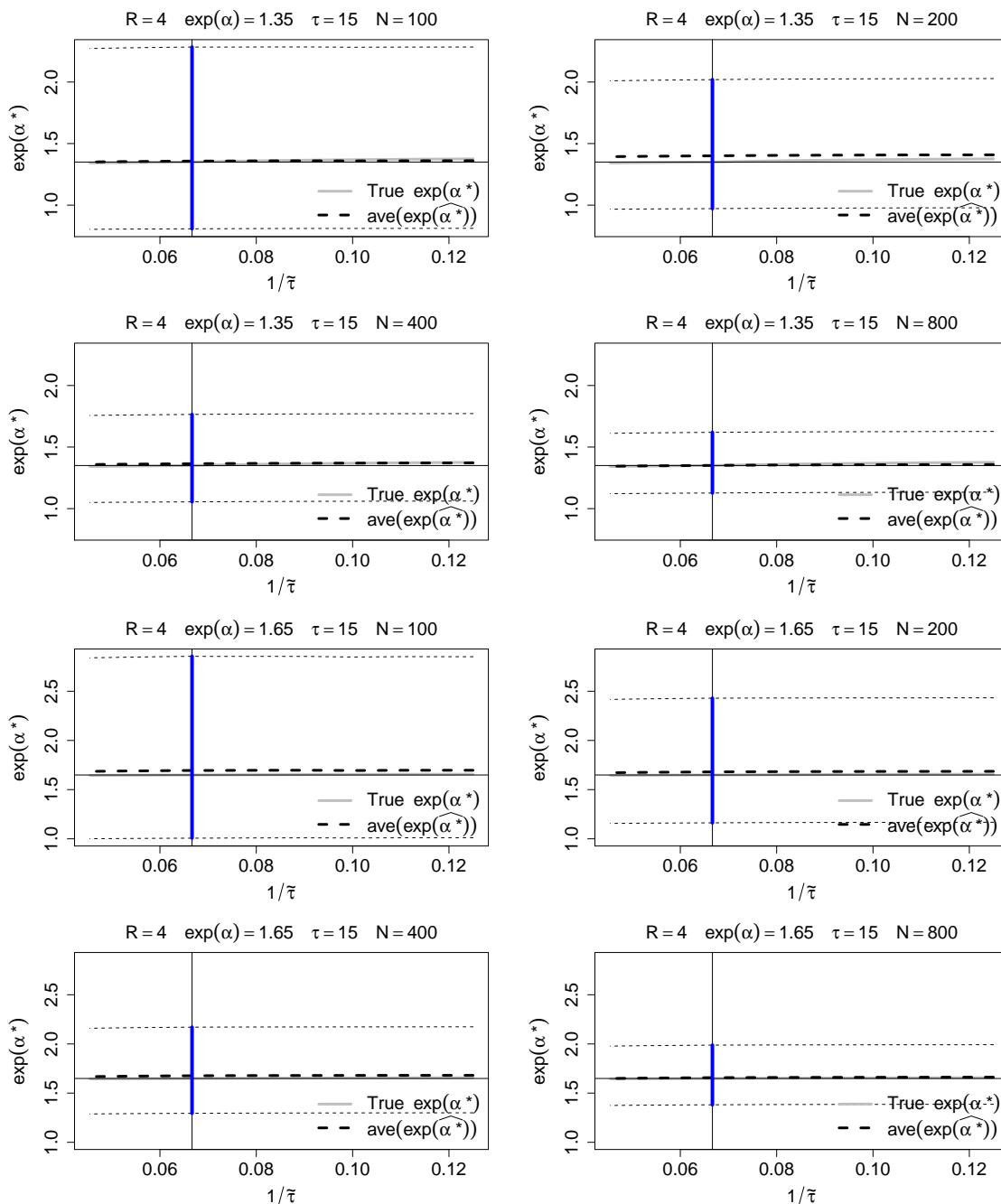


Figure 60: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

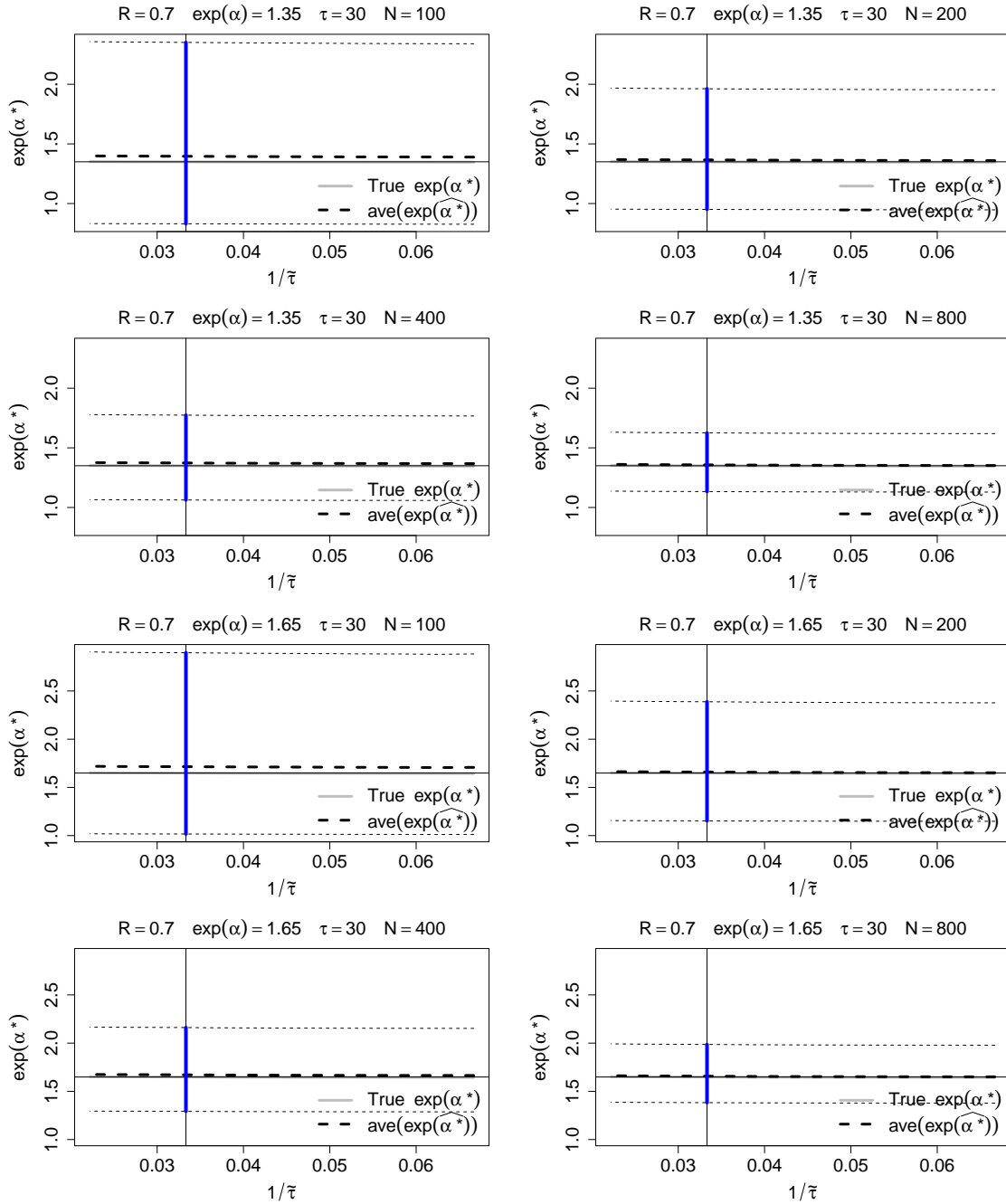


Figure 61: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

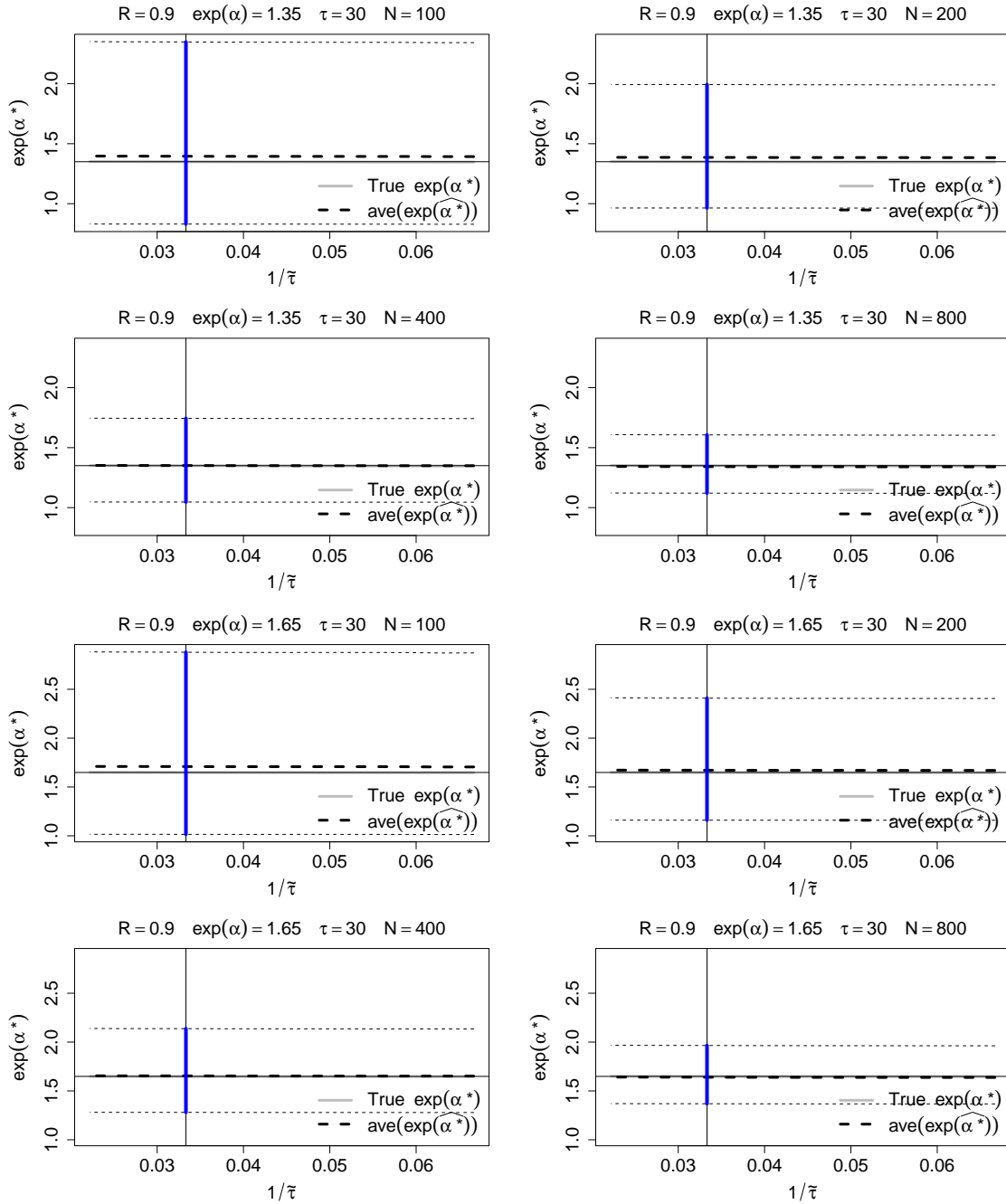


Figure 62: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

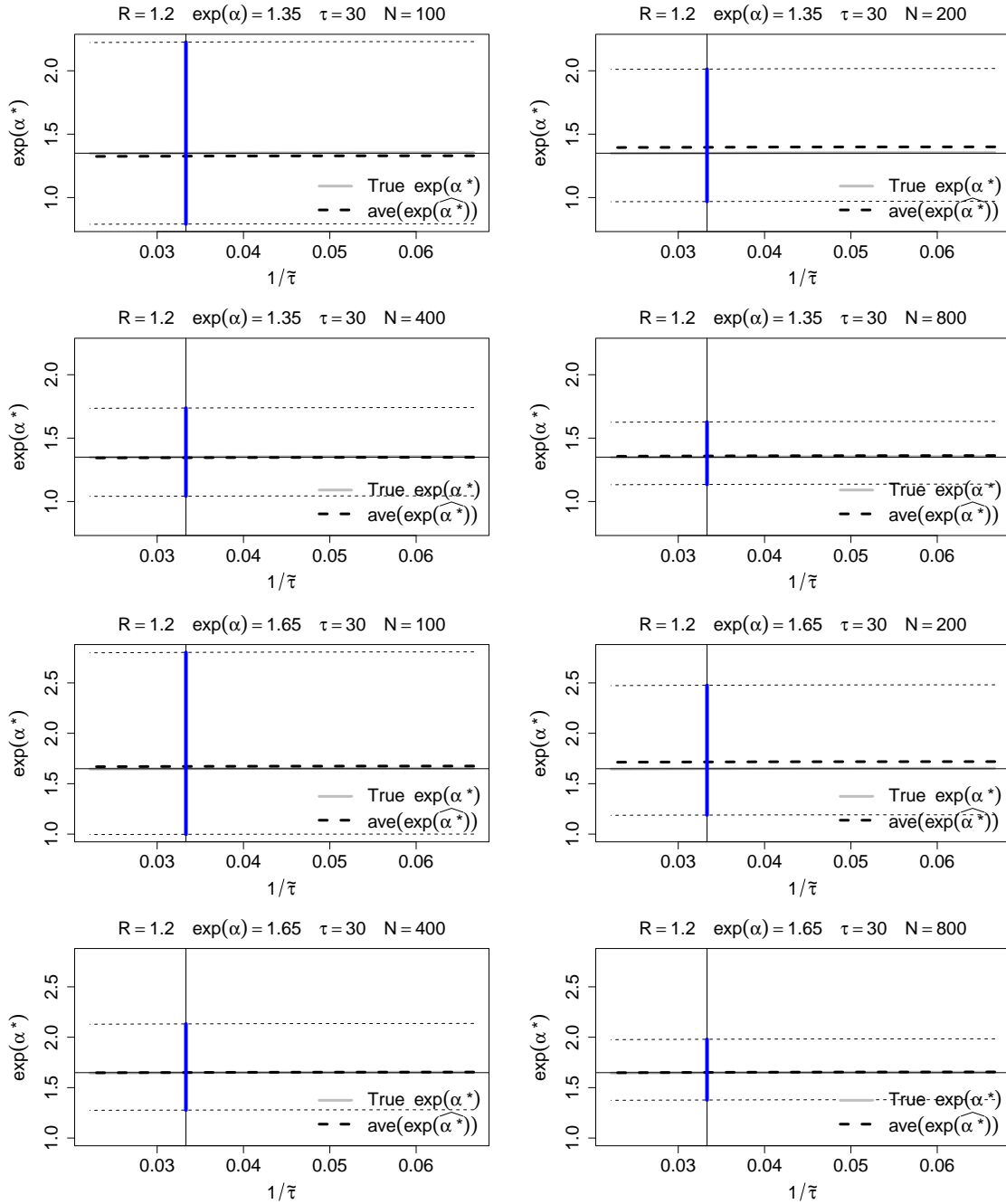


Figure 63: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

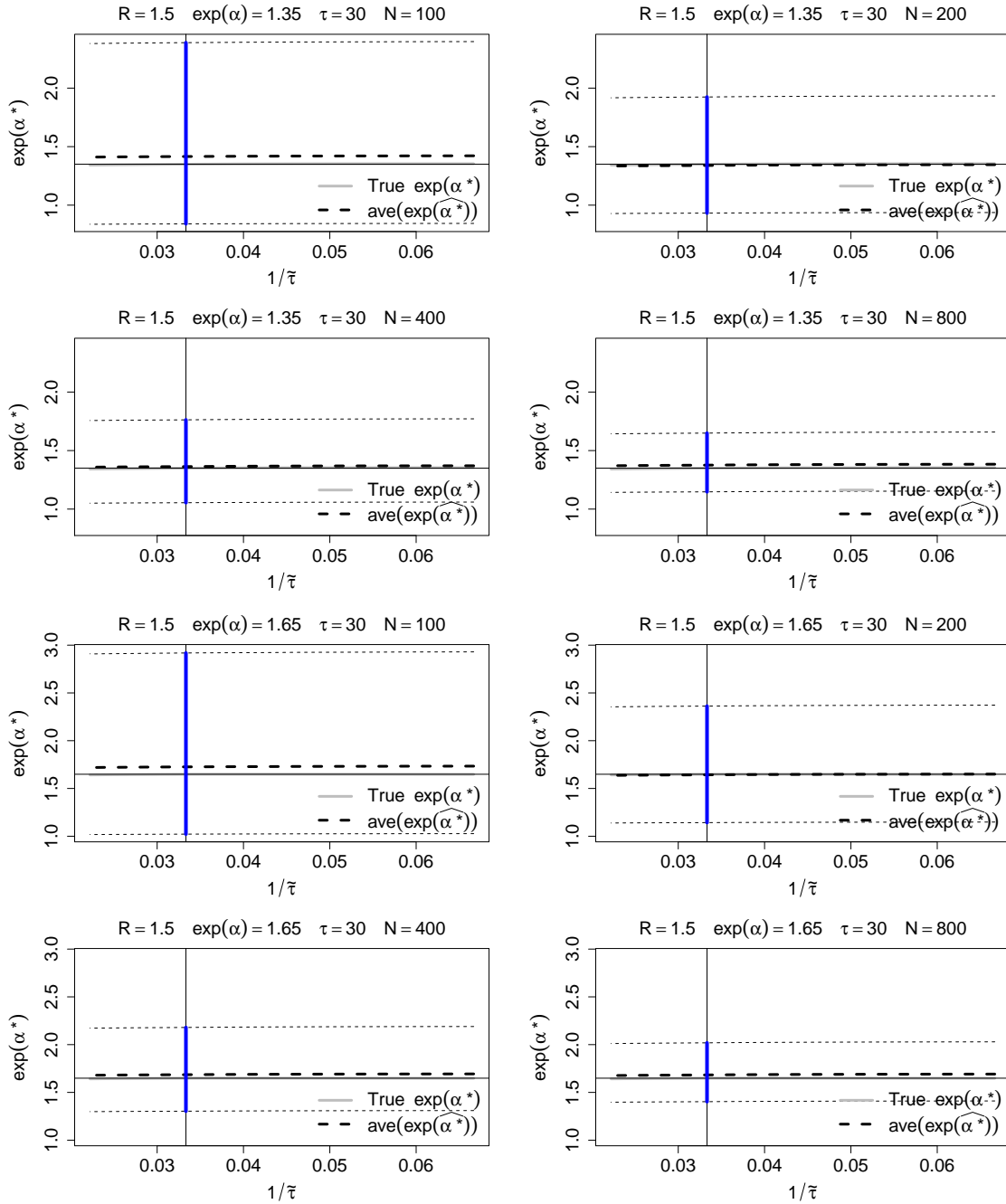


Figure 64: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

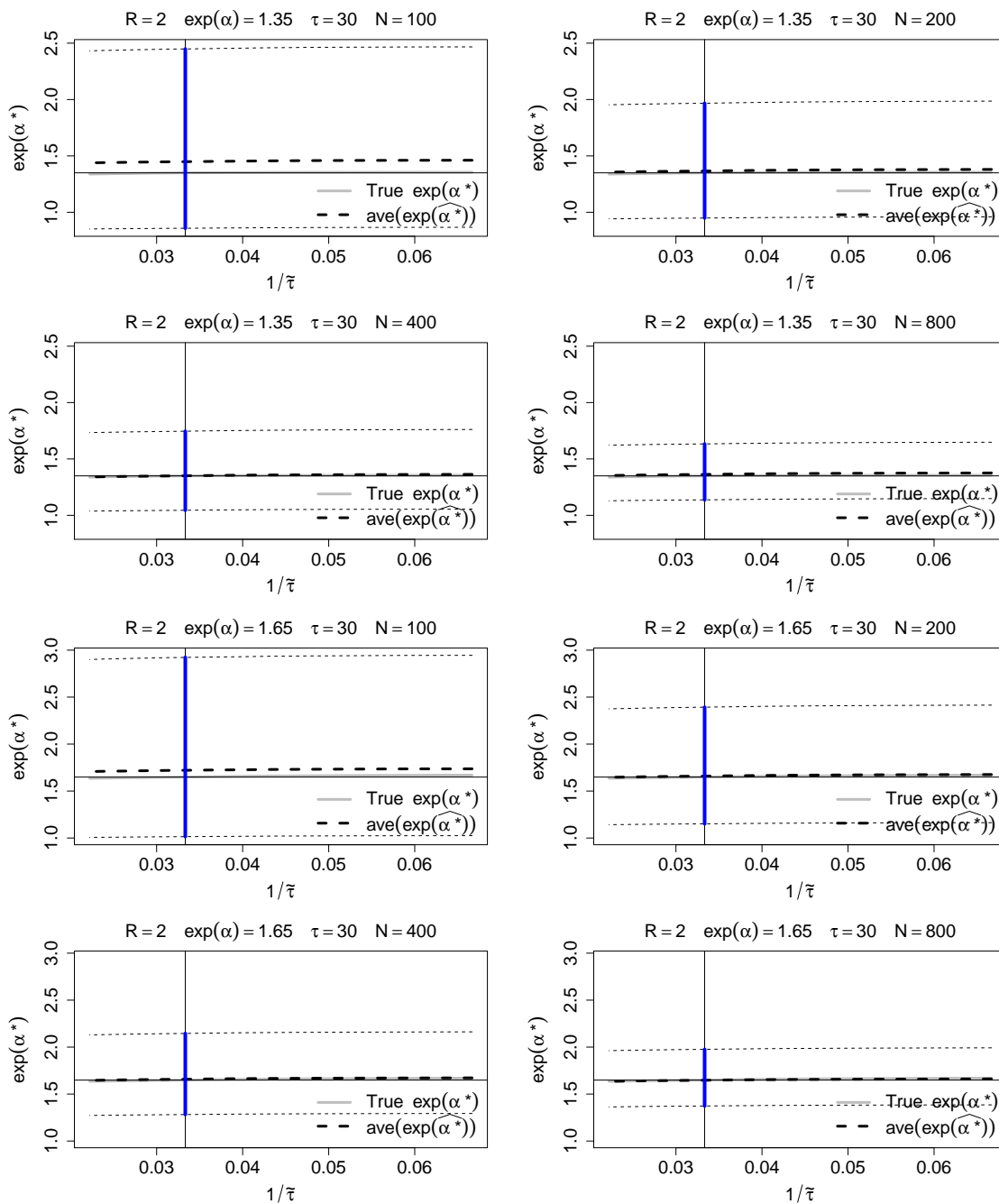


Figure 65: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

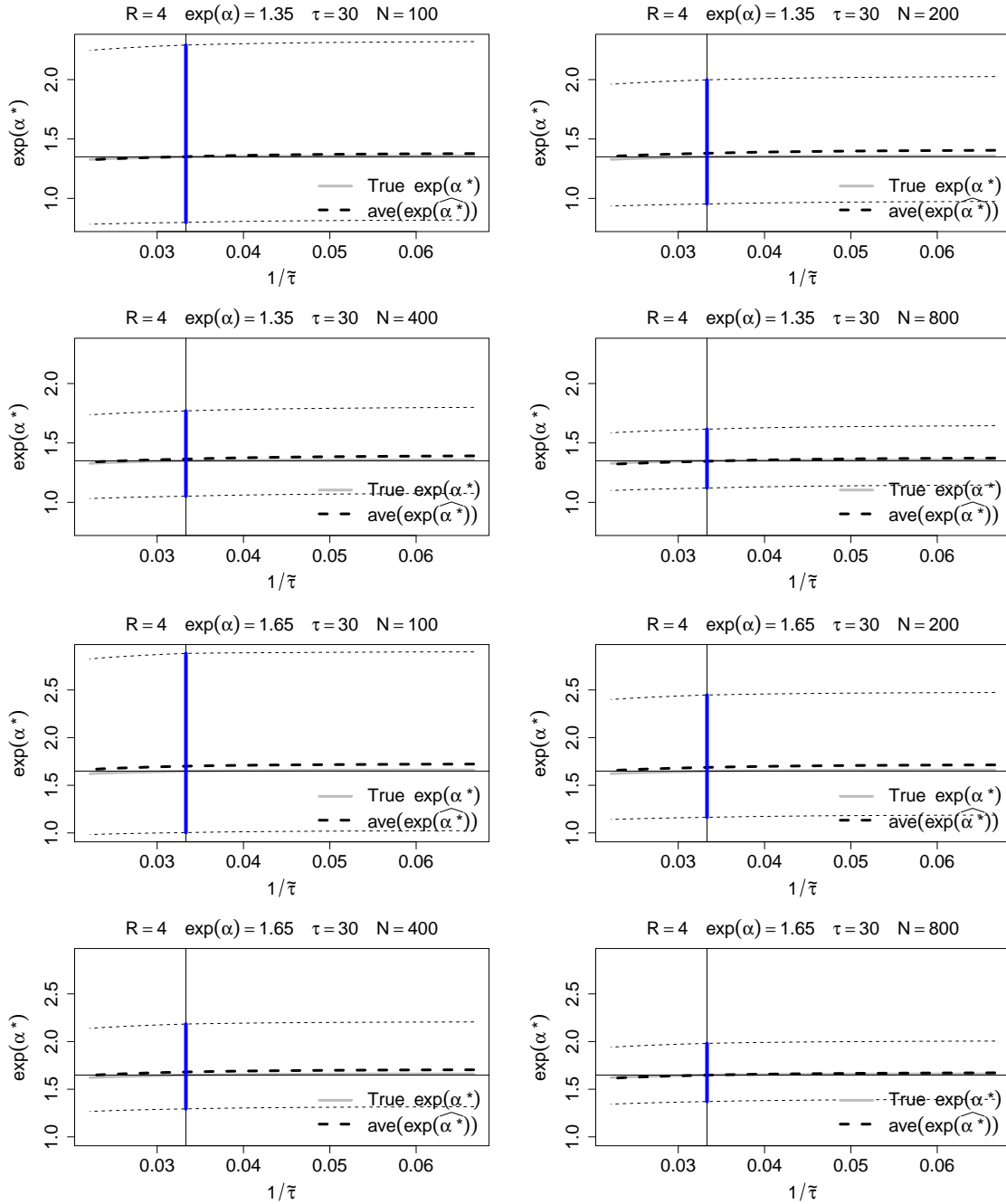


