
**Multivariate augmented unit-gamma
mixed regression models for correlated
continuous bounded outcomes**

Supplementary Material

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Web Appendix A

The additional results from simulation studies presented in Section 4 is presented here, considering five repeated measures. We present simulation studies for unit-gamma mixed regression models: (i) zero augmented; (ii) one augmented; and (iii) zero-and-one augmented.

Zero augmented unit-gamma mixed regression model

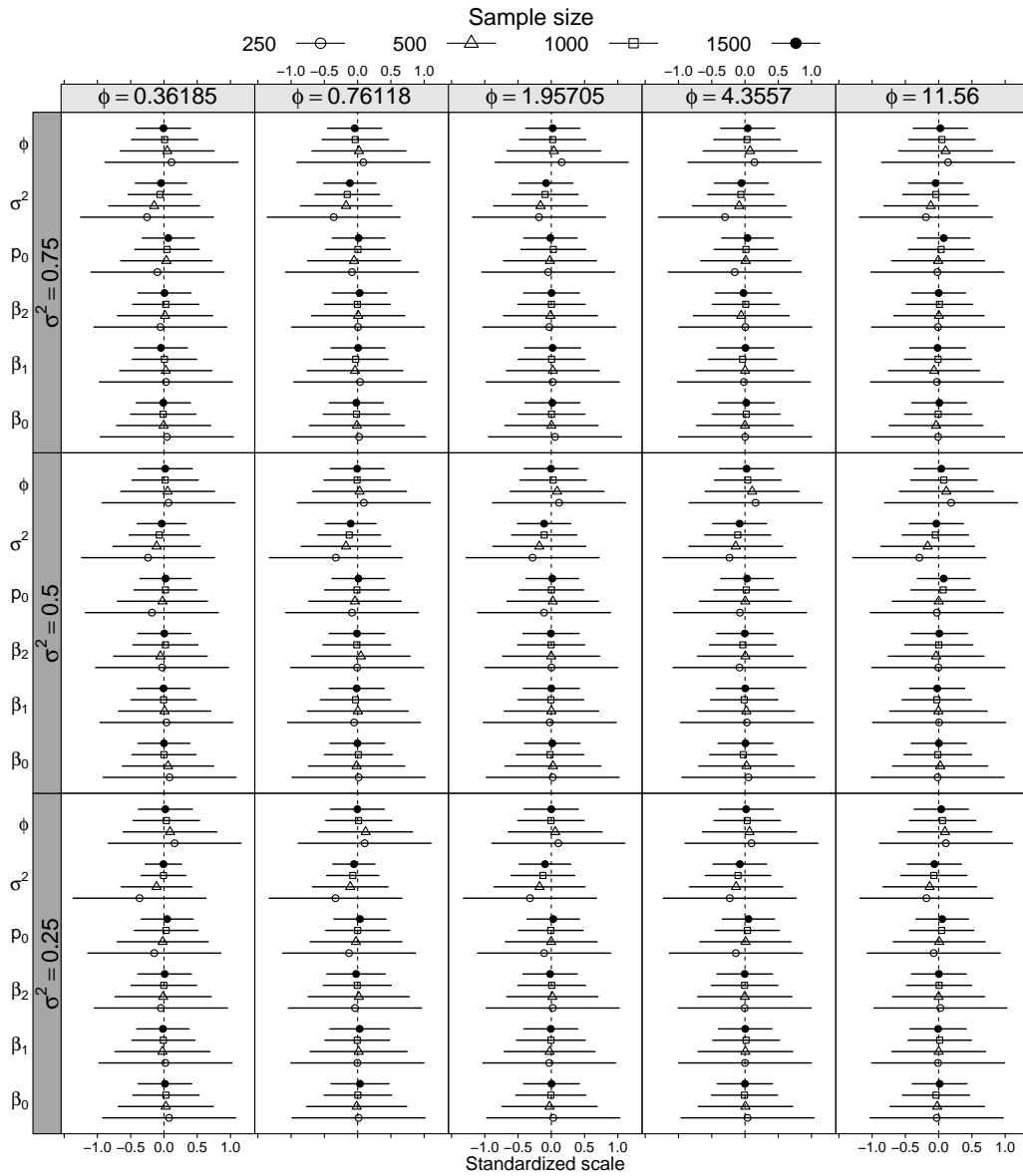


Figure 1: Average bias and confidence intervals on a standardized scale by sample size and simulation scenarios.