Figure 66: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

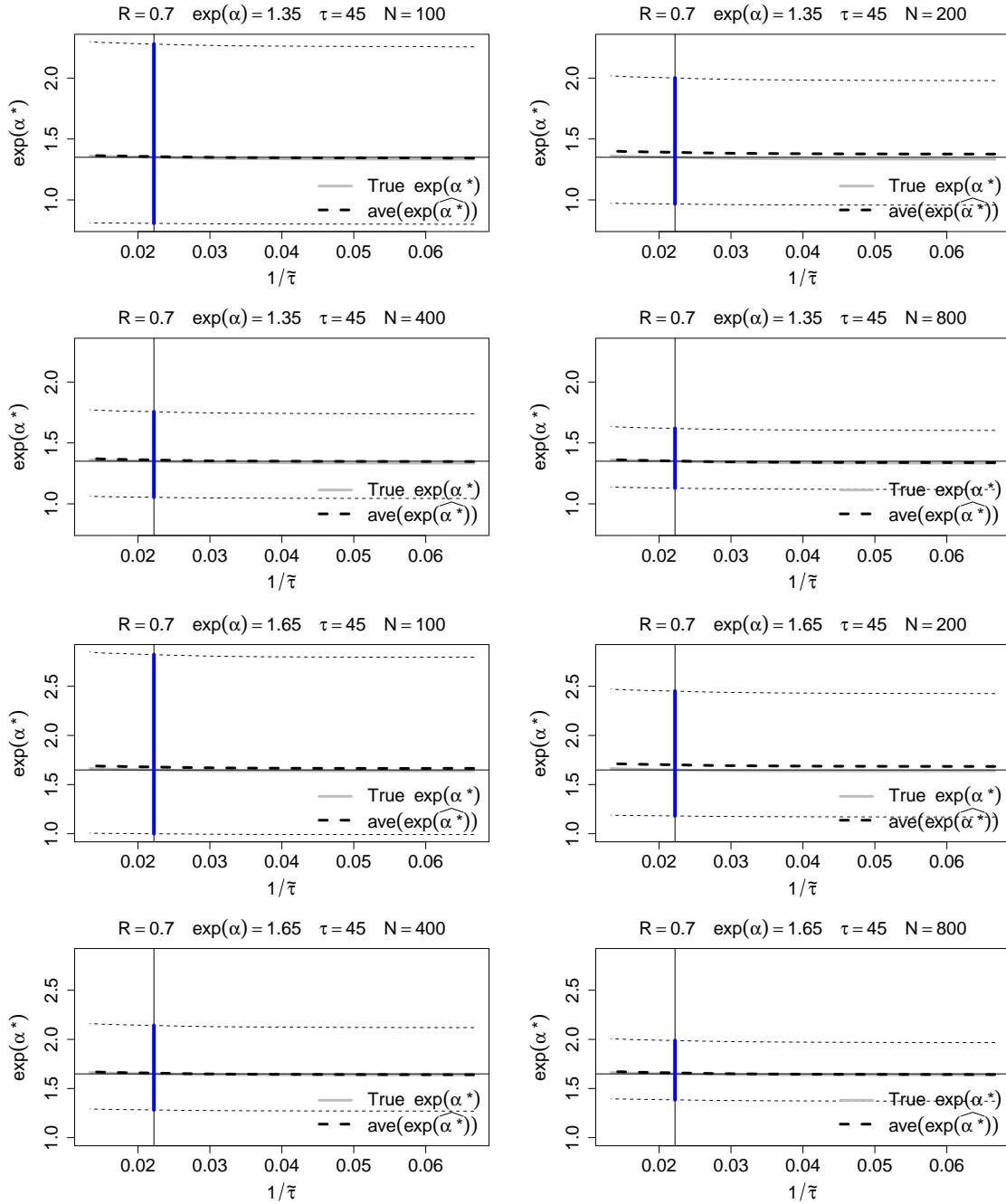


Figure 67: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

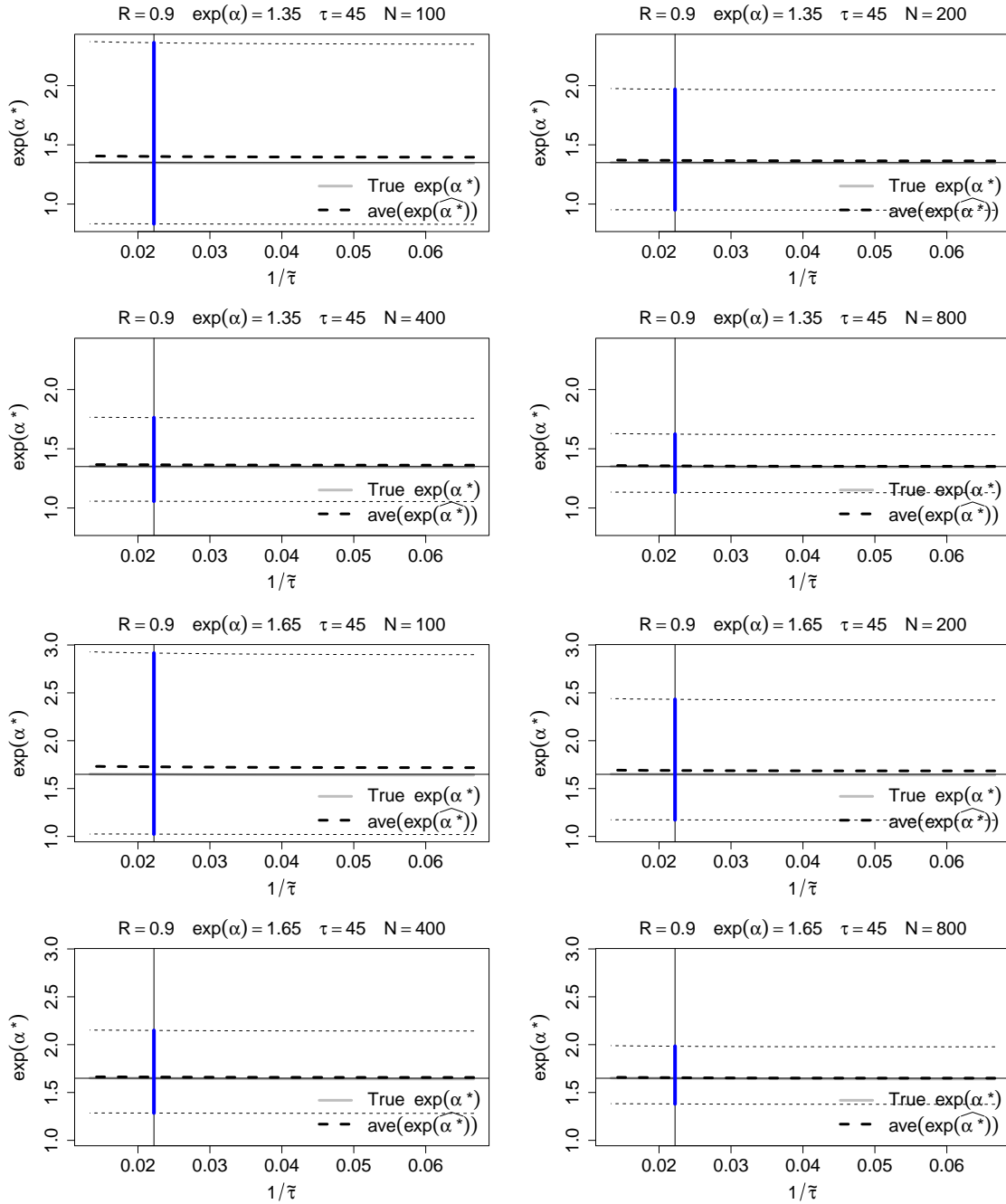


Figure 68: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

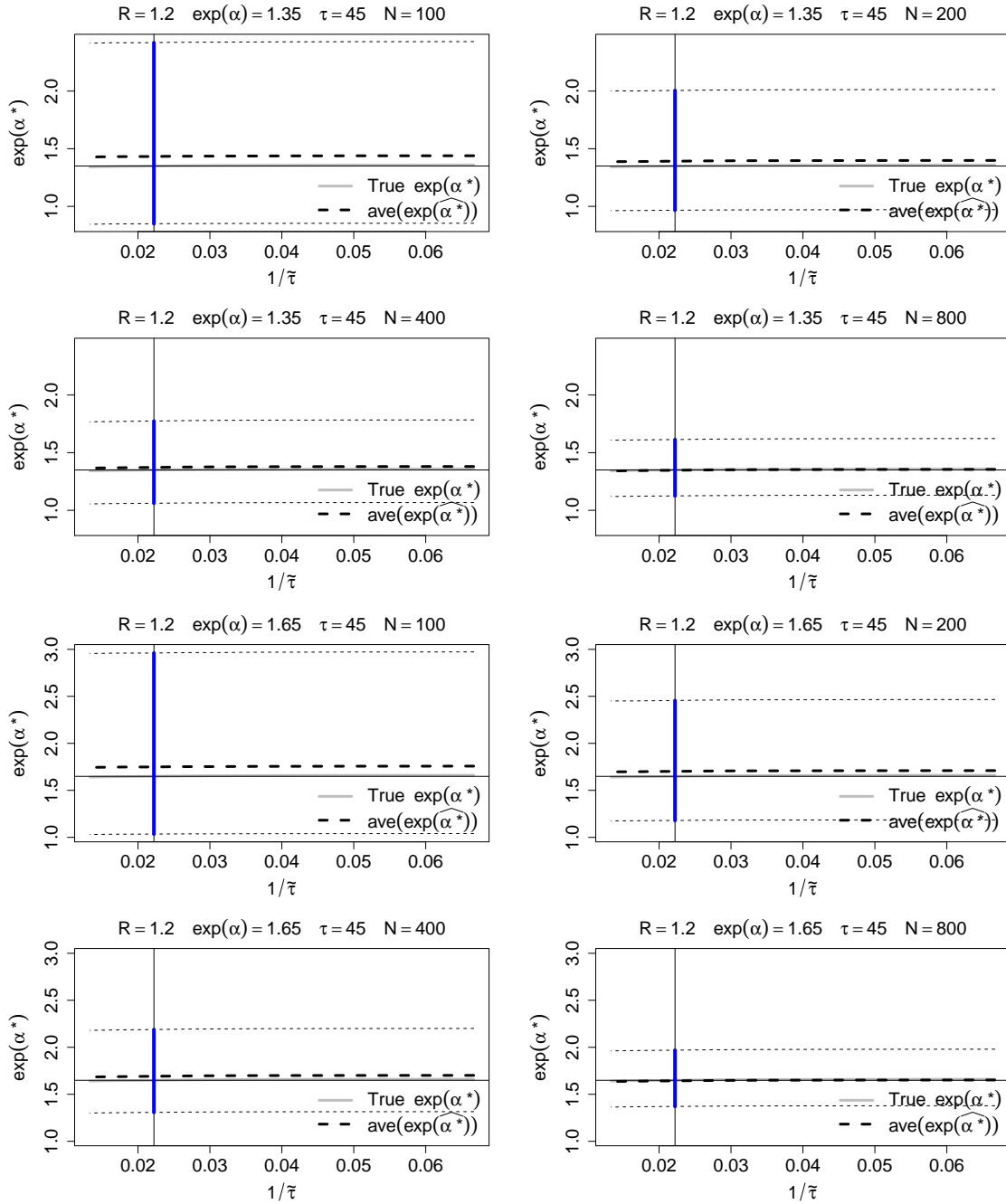


Figure 69: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

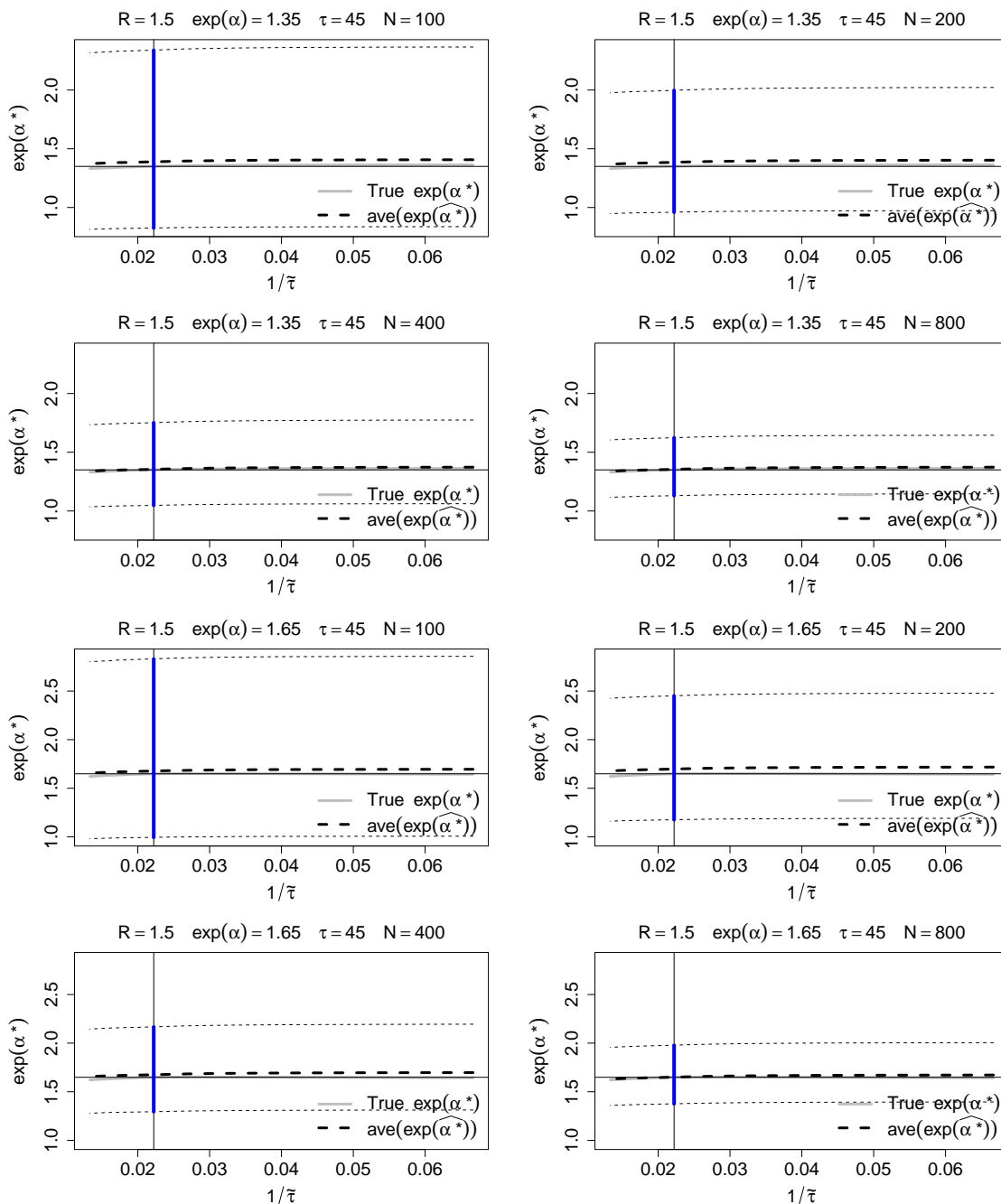


Figure 70: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

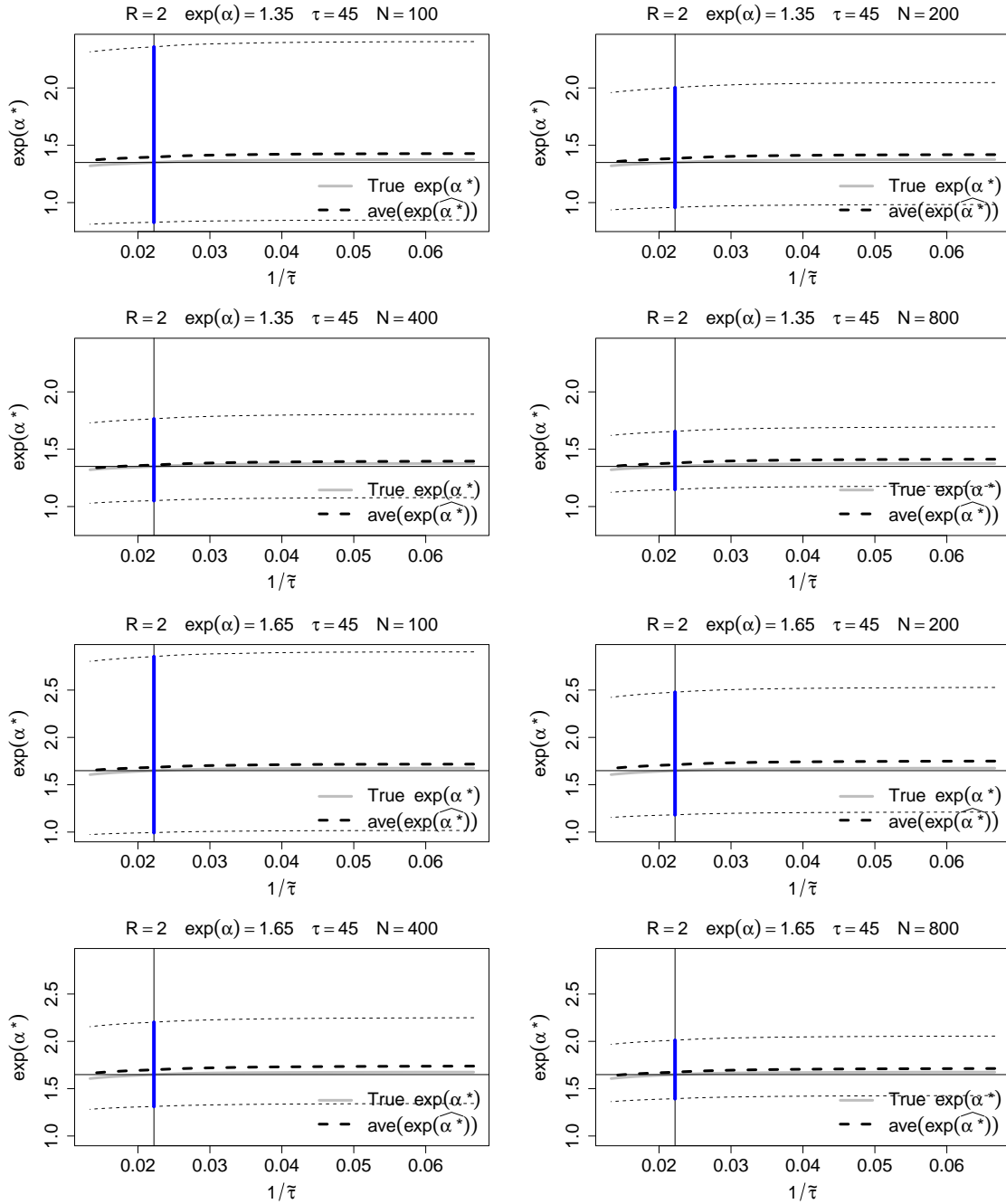


Figure 71: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

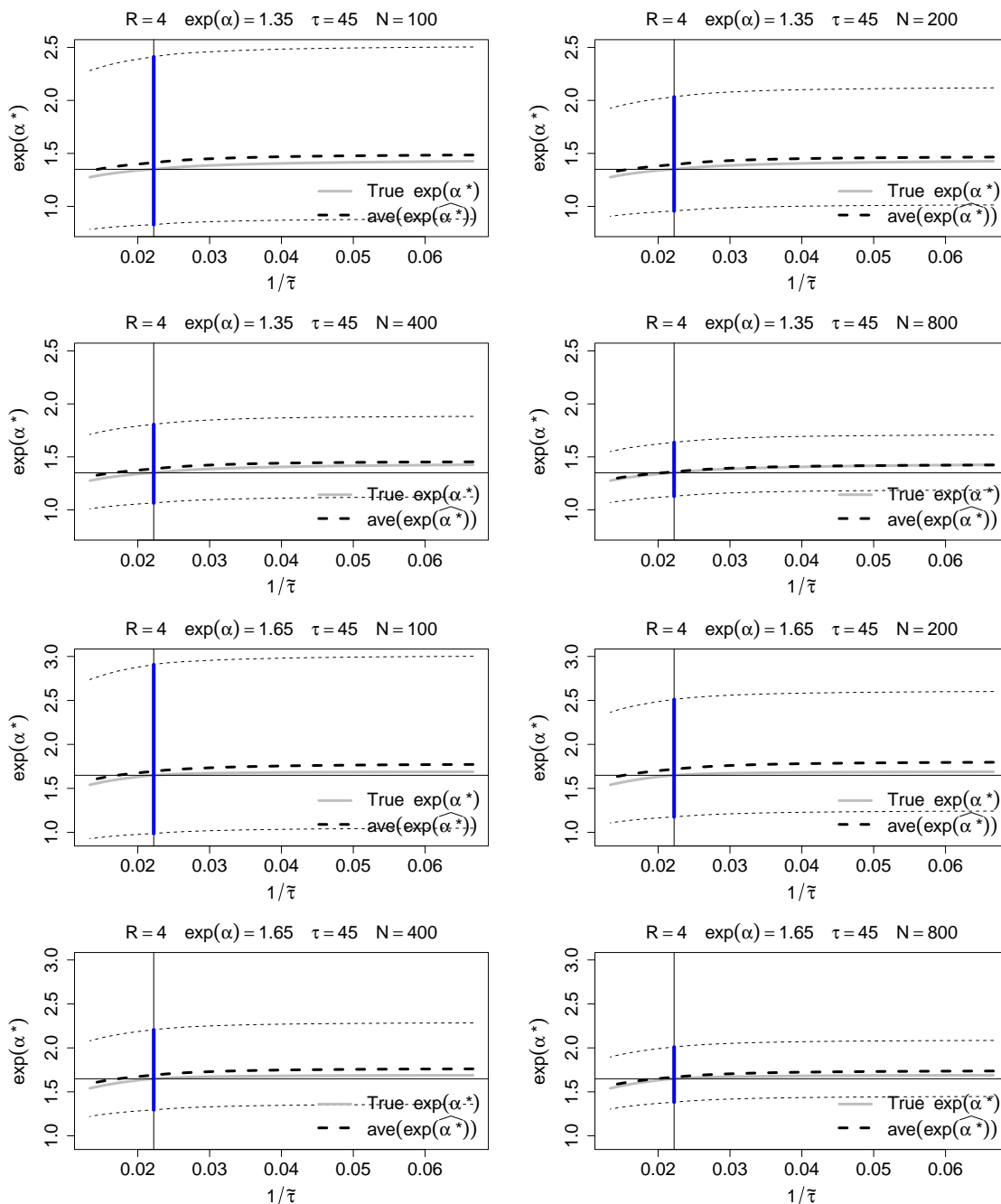


Figure 72: **Multiple Uniformly distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

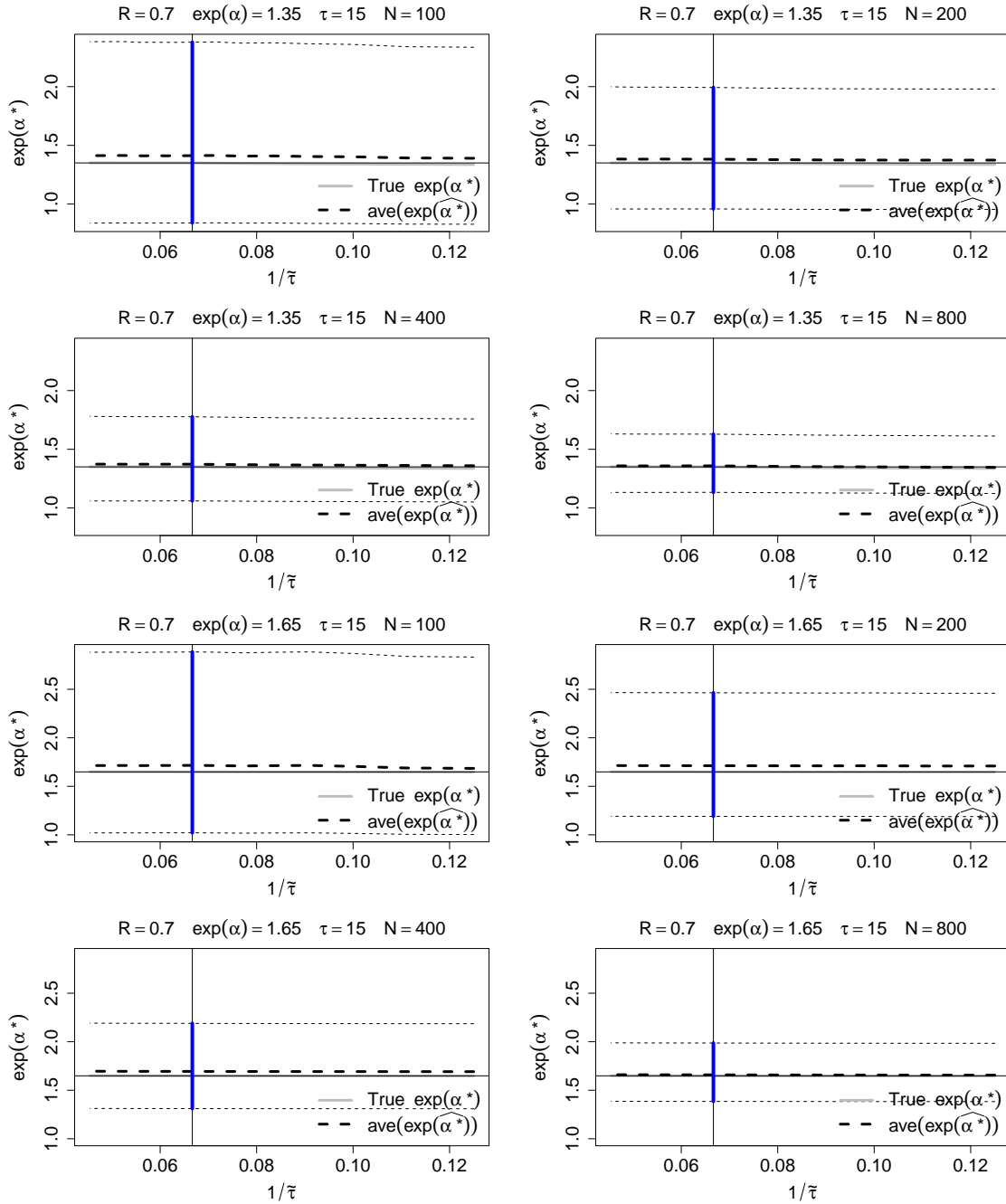


Figure 73: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

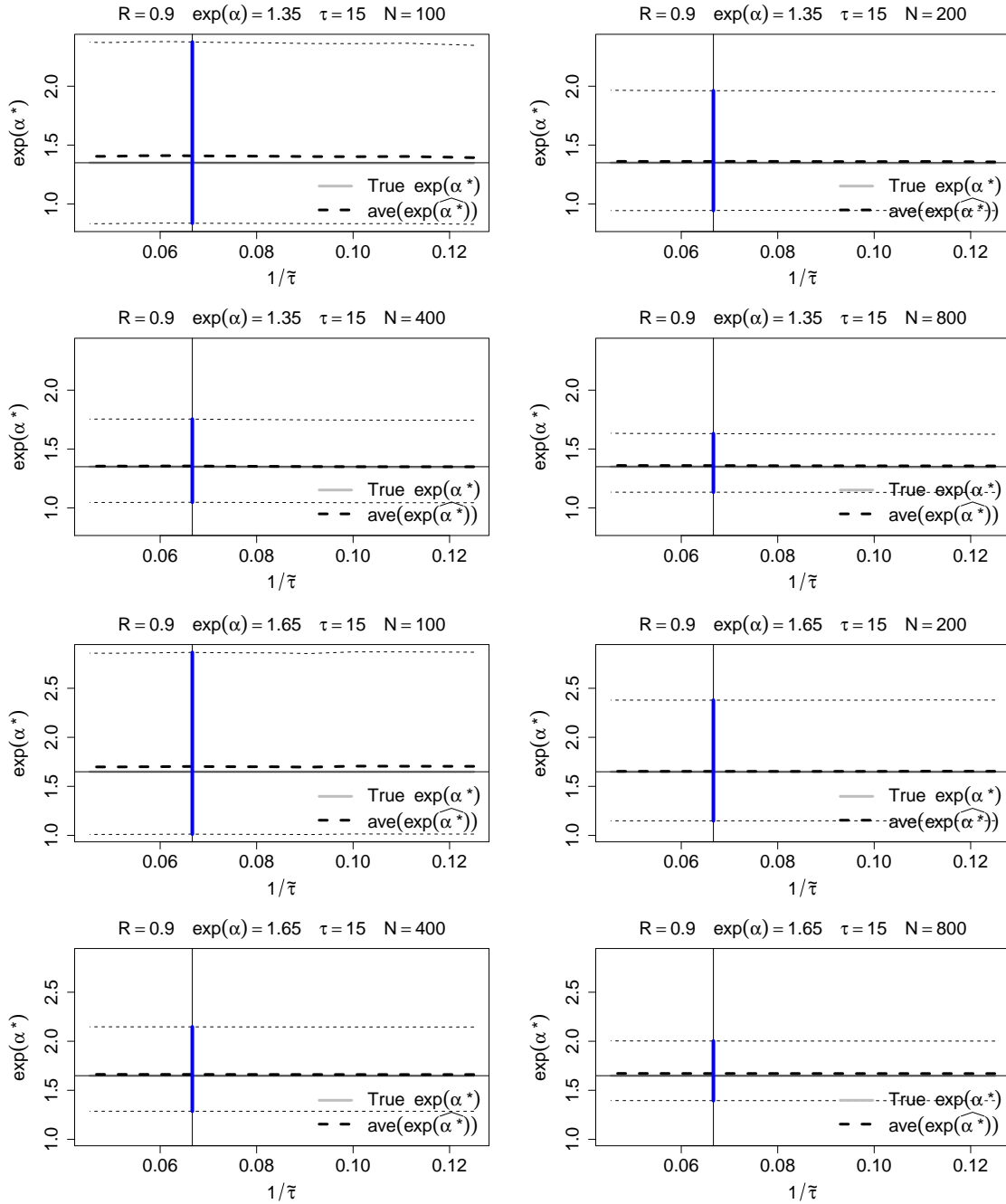


Figure 74: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

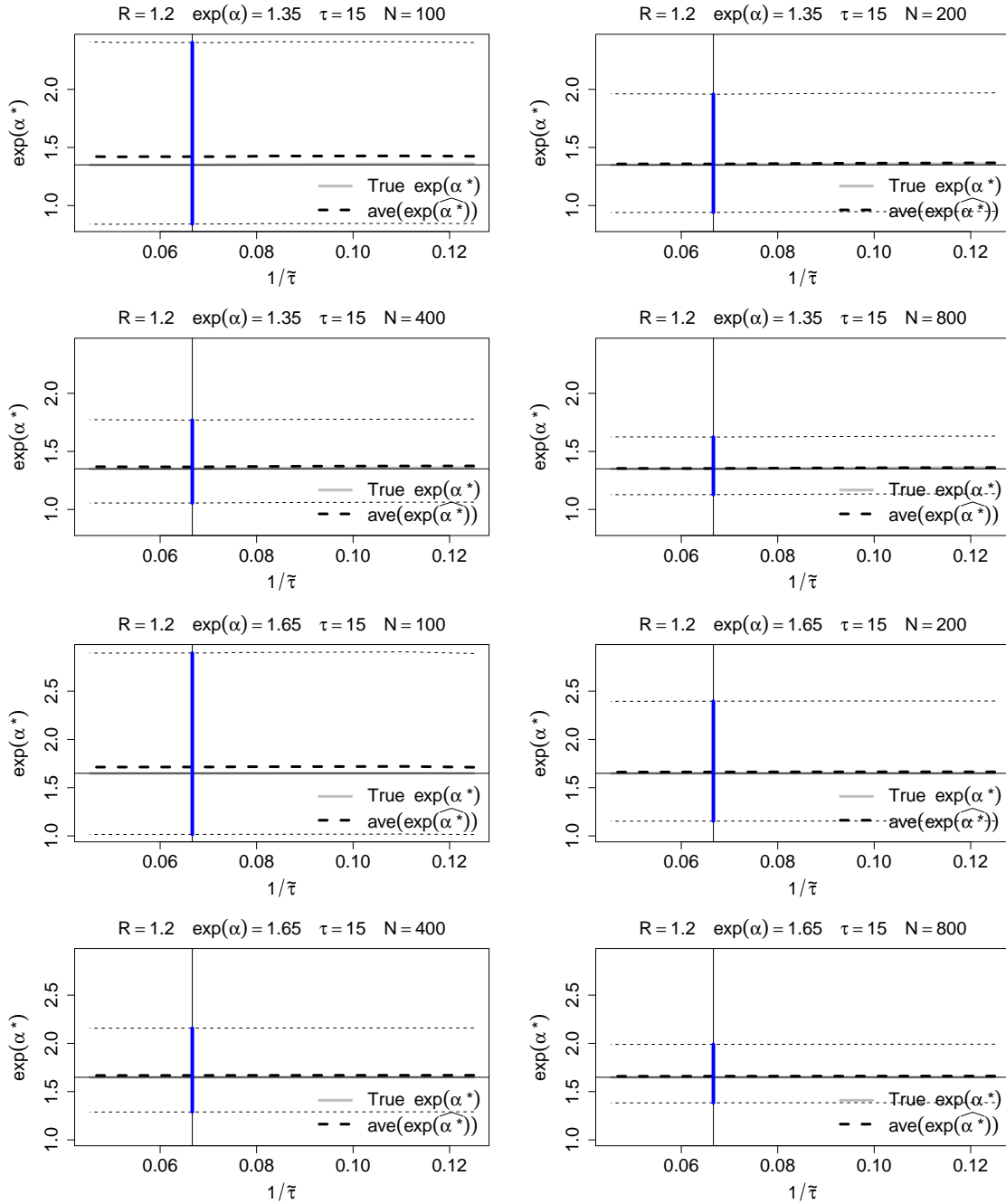


Figure 75: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

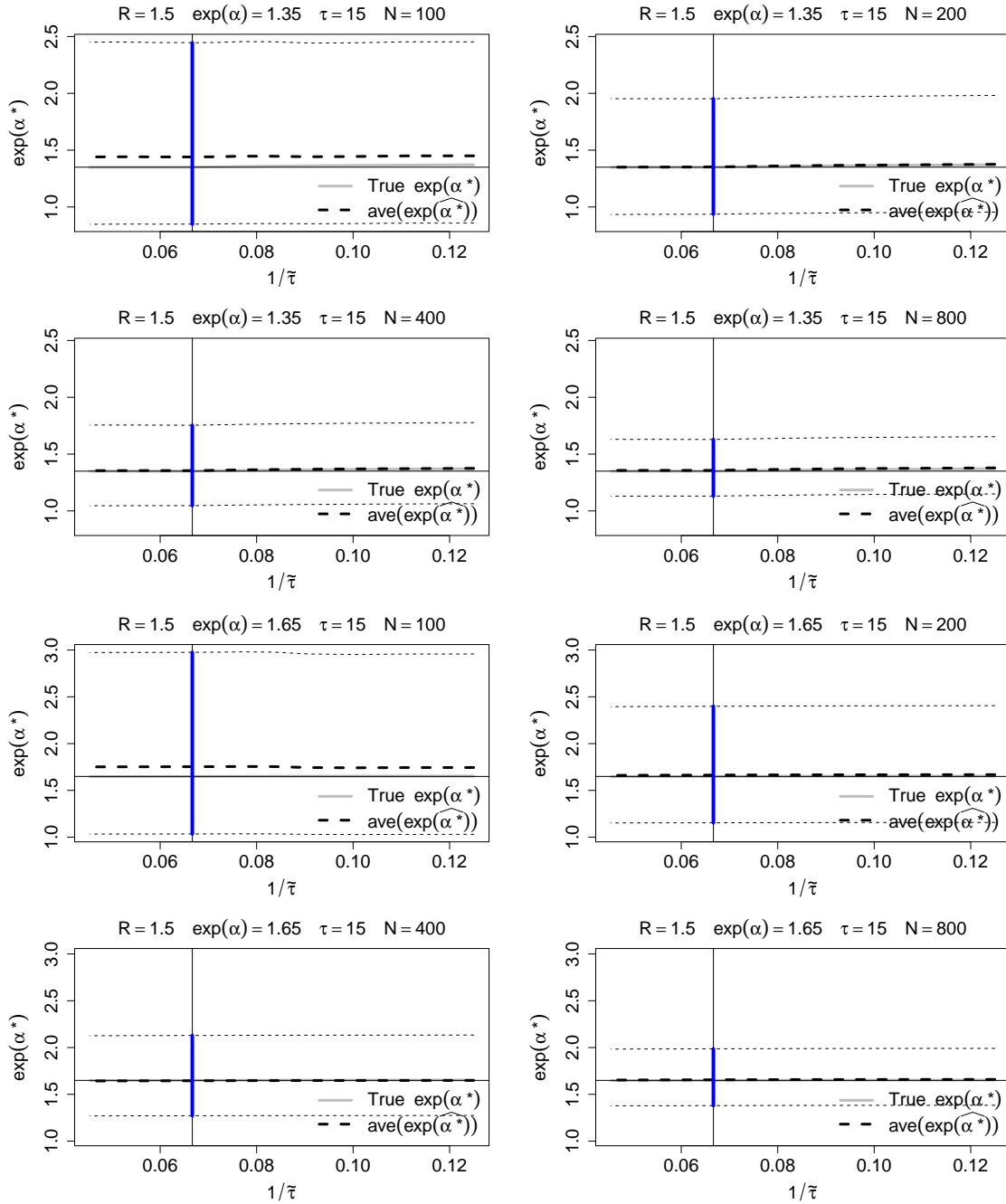


Figure 76: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

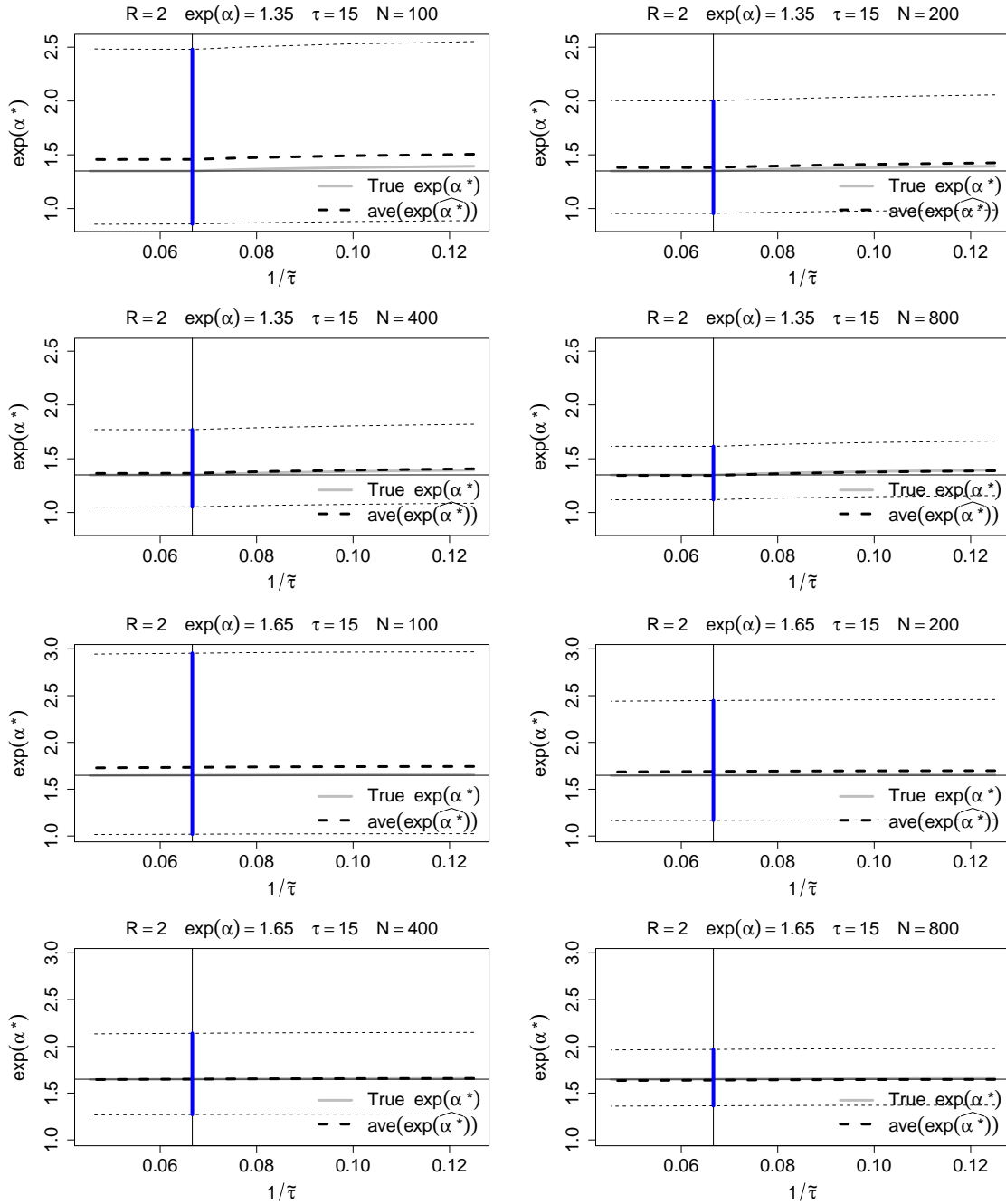


Figure 77: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

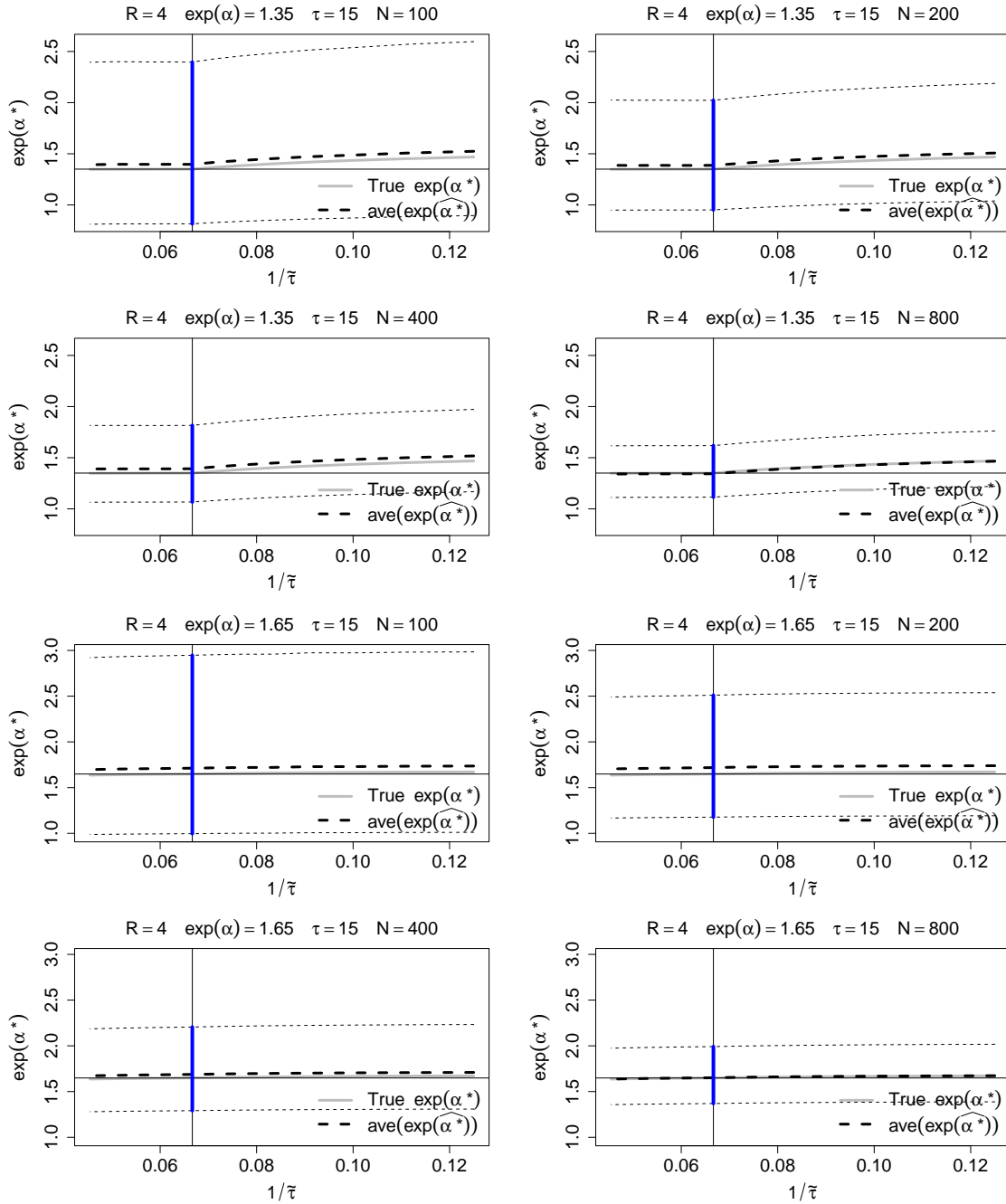


Figure 78: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

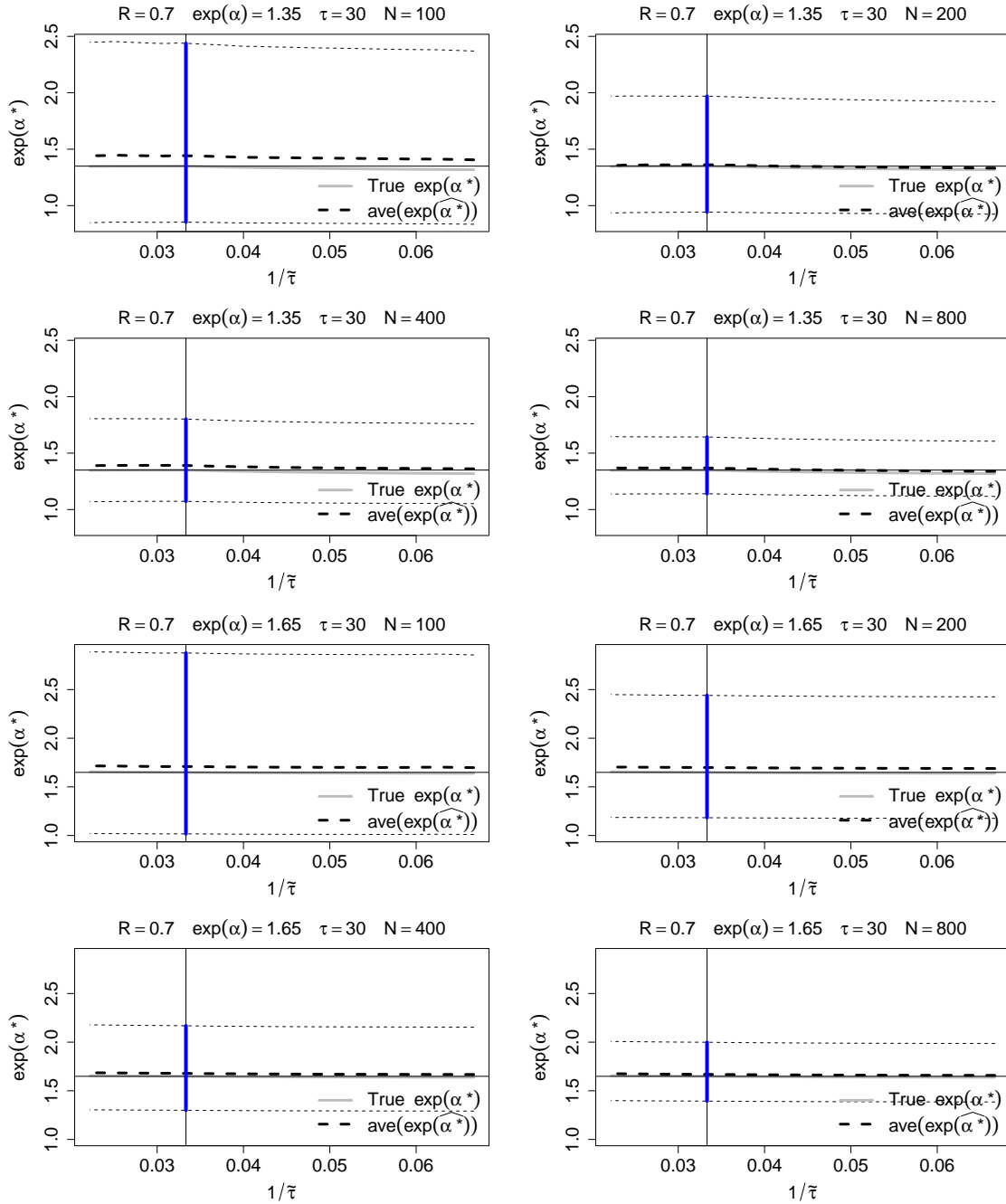