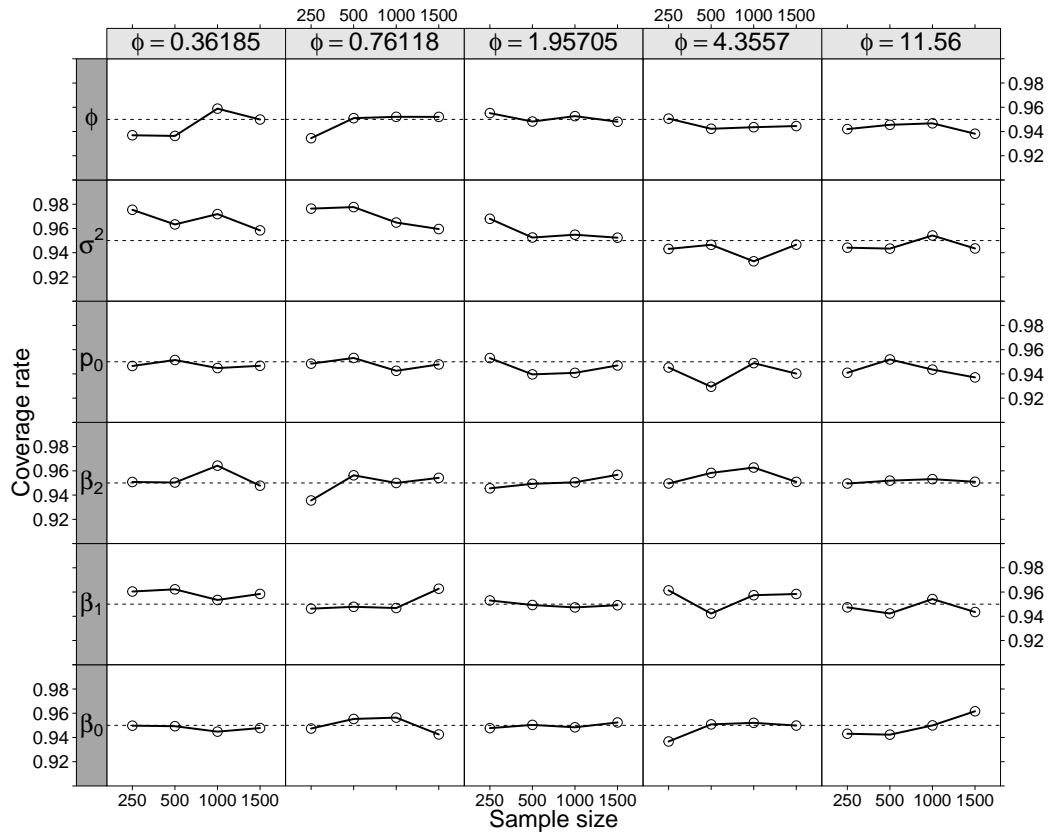


Figure 2: Coverage rate for each parameter by sample size and simulation scenarios with σ^2 fixed at 0.25.