Figure 79: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

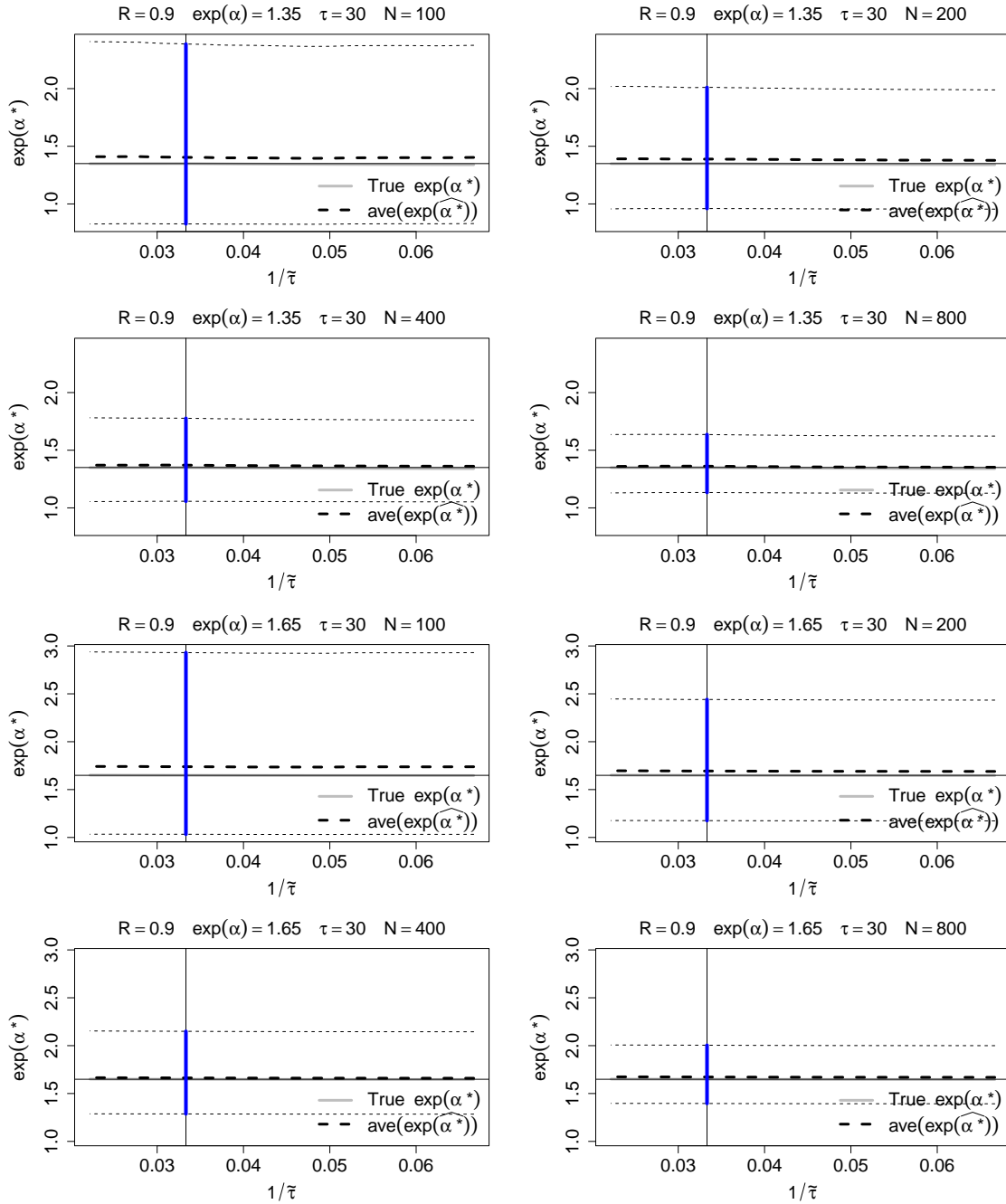


Figure 80: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

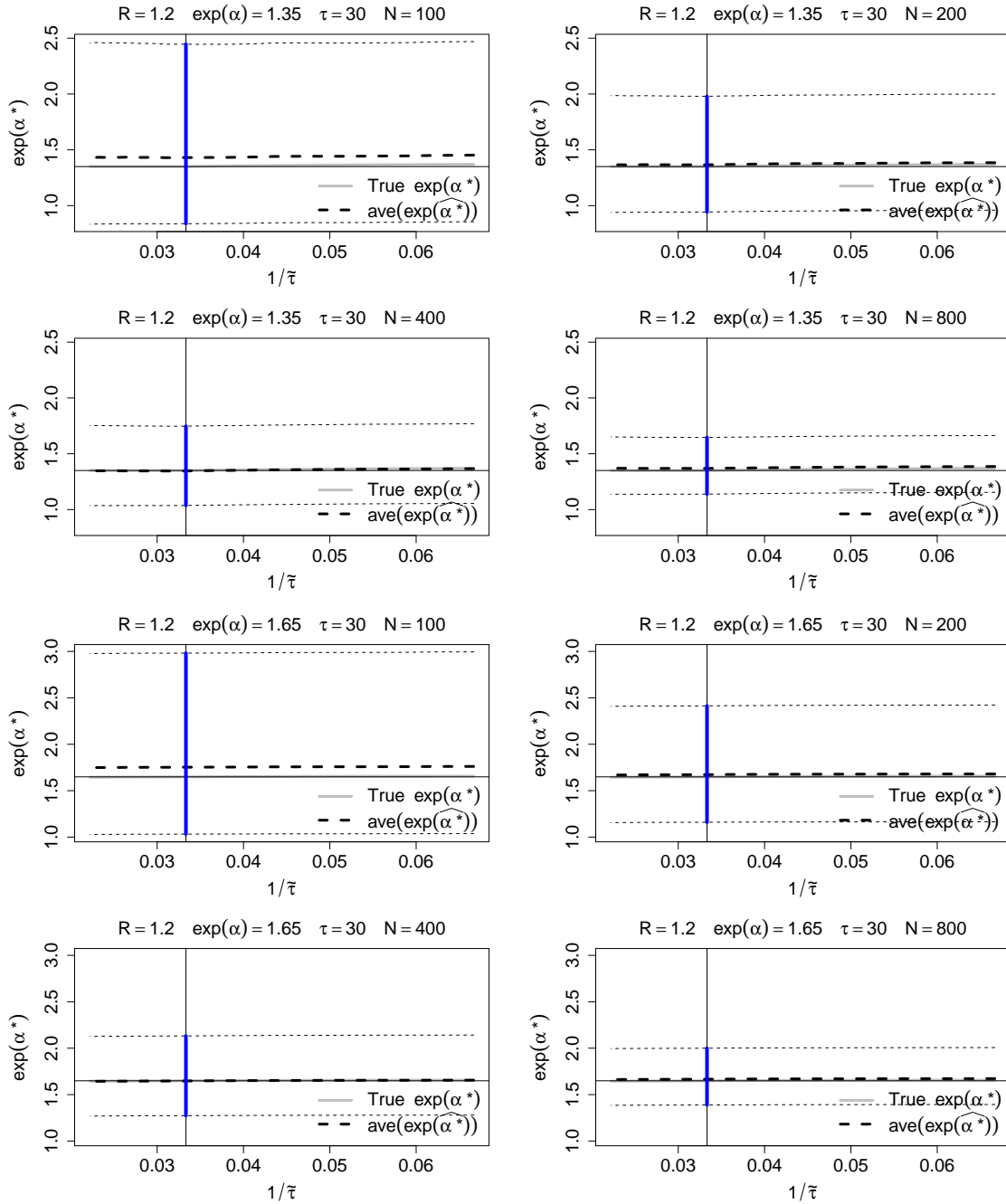


Figure 81: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

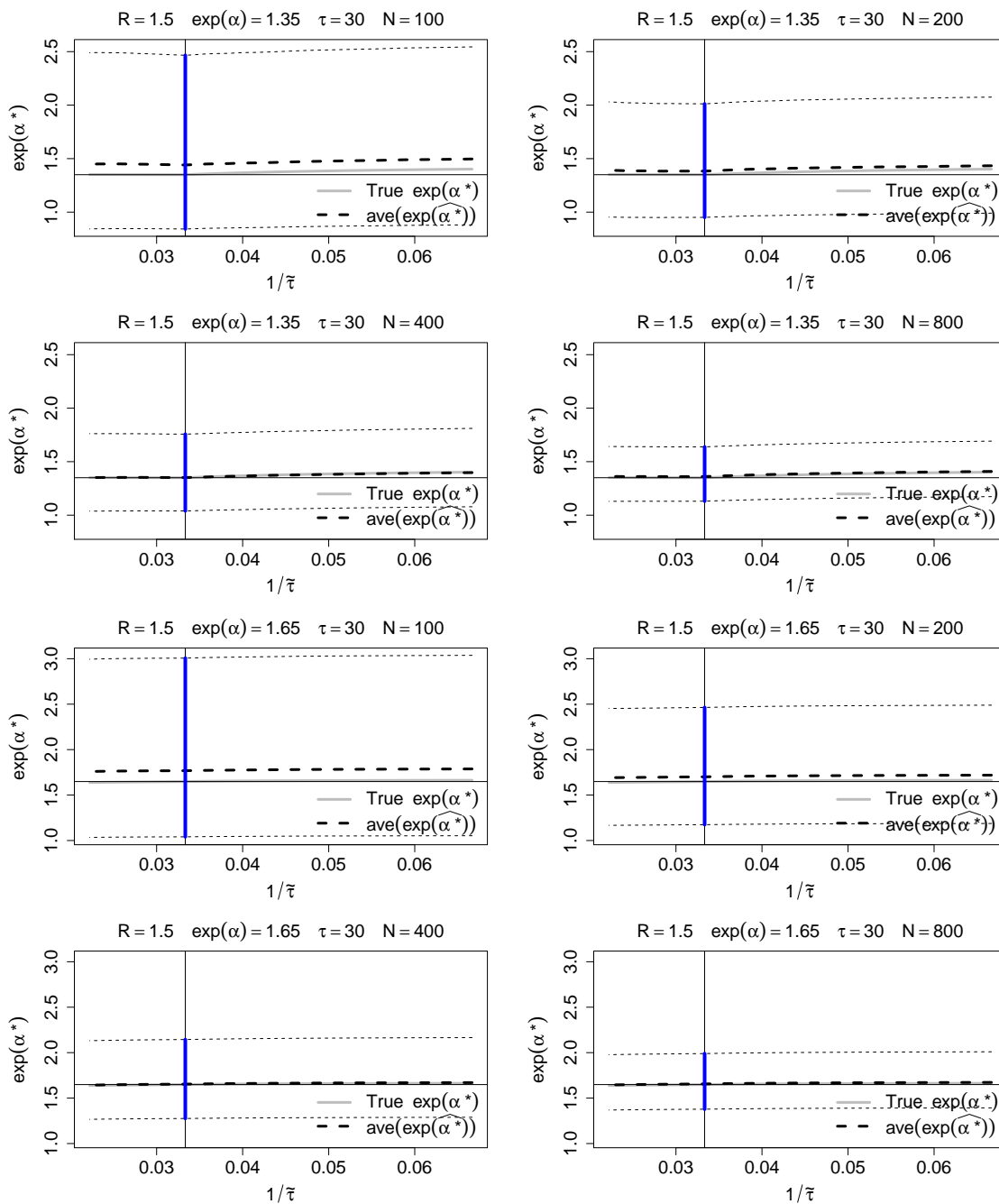


Figure 82: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

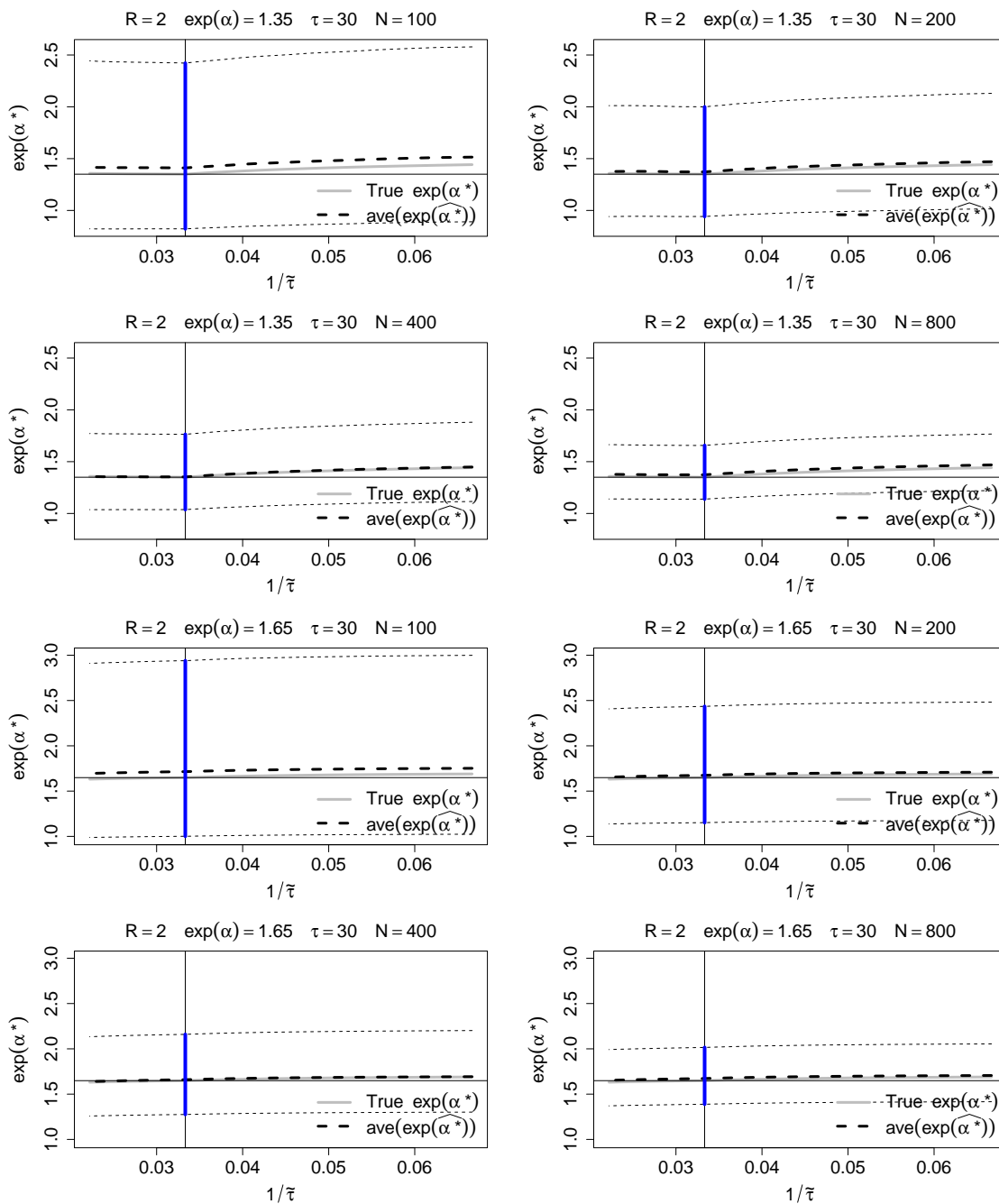


Figure 83: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

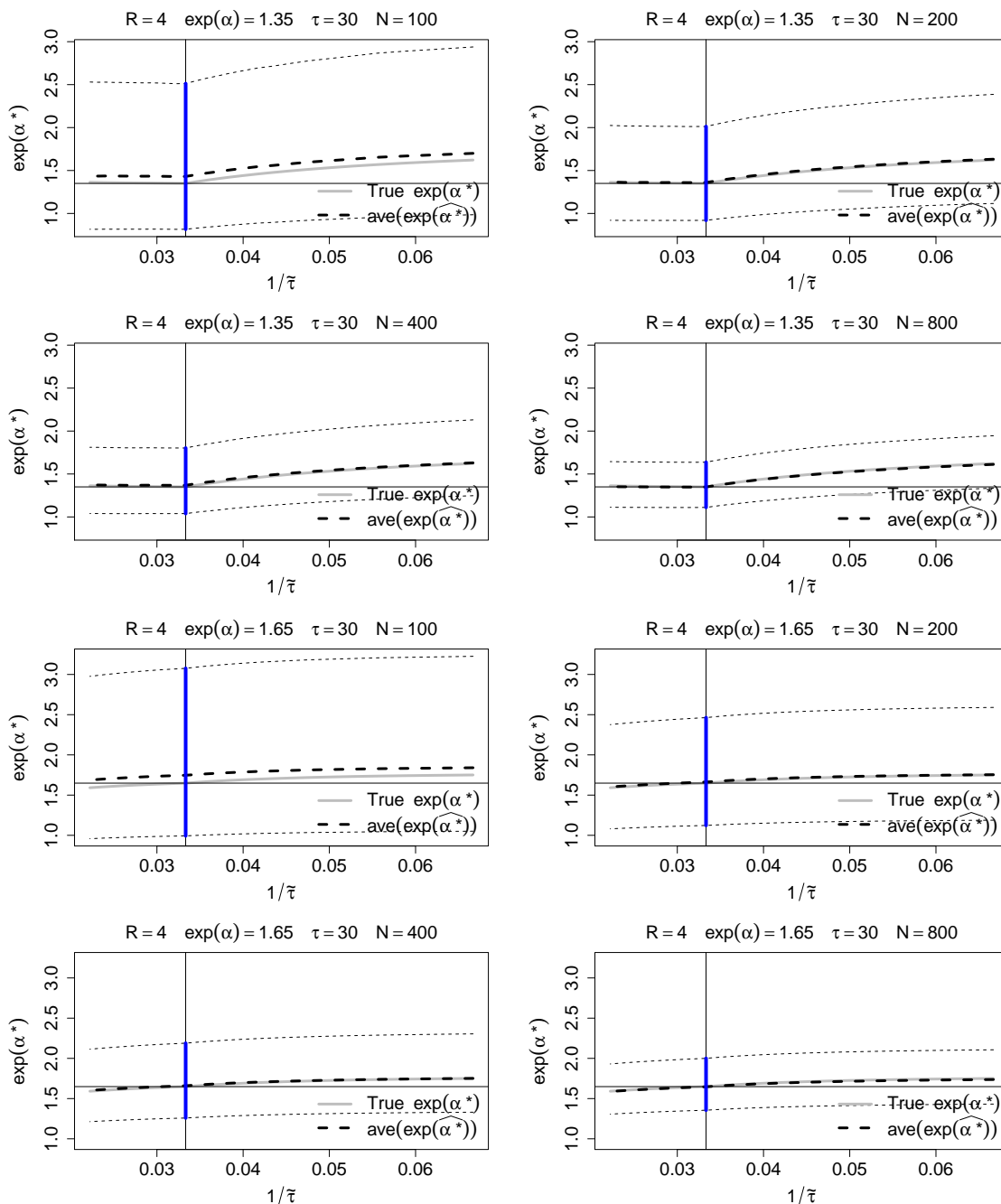


Figure 84: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages (ave($\exp(\hat{\alpha}_j^*)$)) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

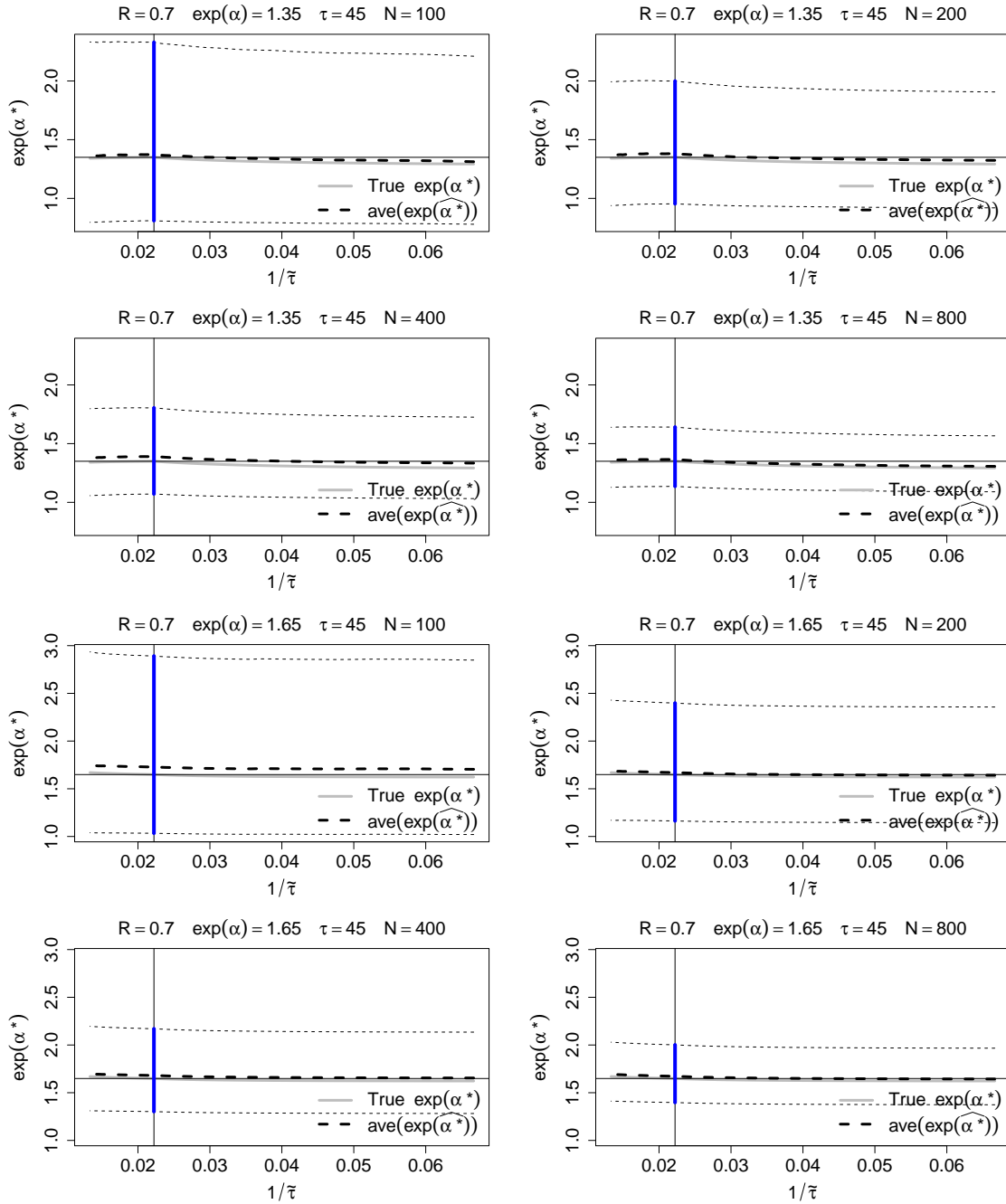


Figure 85: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

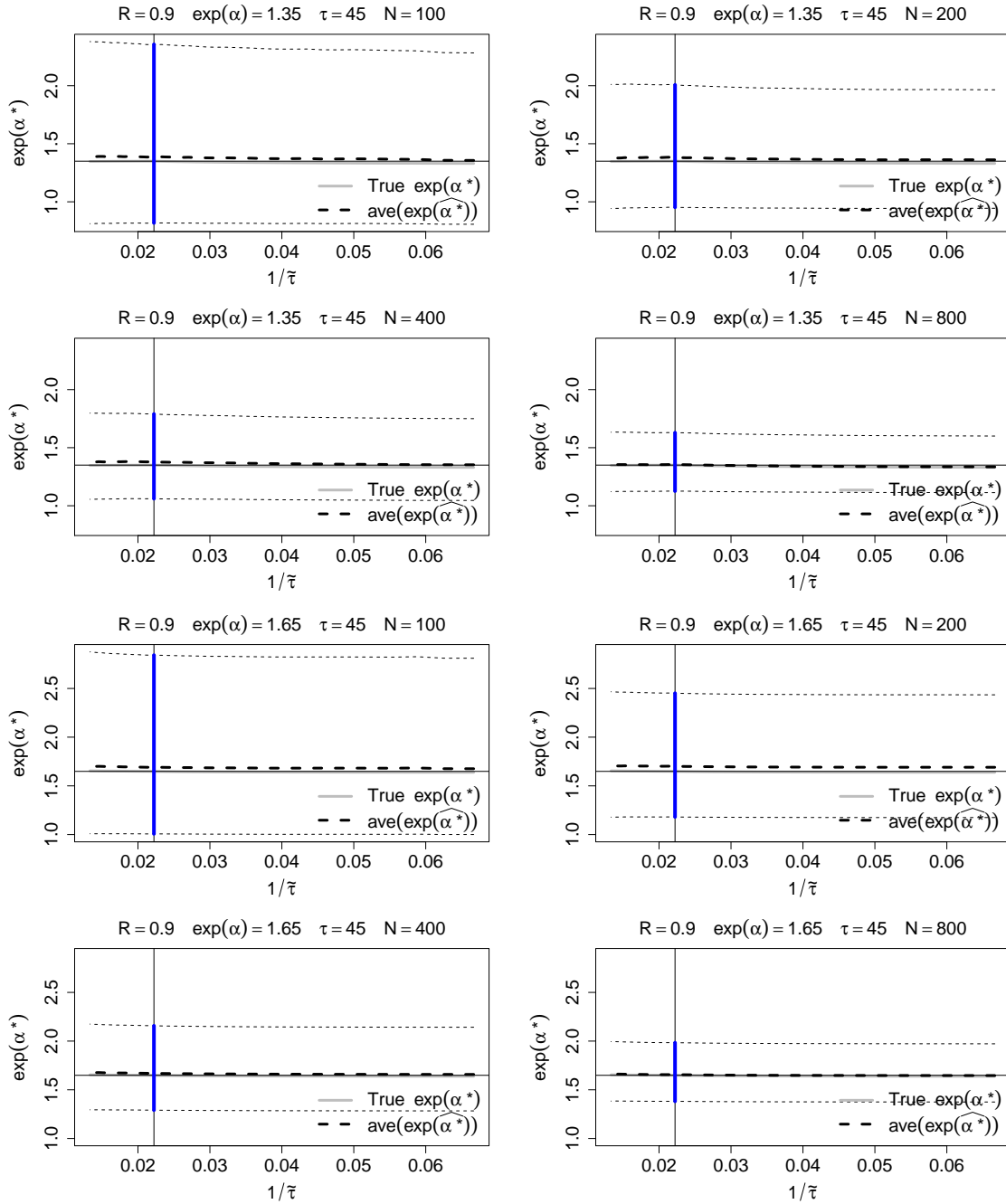


Figure 86: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

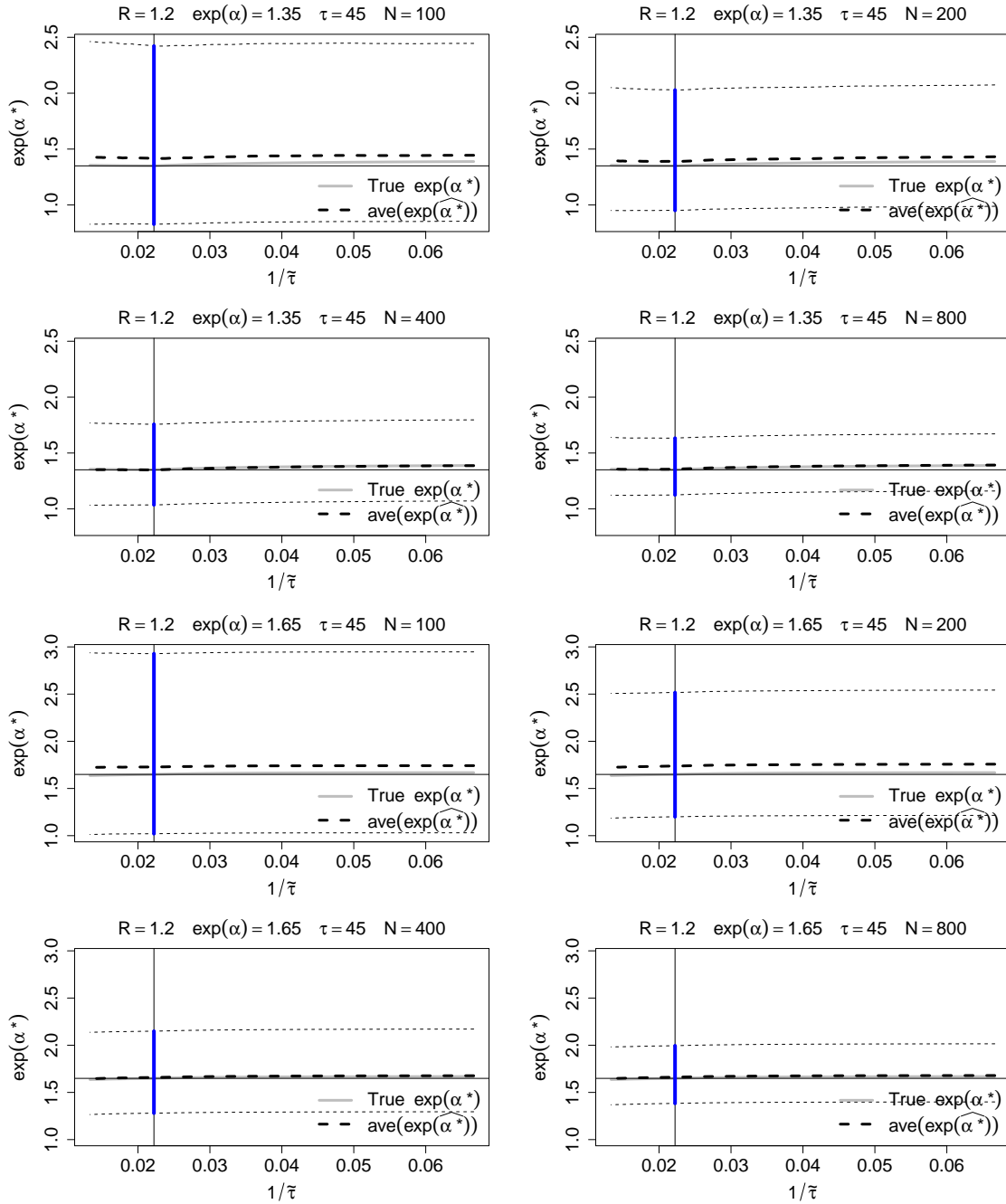


Figure 87: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

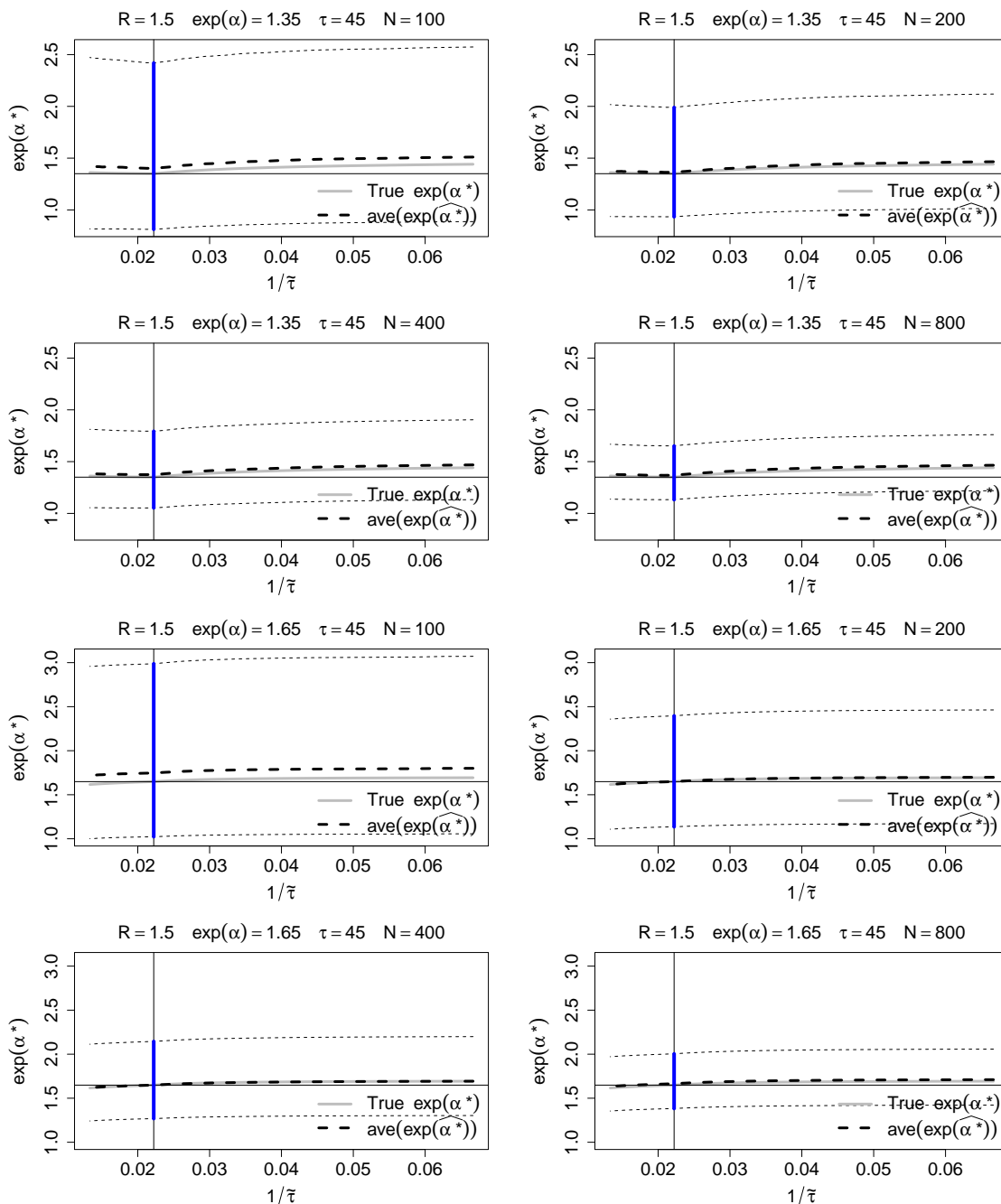


Figure 88: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

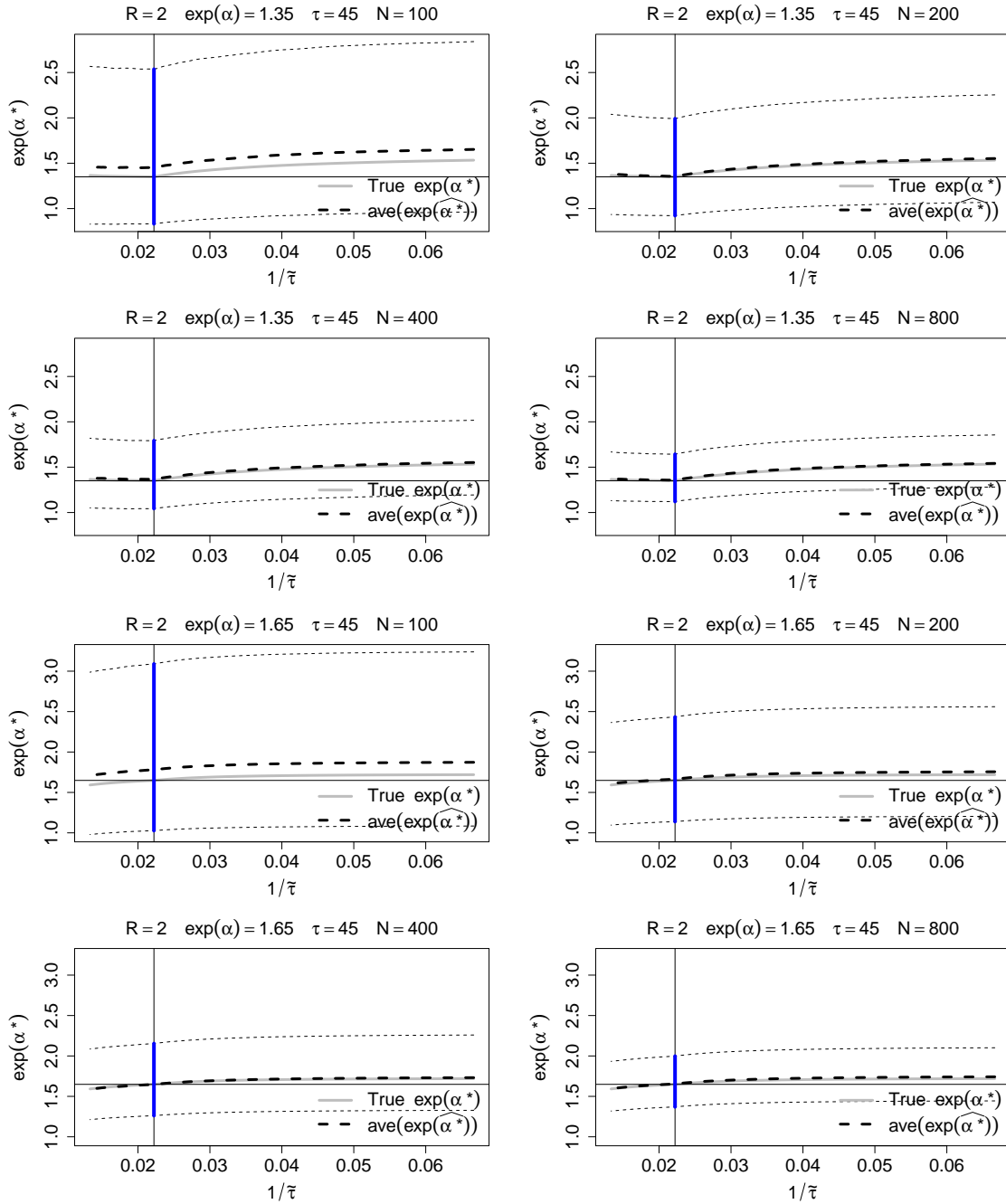


Figure 89: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

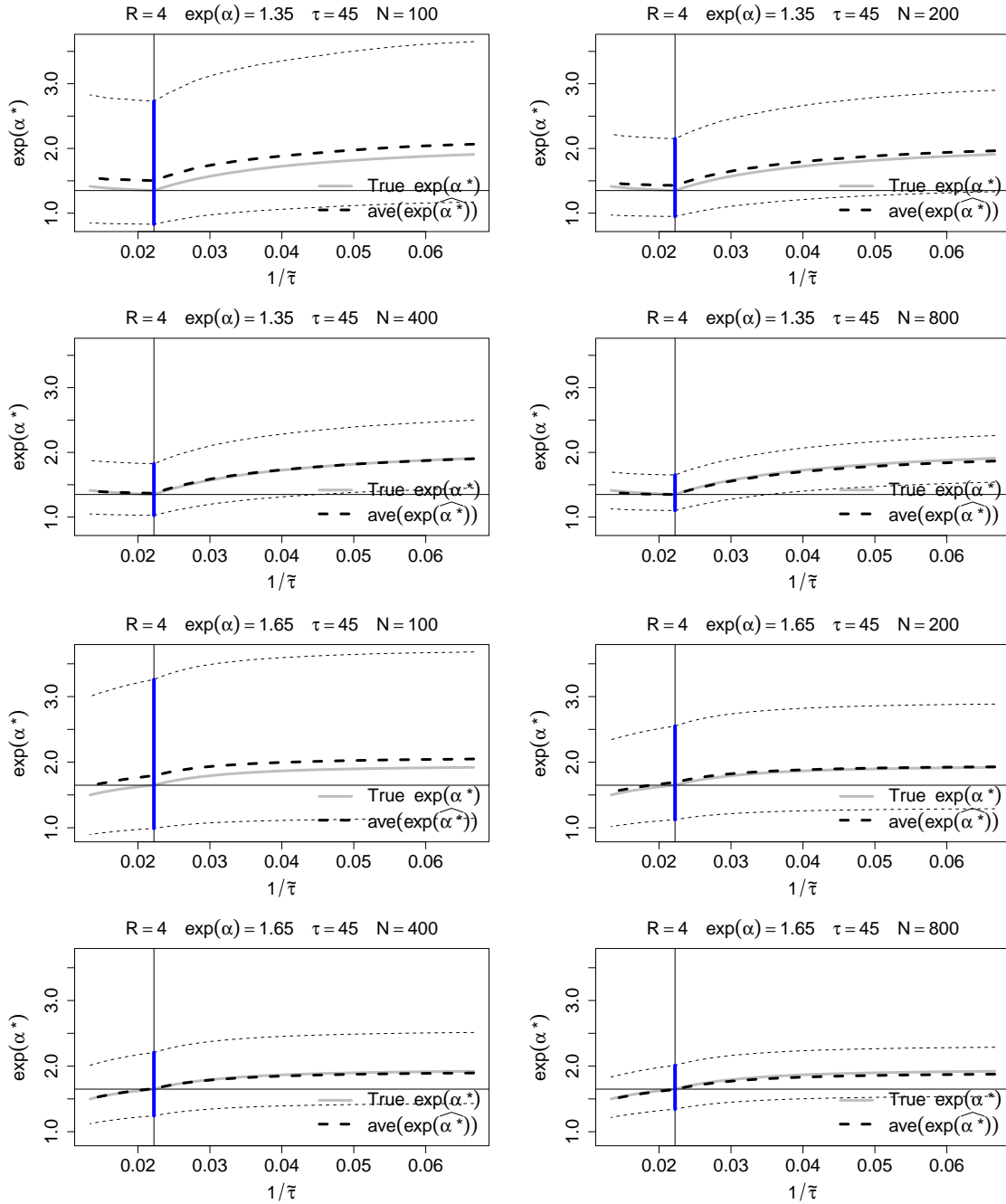


Figure 90: **Single Normally distributed exposure with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