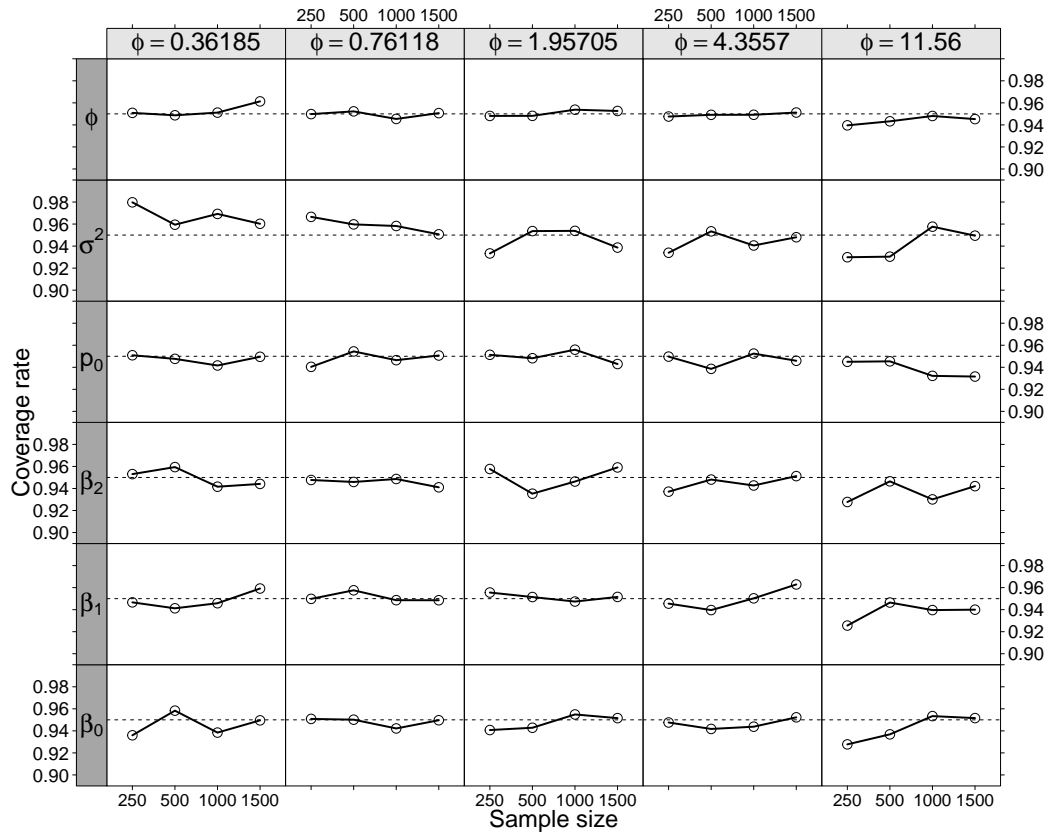


Figure 3: Coverage rate for each parameter by sample size and simulation scenarios with σ^2 fixed at 0.5.

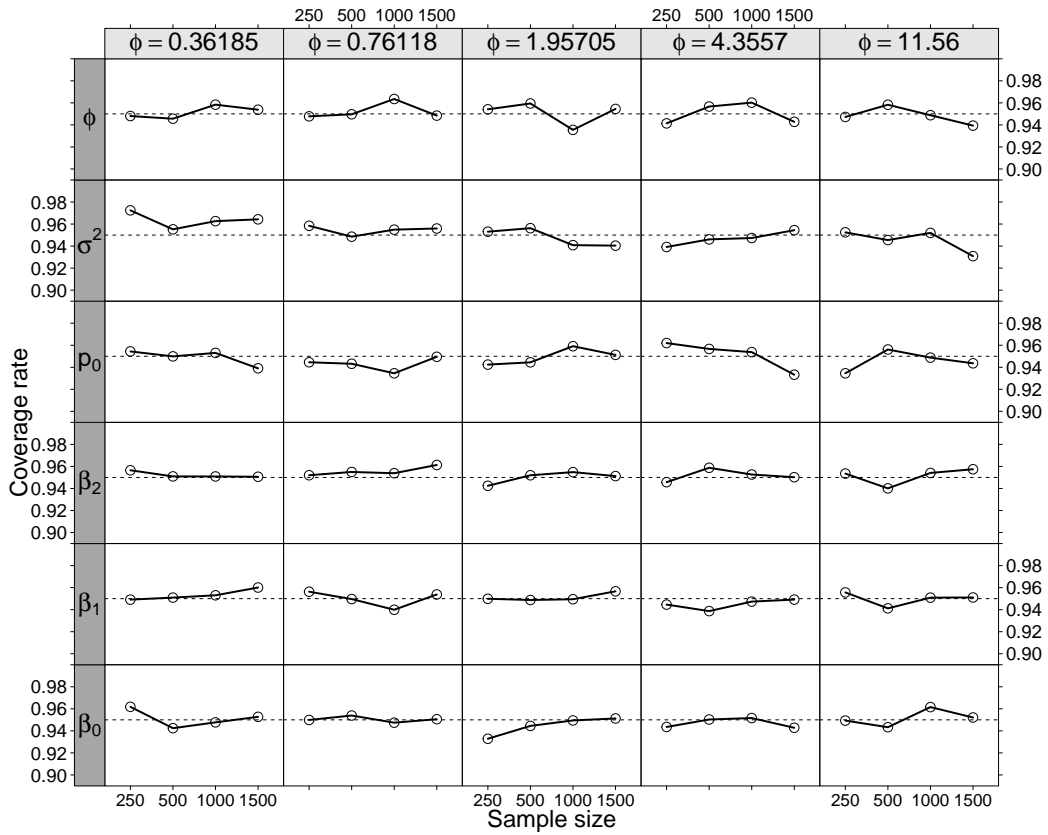


Figure 4: Coverage rate for each parameter by sample size and simulation scenarios with σ^2 fixed at 0.75.