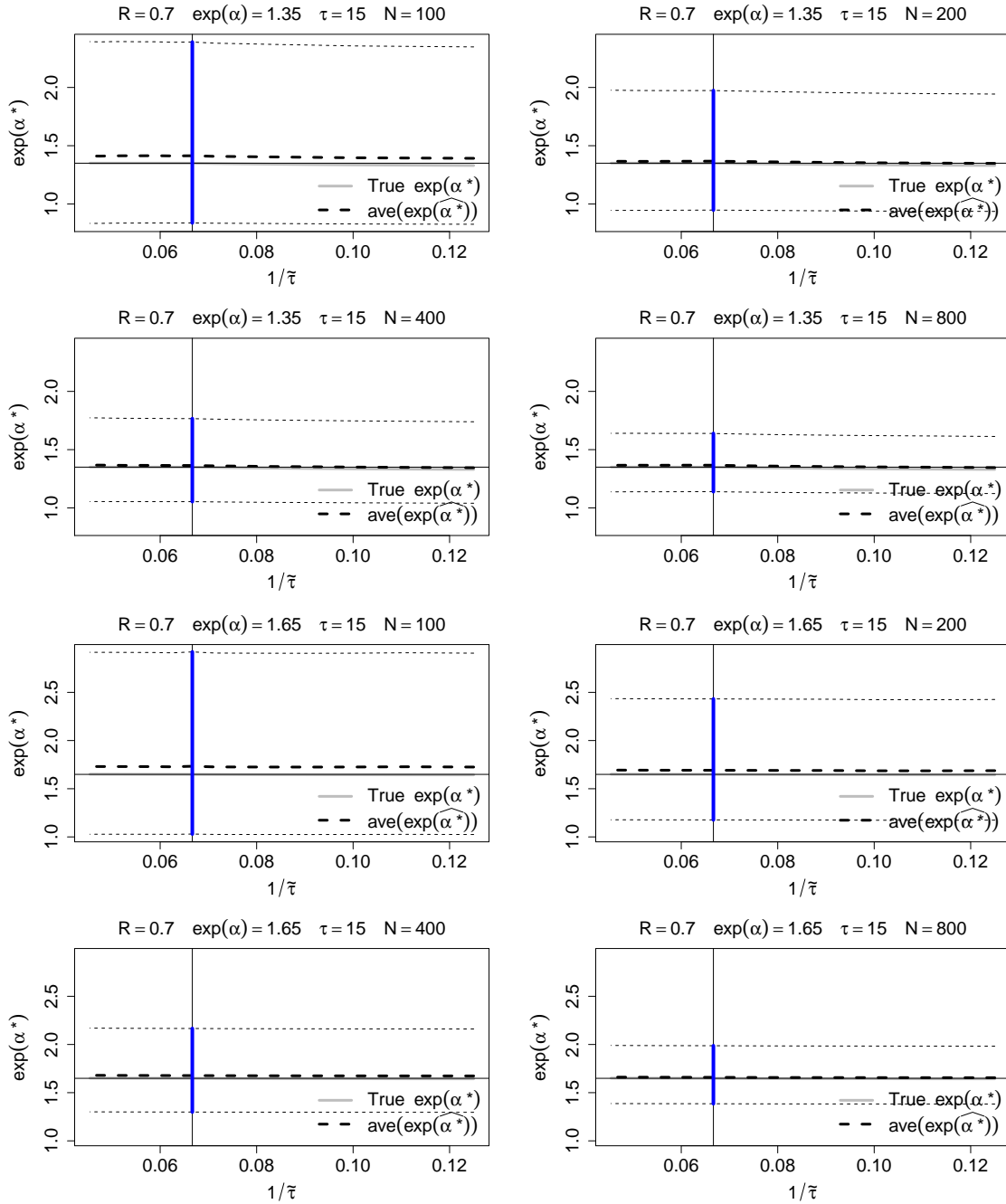


Figure 91: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

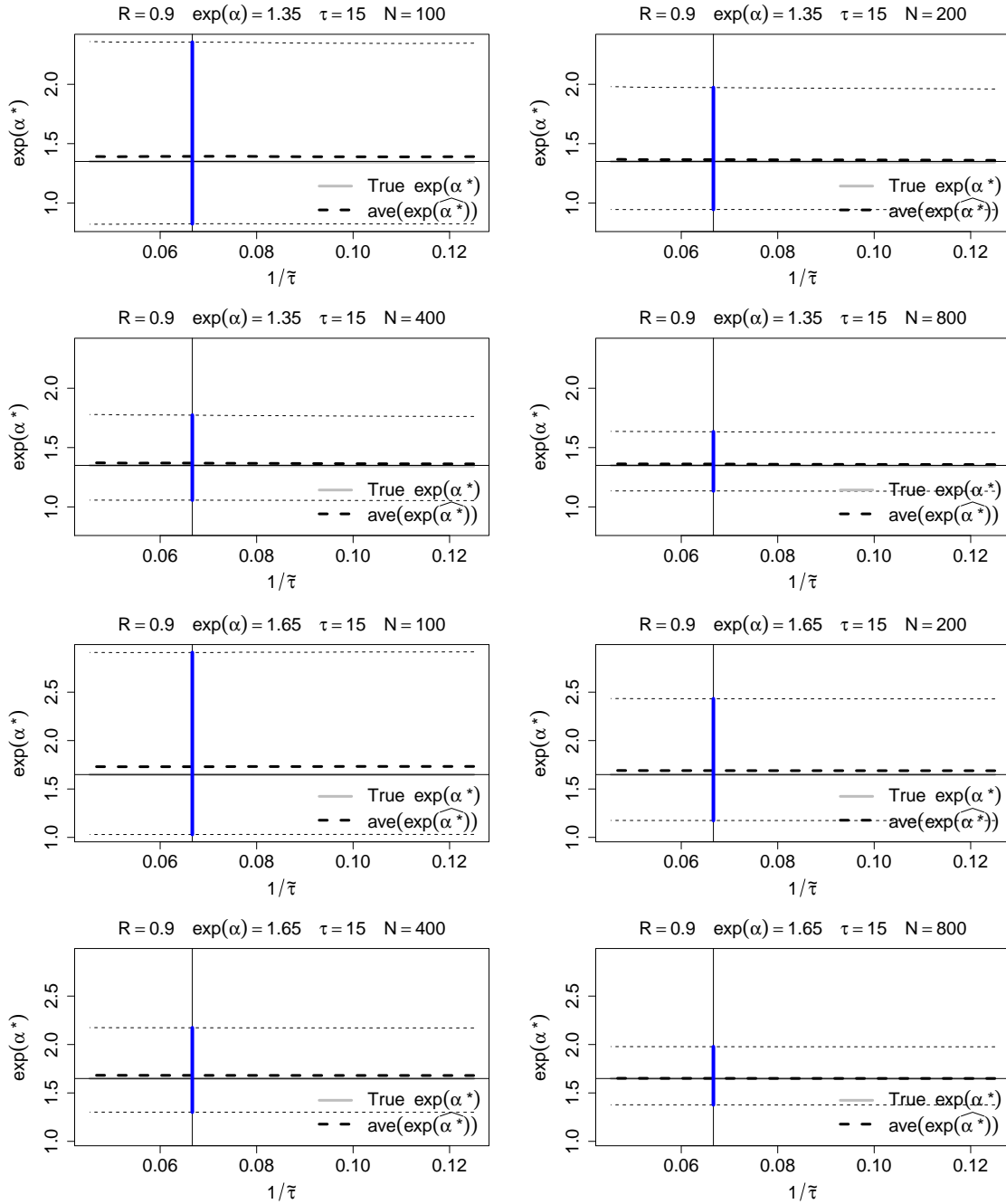


Figure 92: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

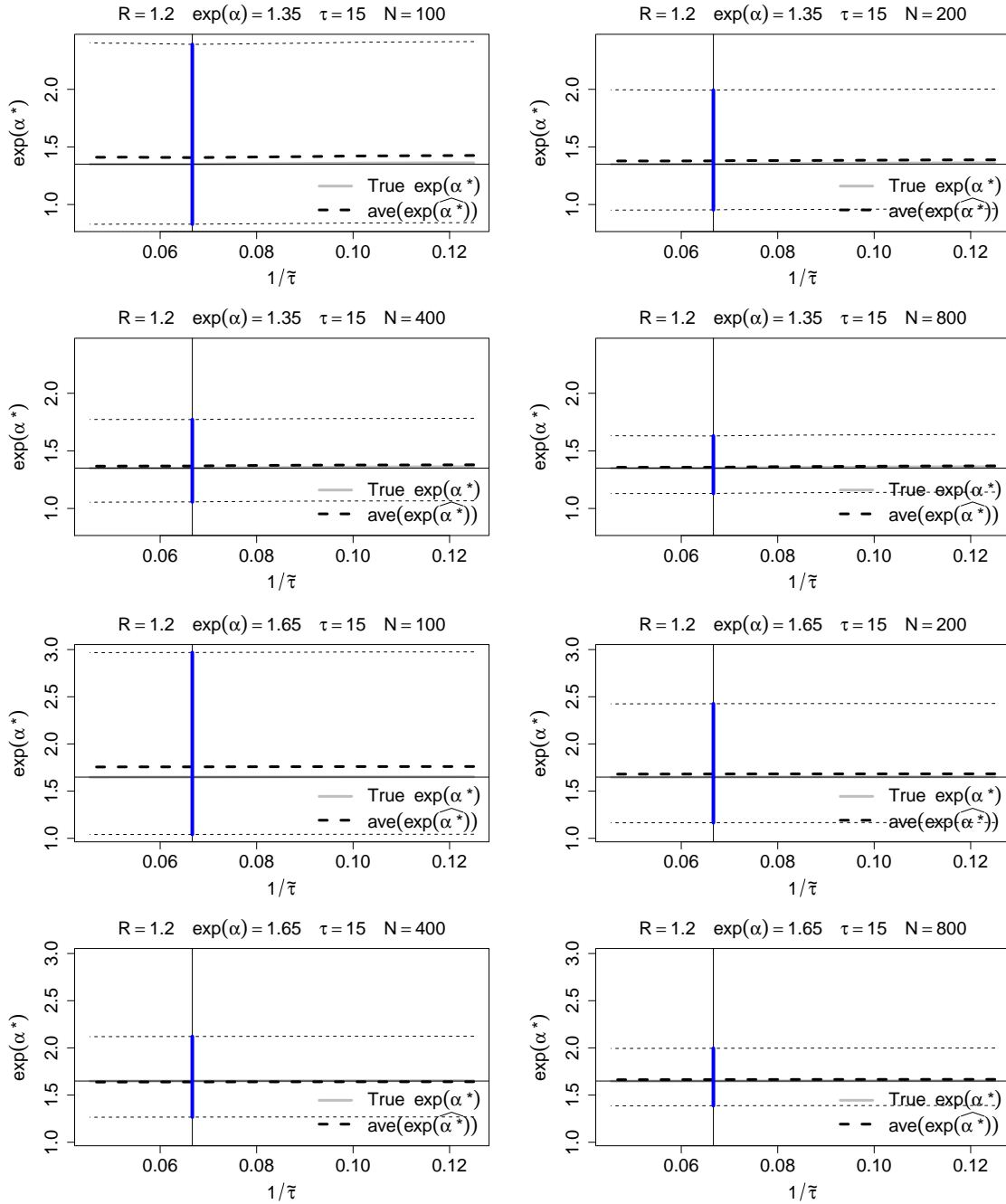


Figure 93: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

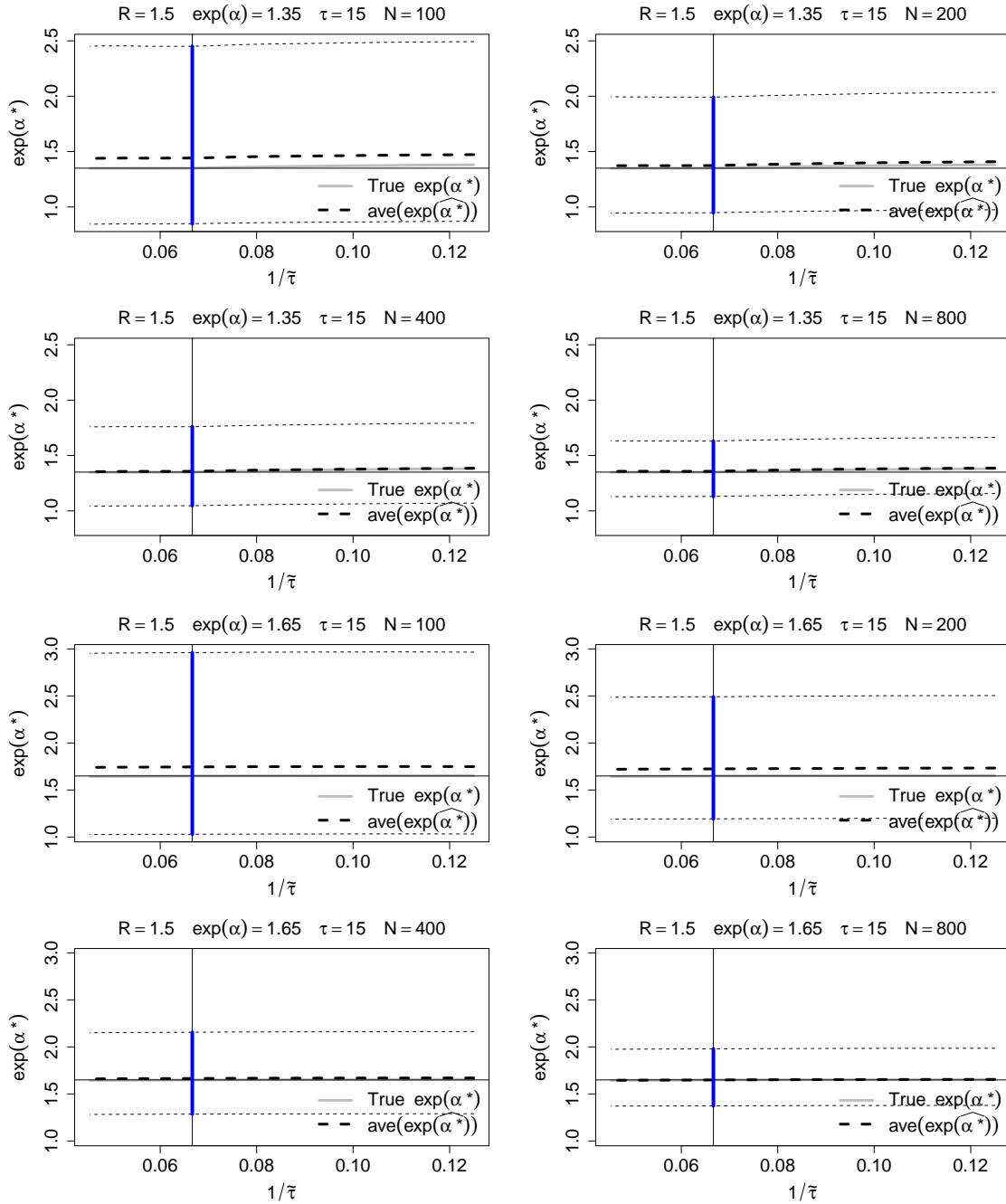


Figure 94: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

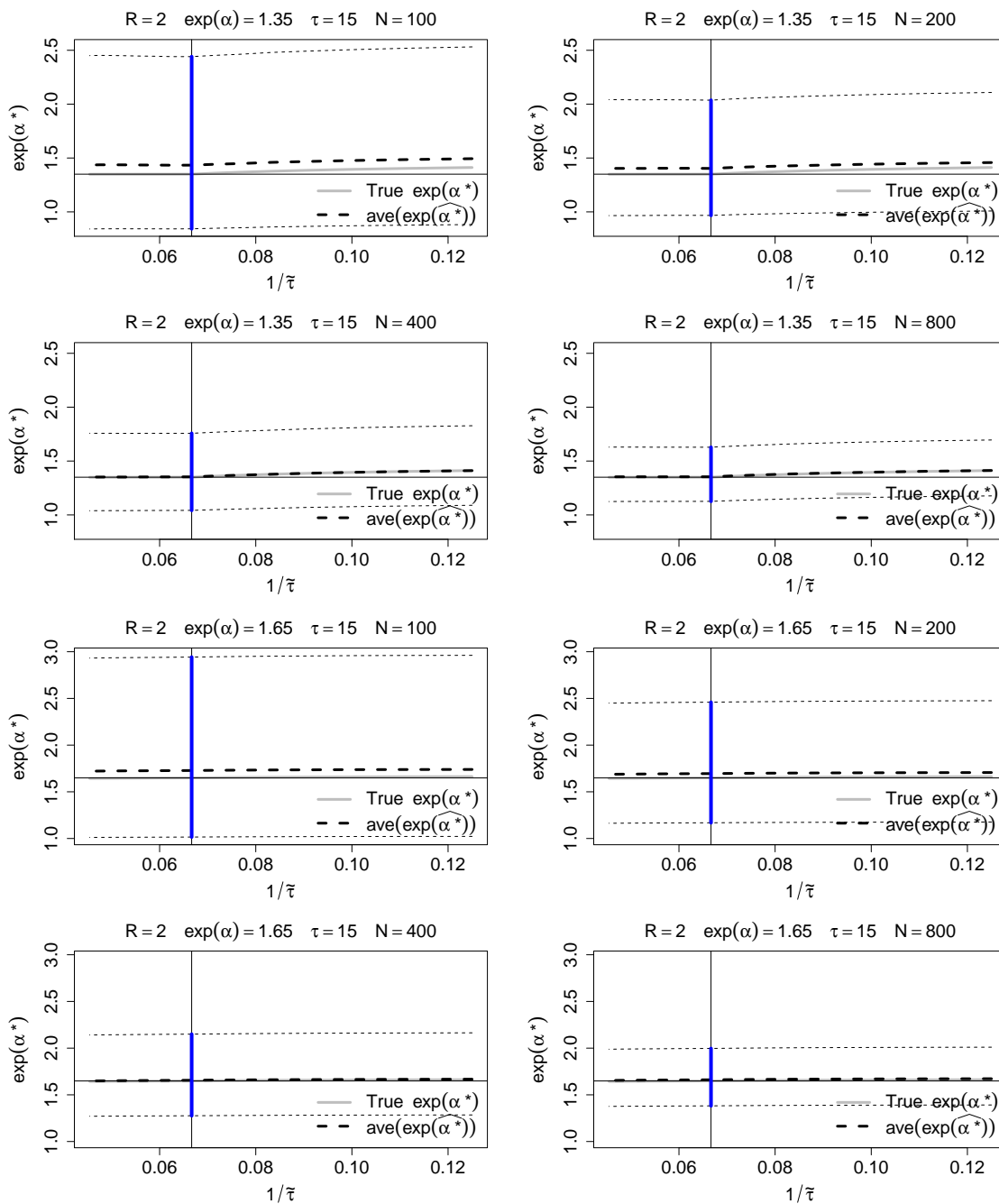


Figure 95: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

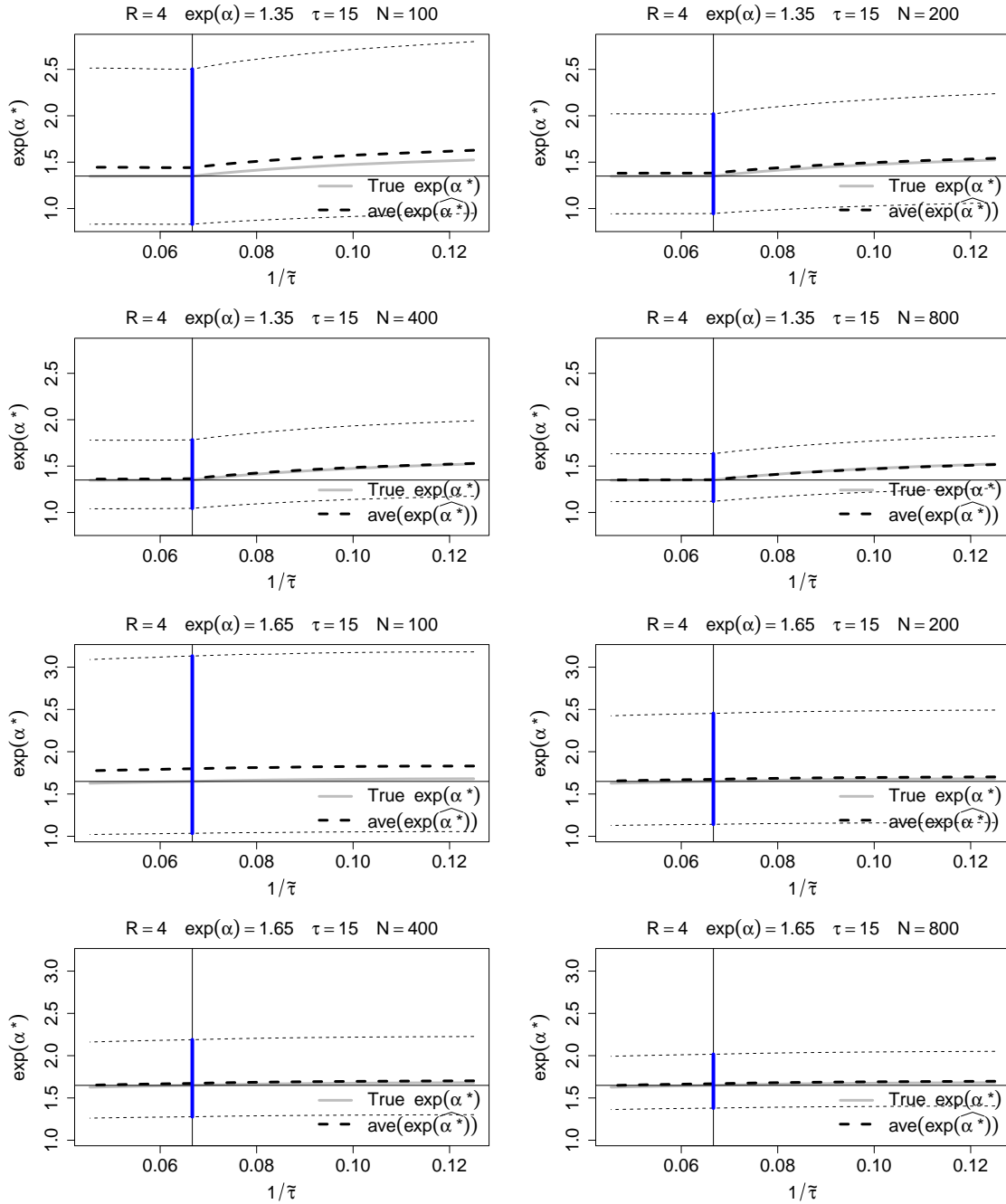


Figure 96: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 15$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