One augmented unit-gamma mixed regression model

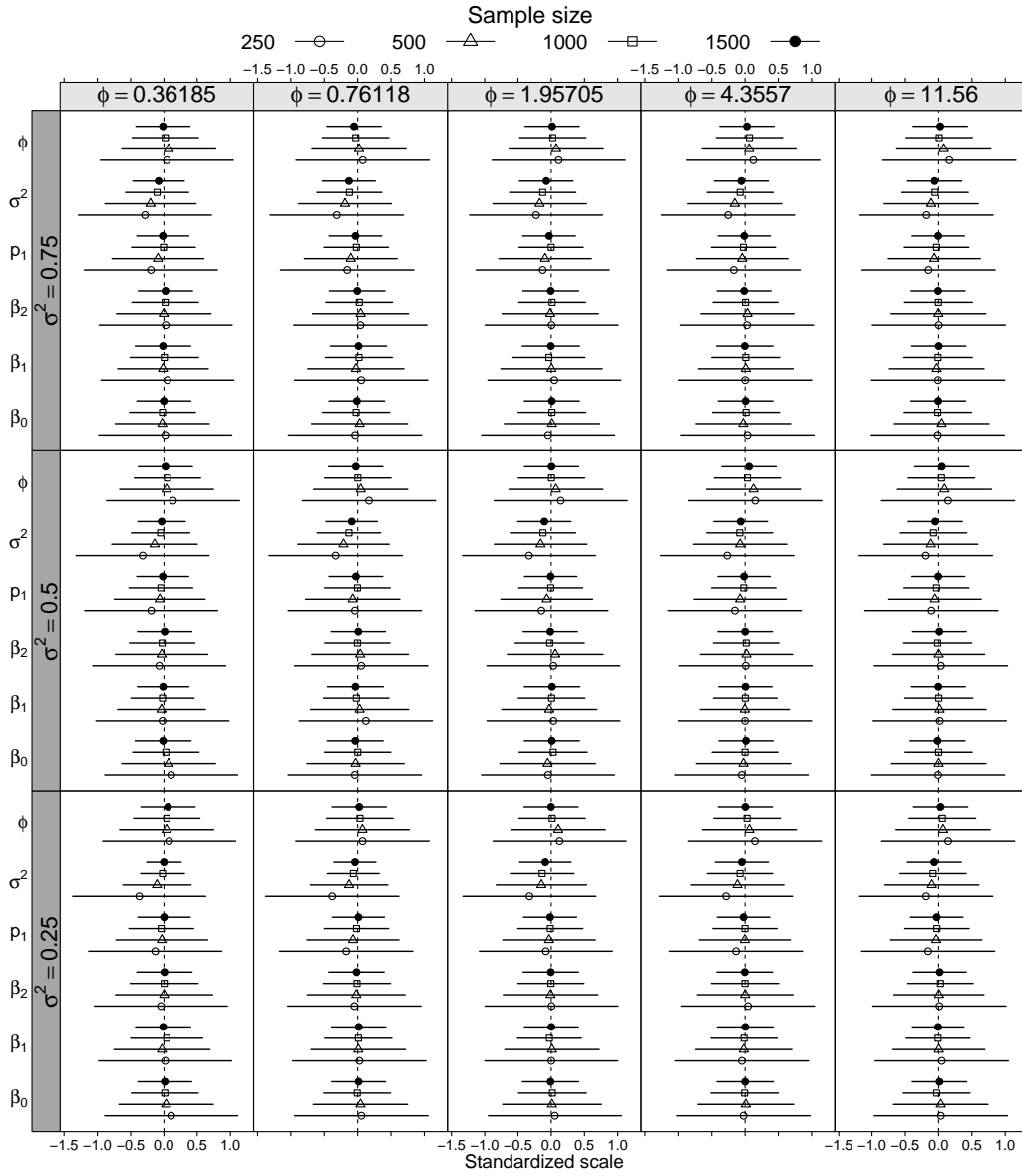


Figure 5: Average bias and confidence intervals on a standardized scale by sample size and simulation scenarios.

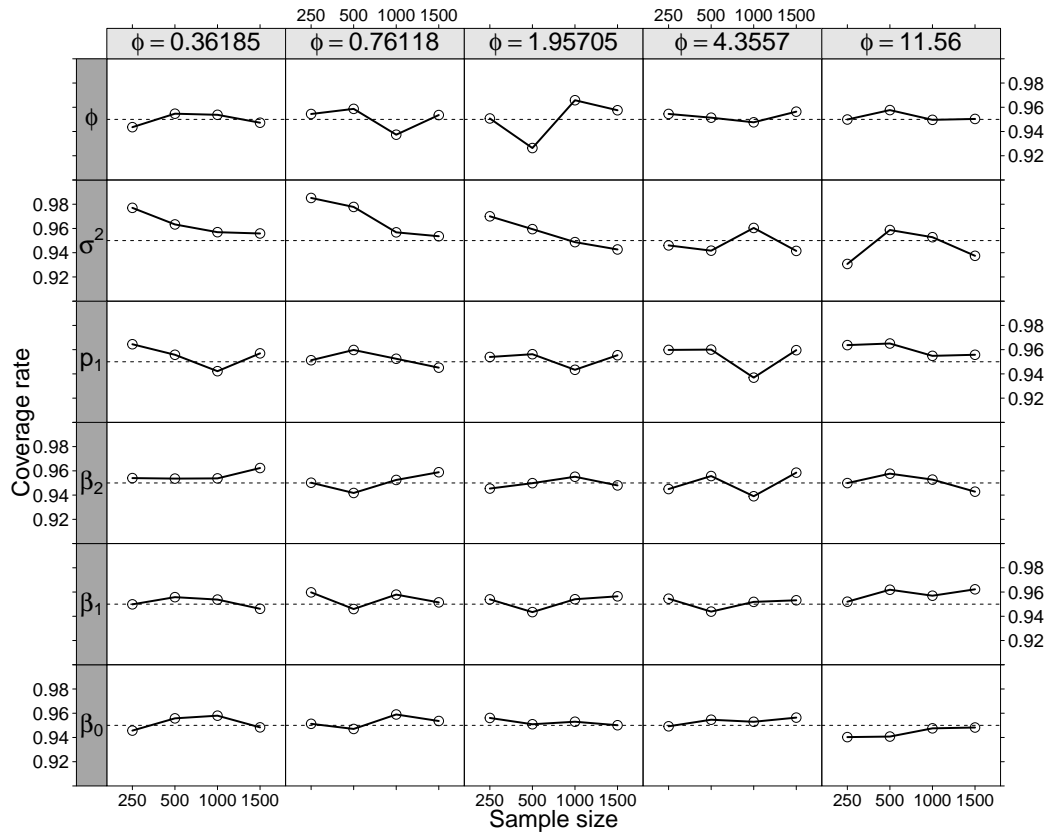


Figure 6: Coverage rate for each parameter by sample size and simulation scenarios with σ^2 fixed at 0.25.