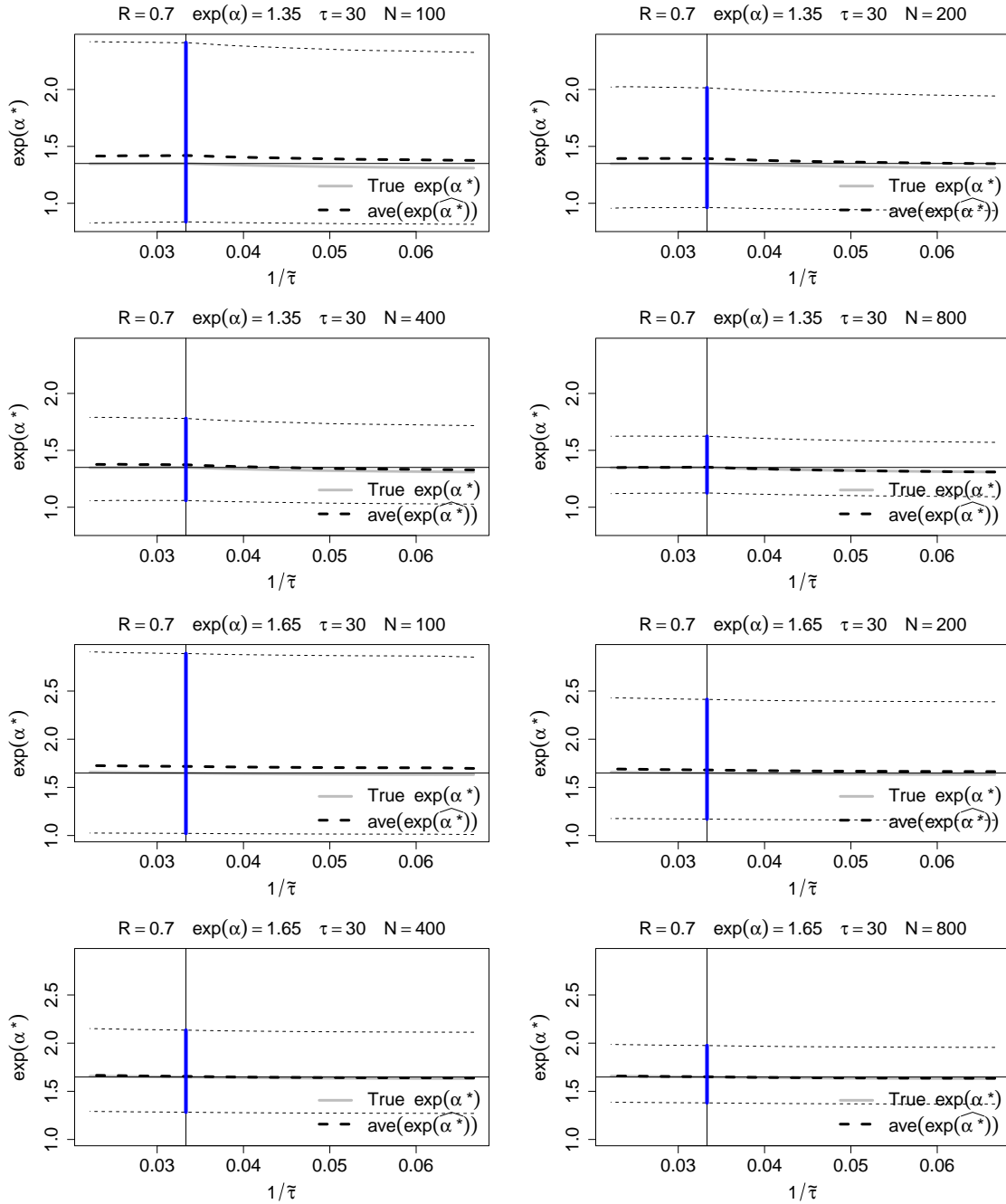


Figure 97: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

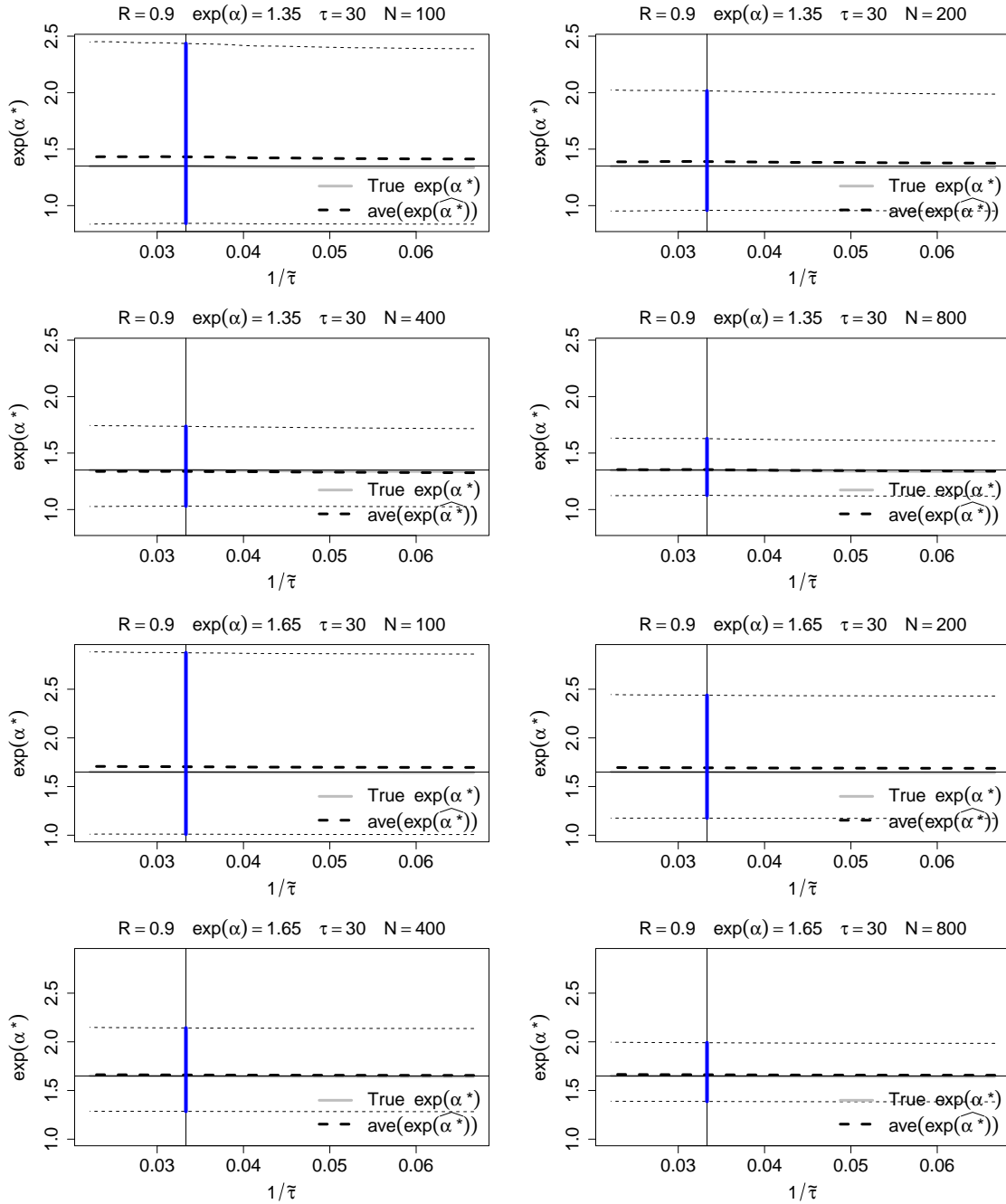


Figure 98: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

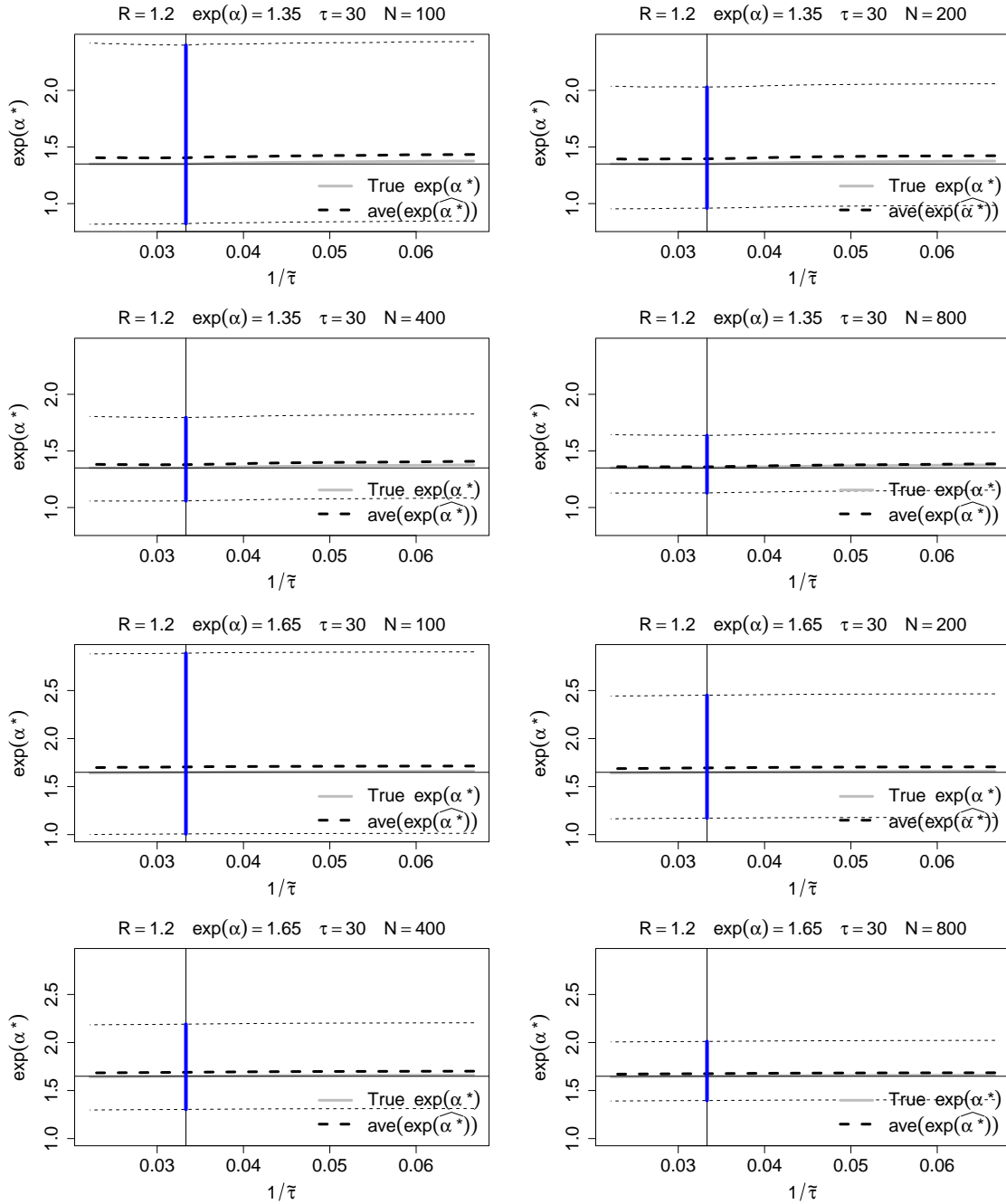


Figure 99: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

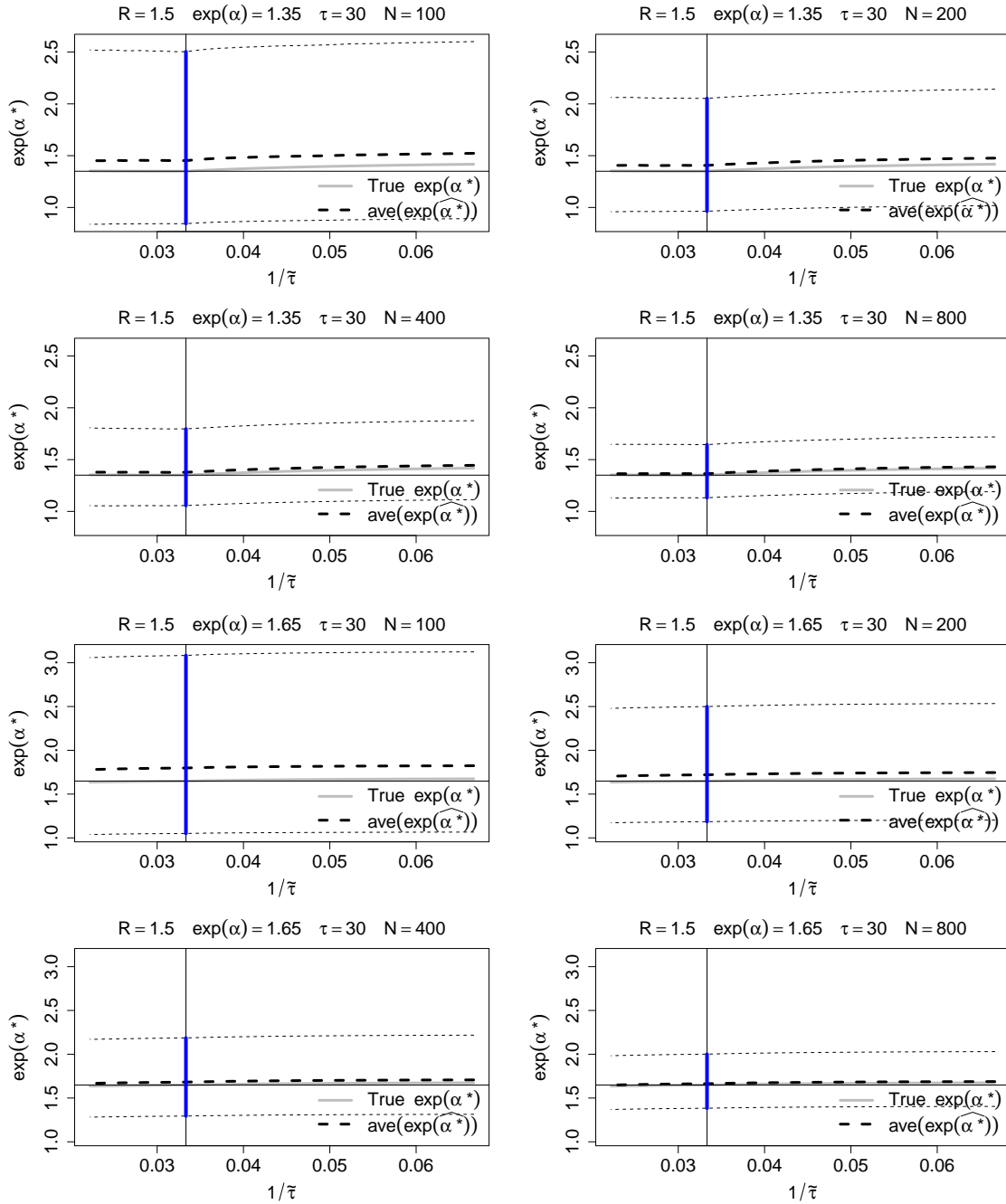


Figure 100: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

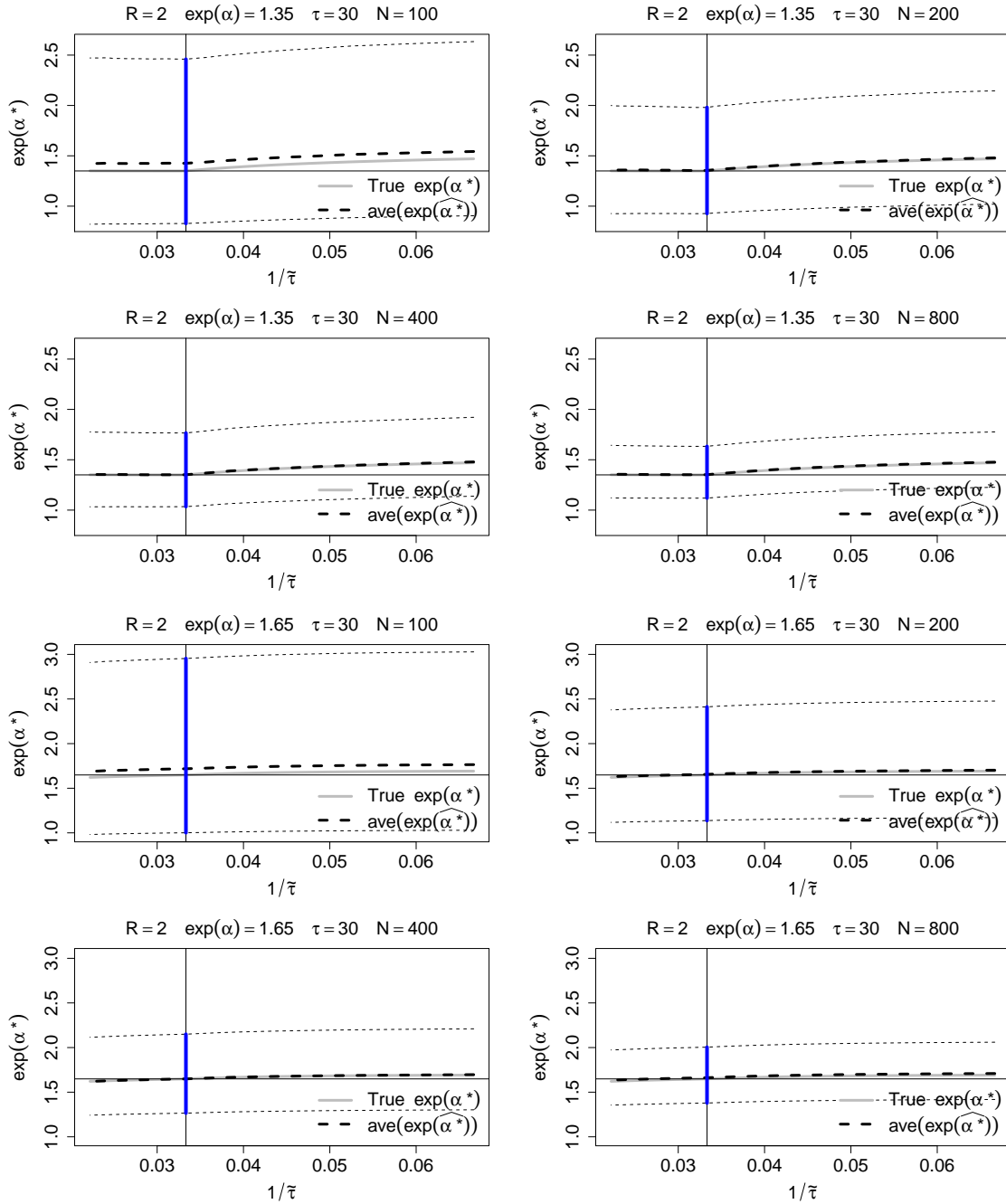


Figure 101: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

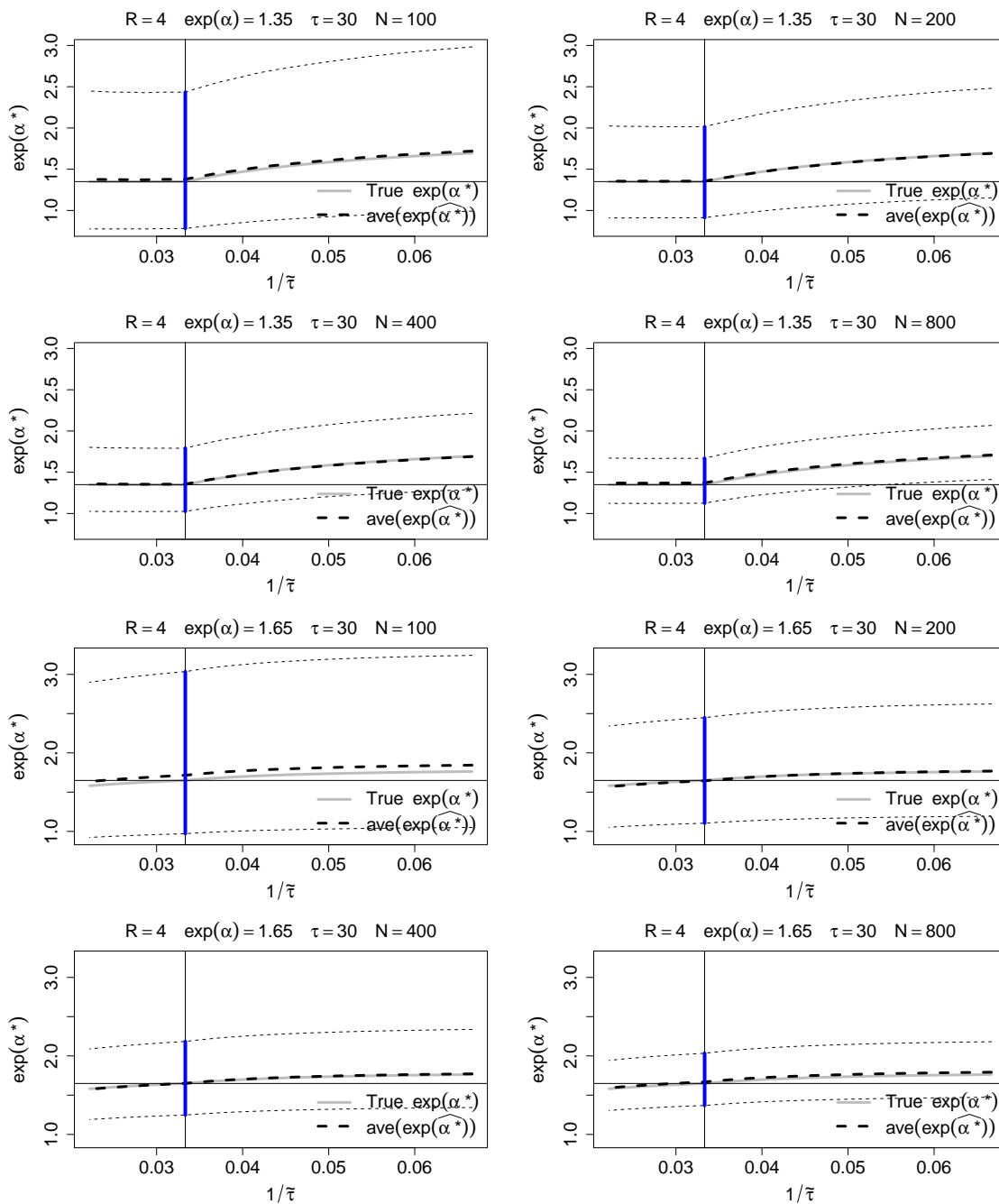


Figure 102: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 30$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