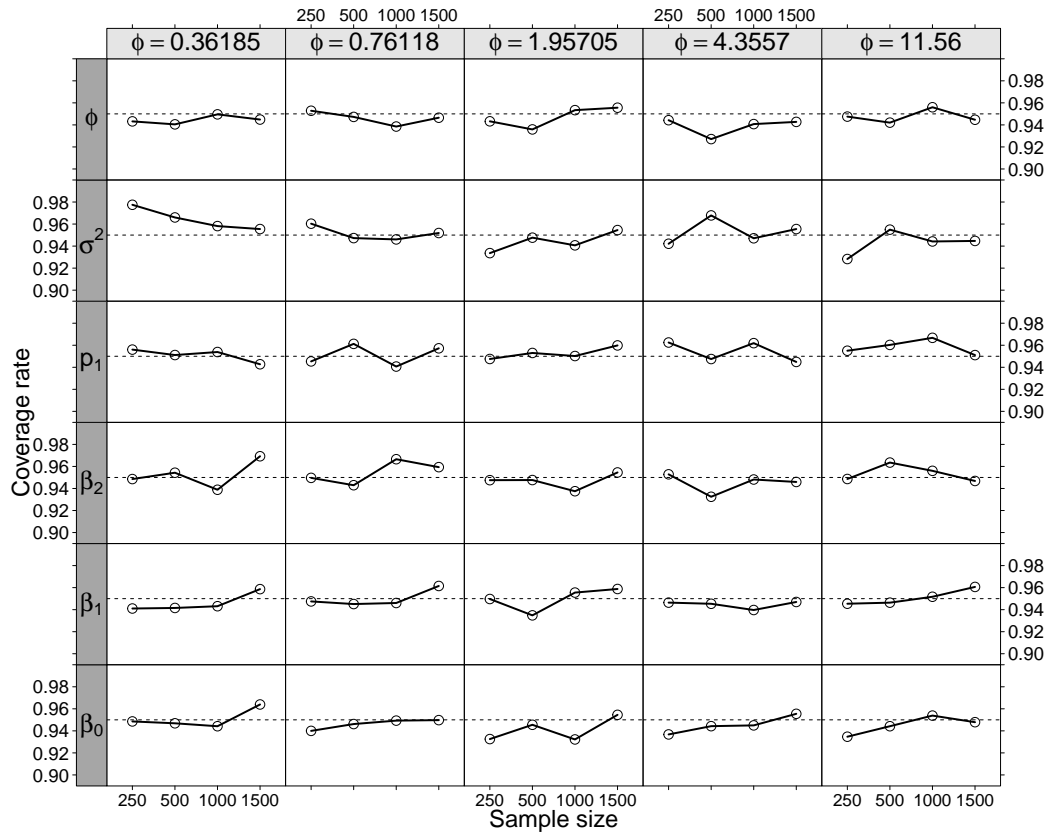


Figure 7: Coverage rate for each parameter by sample size and simulation scenarios with σ^2 fixed at 0.5.

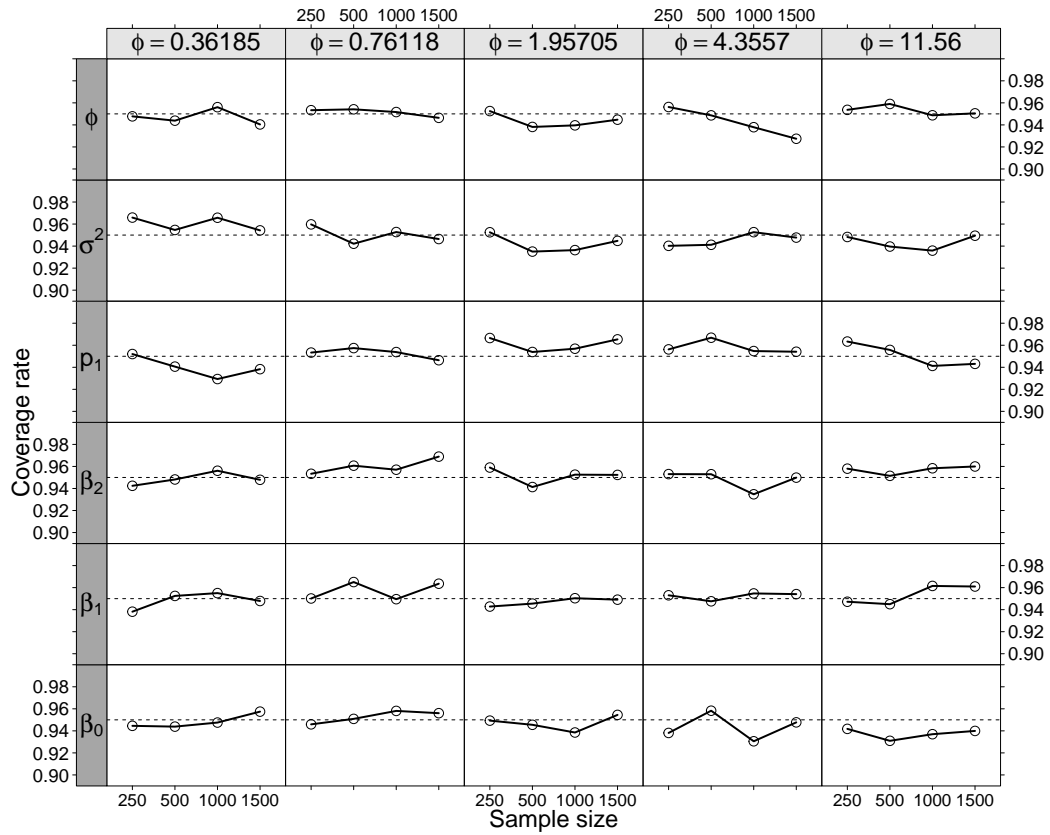


Figure 8: Coverage rate for each parameter by sample size and simulation scenarios with σ^2 fixed at 0.75.