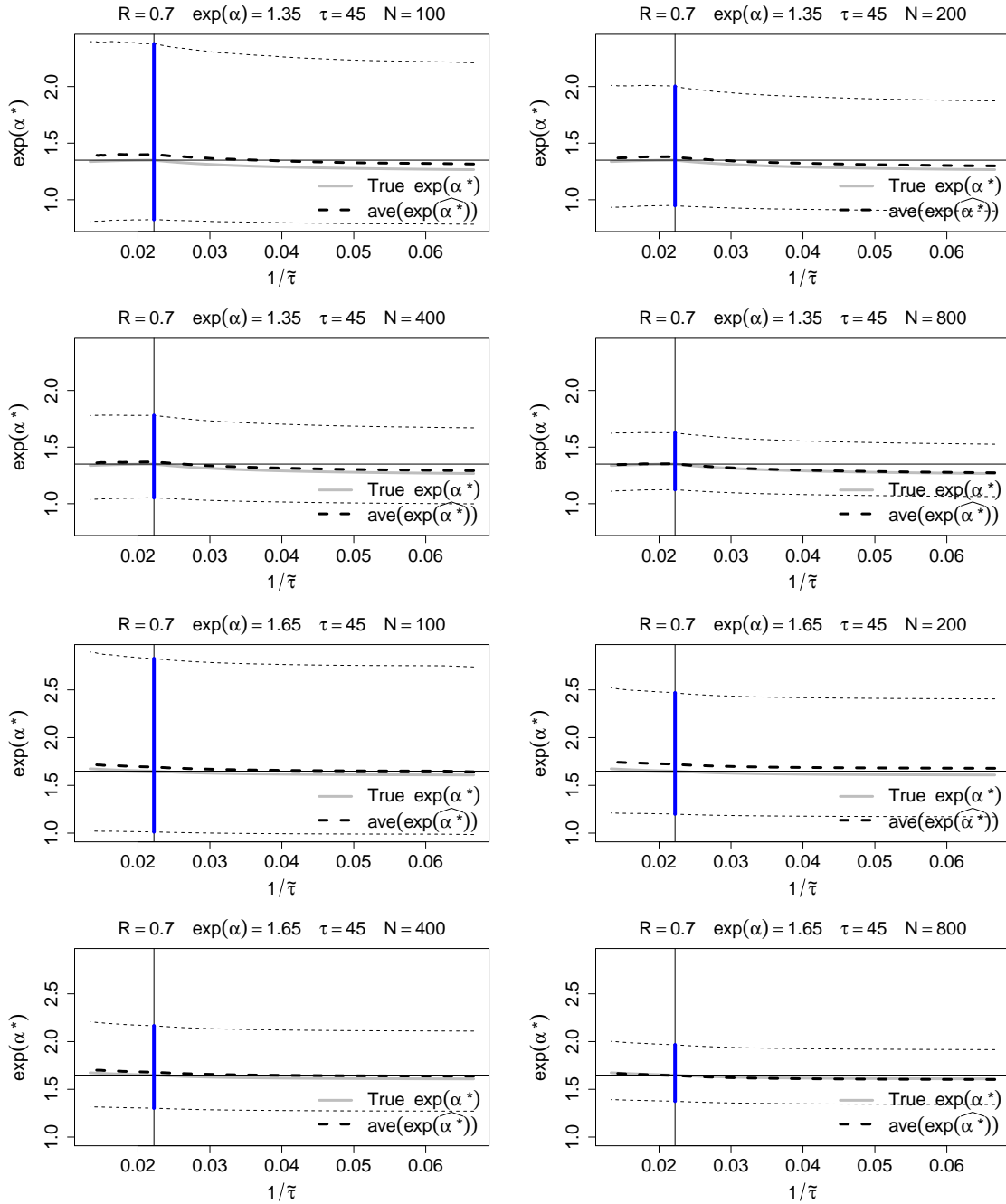


Figure 103: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

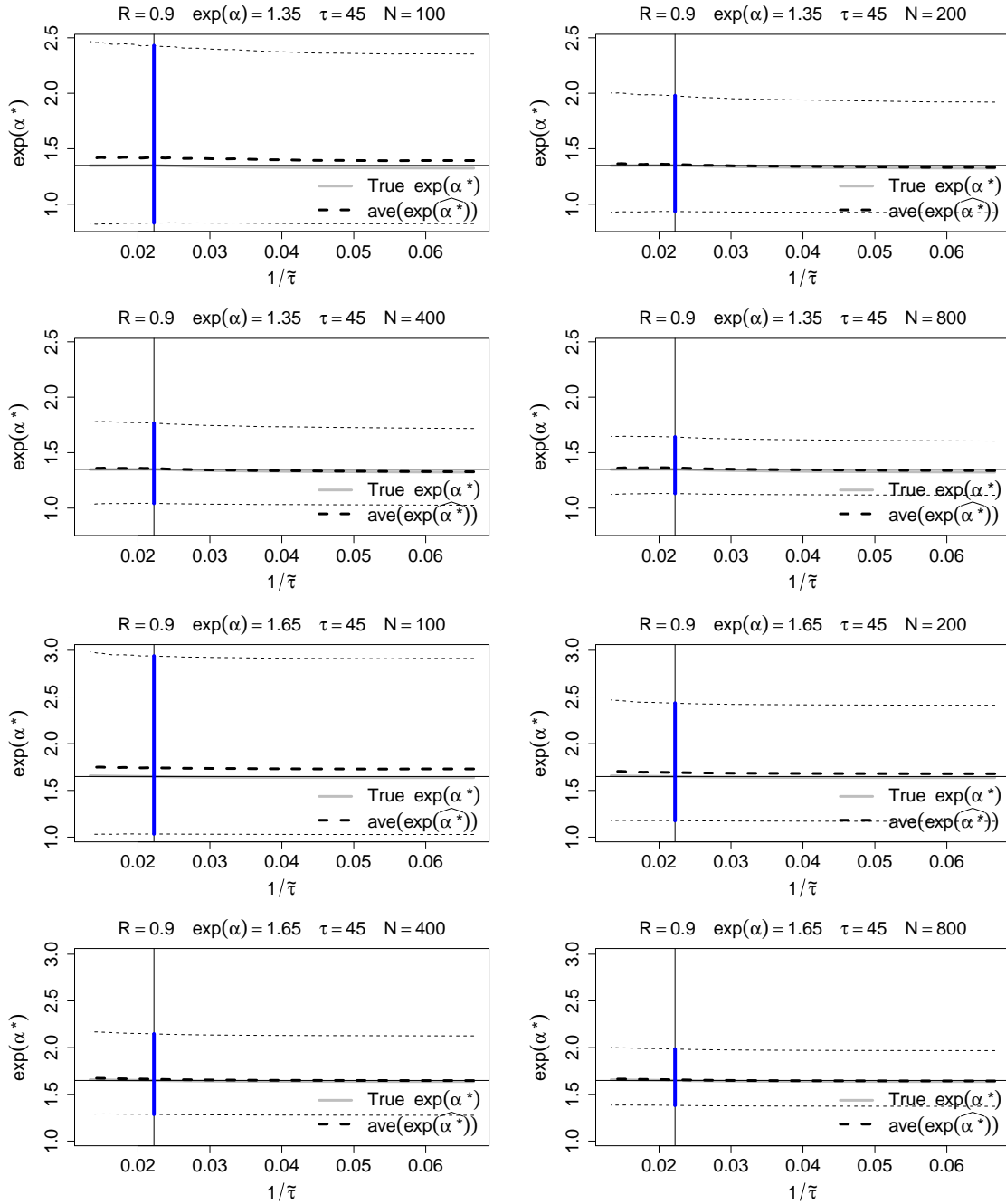


Figure 104: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

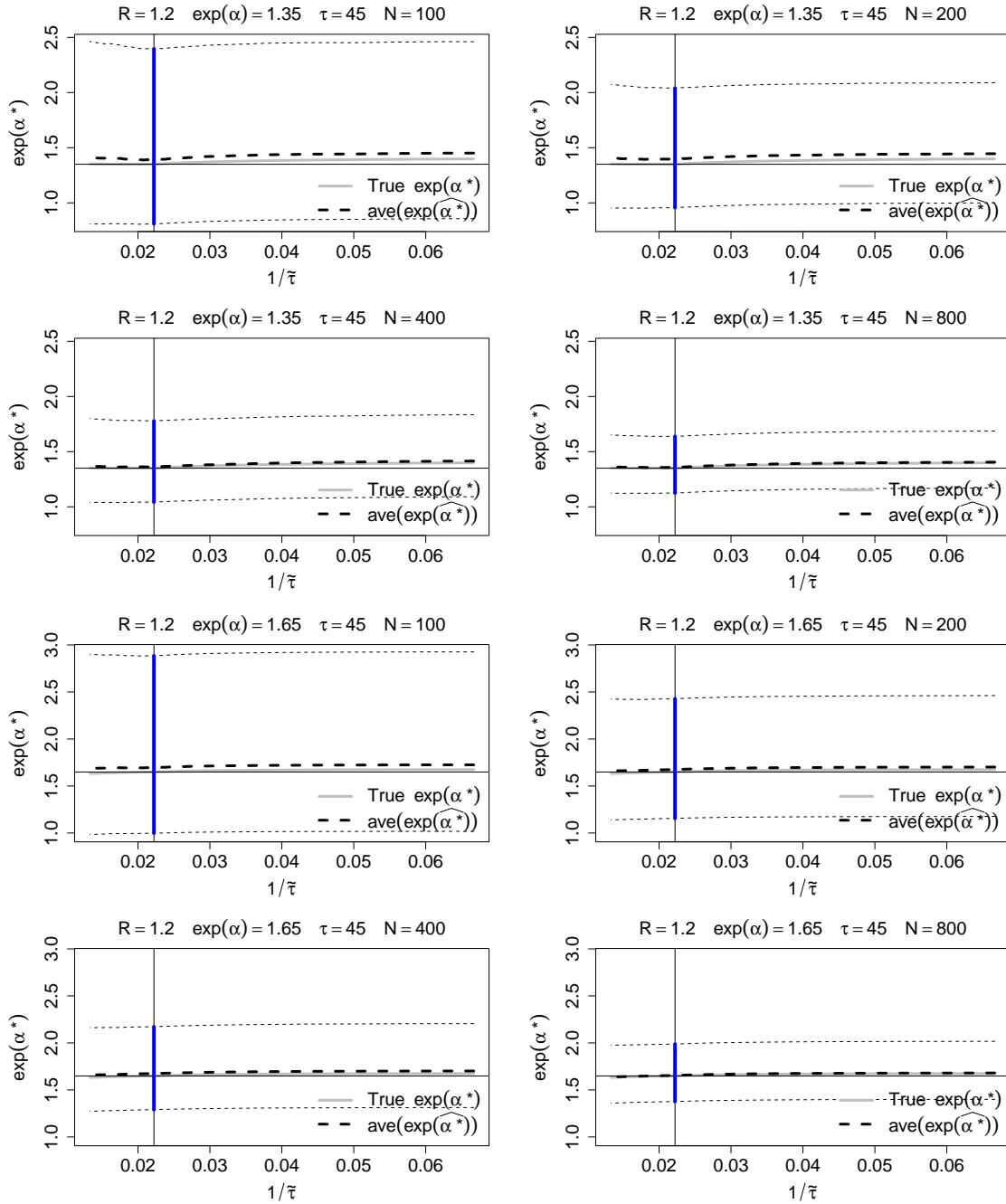


Figure 105: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

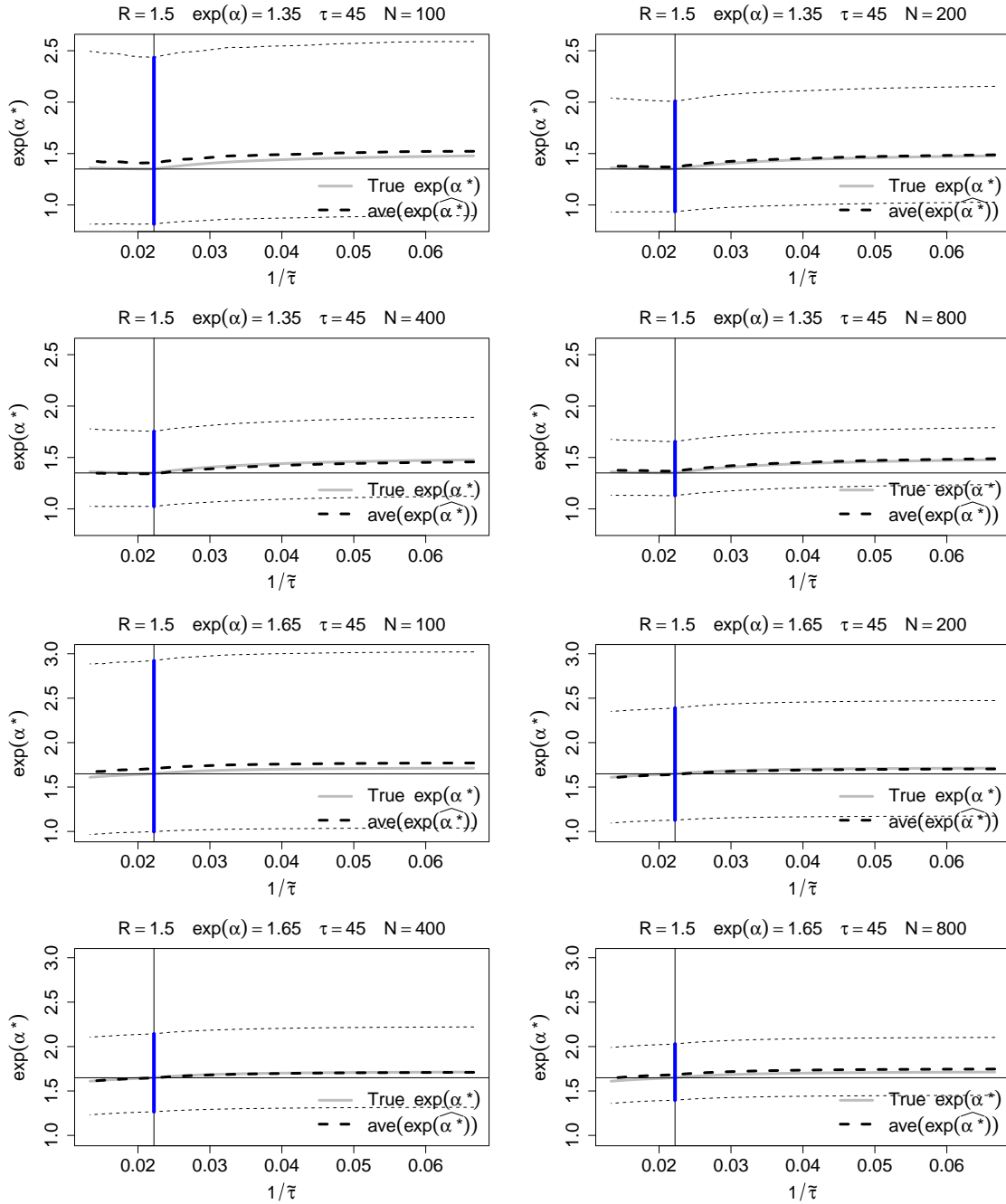


Figure 106: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

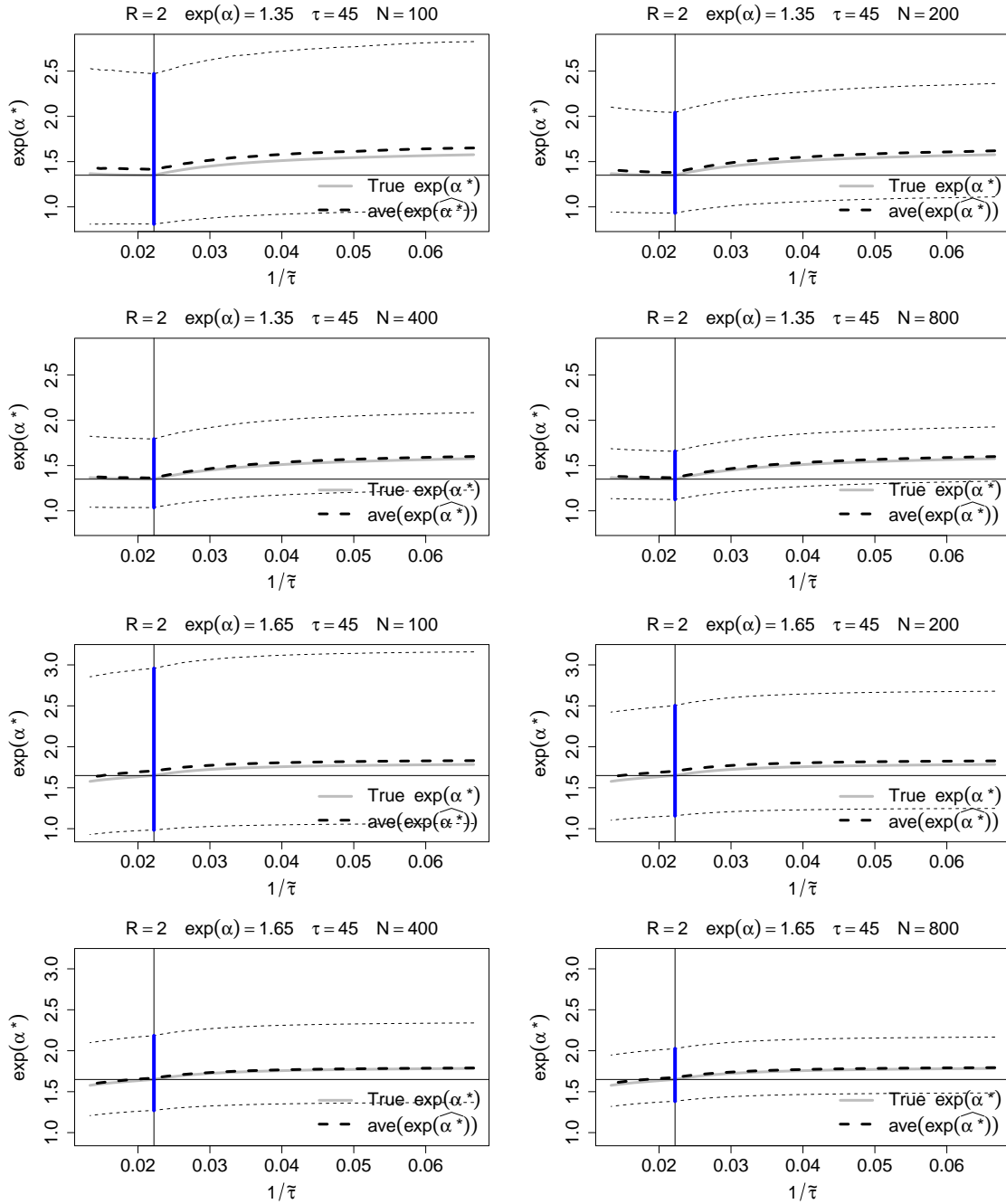


Figure 107: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.

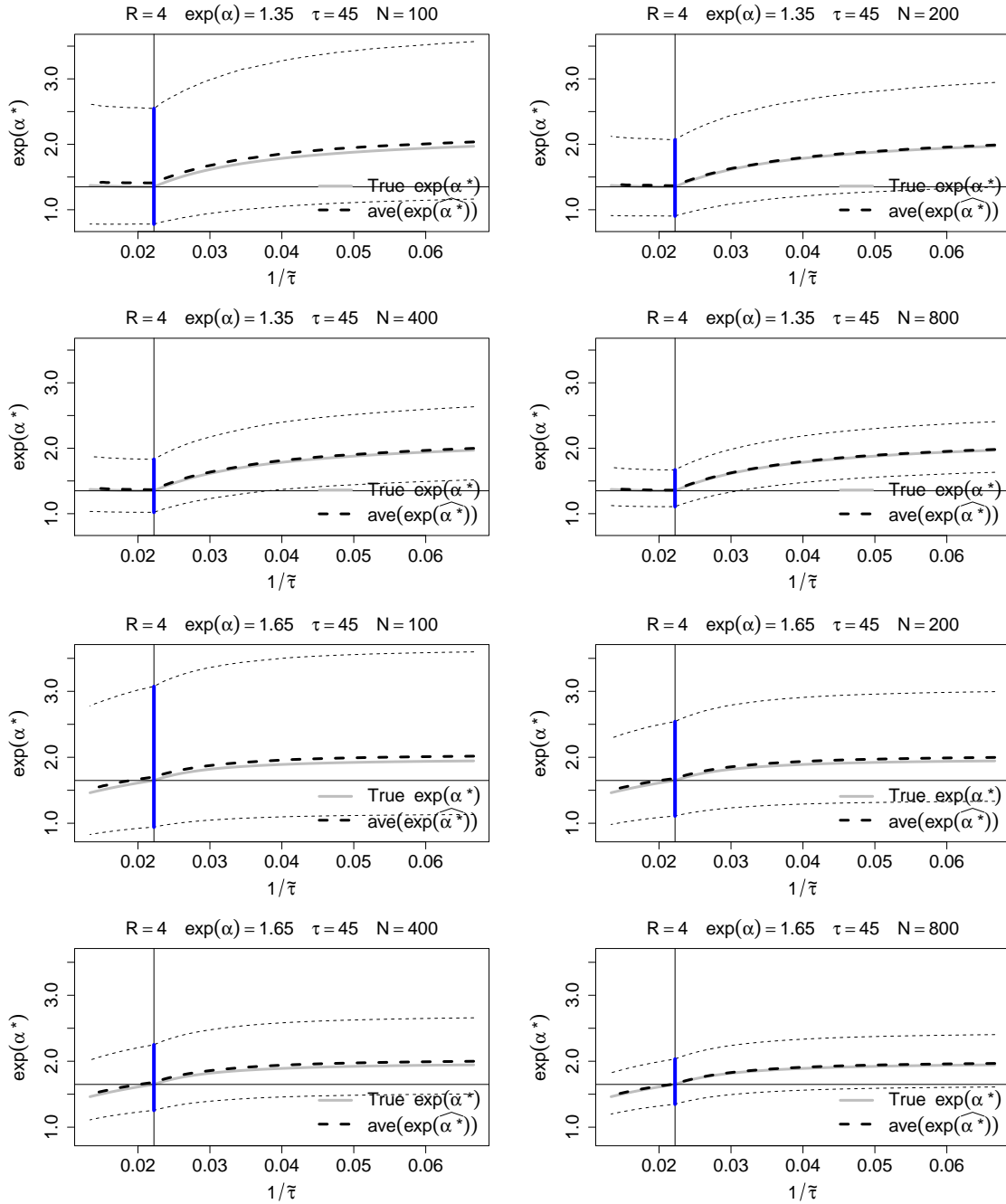


Figure 108: **Multiple Normally distributed exposures with two age effects.** Theoretical characterization of bias (solid gray) in the age effects estimate for varying (mis)specified risk period length, $\tilde{\tau}$. Dashed black curve denotes the naive SCCS estimate for a given risk period length along with 95% confidence interval; given are averages ($\text{ave}(\exp(\hat{\alpha}_j^*))$) over 200 simulated datasets. The true risk length is $\tau = 45$; $\exp(\alpha_1) = 1.35$ and $\exp(\alpha_2) = 1.65$ displayed in the top and bottom panels, respectively.