Zero-and-one augmented unit-gamma mixed regression model

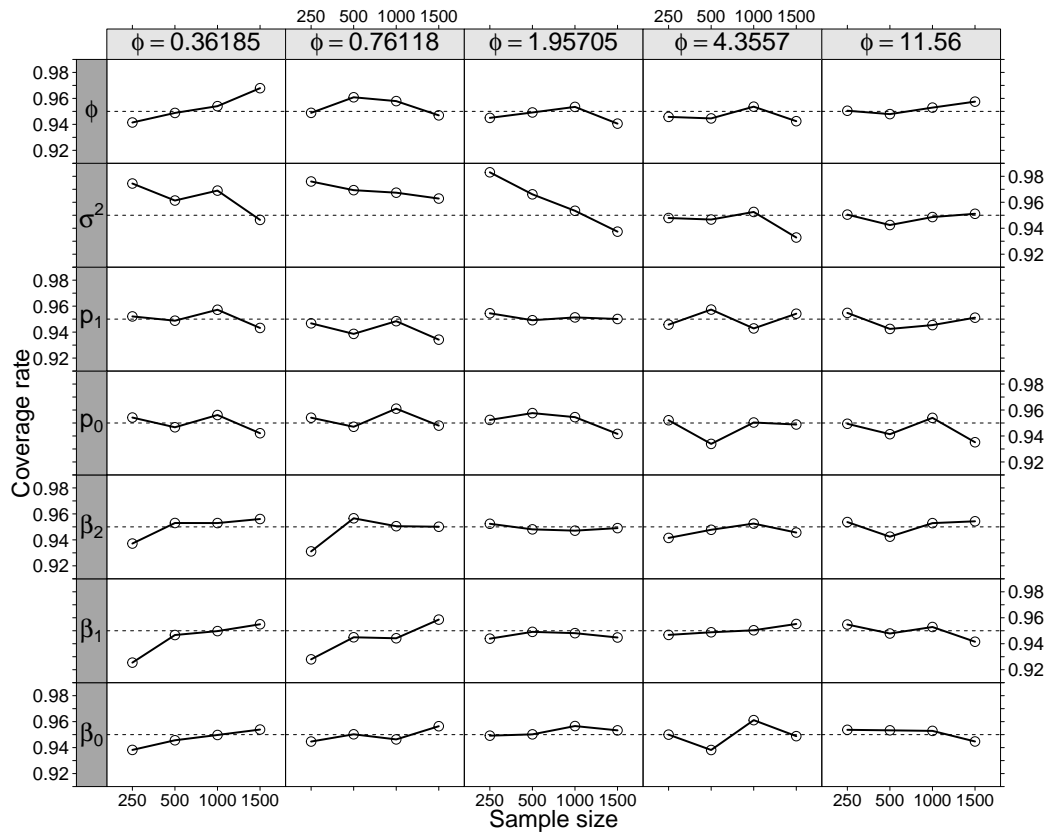


Figure 9: Coverage rate for each parameter by sample size and simulation scenarios with σ^2 fixed at 0.25.

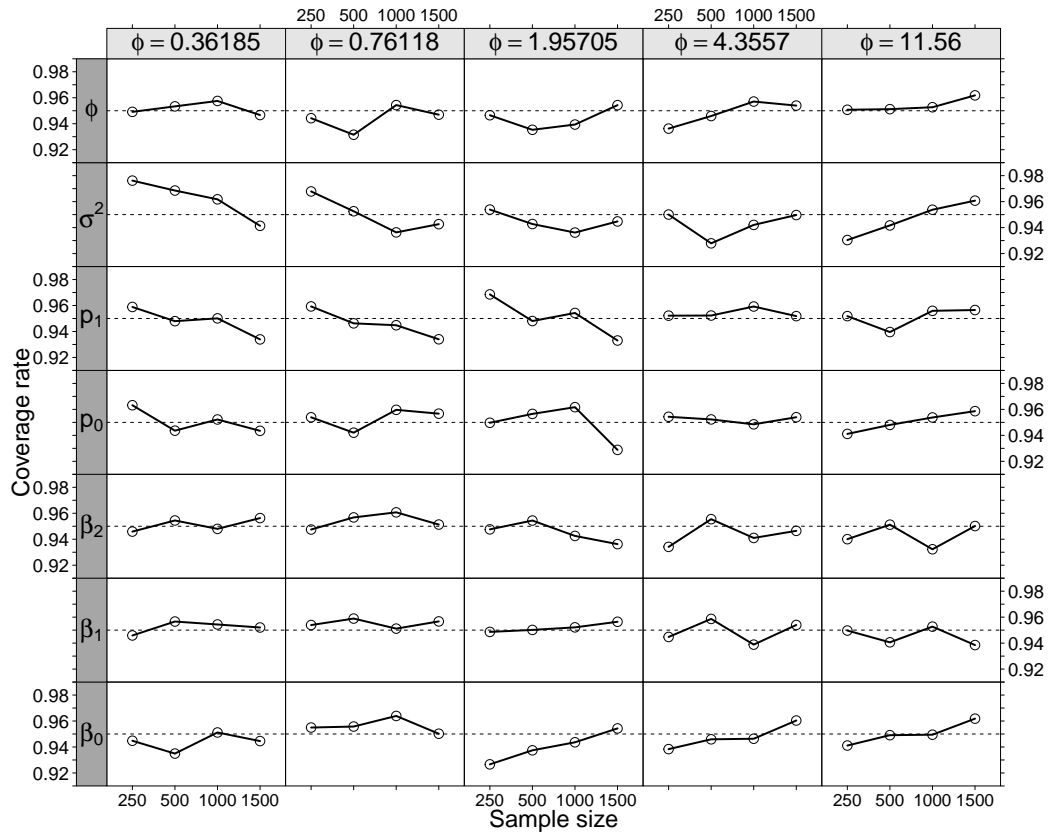


Figure 10: Coverage rate for each parameter by sample size and simulation scenarios with σ^2 fixed at 0.75.

Web Appendix B

In this Appendix, we repeat the simulation studies presented in Section 4 and in Web appendix A, where we consider 15 repeated measures varying the number of subjects $N = 10, 20, 40, 80$ resulting in a sample size of 150, 300, 600 and 1200, respectively.

Zero augmented unit-gamma mixed regression model

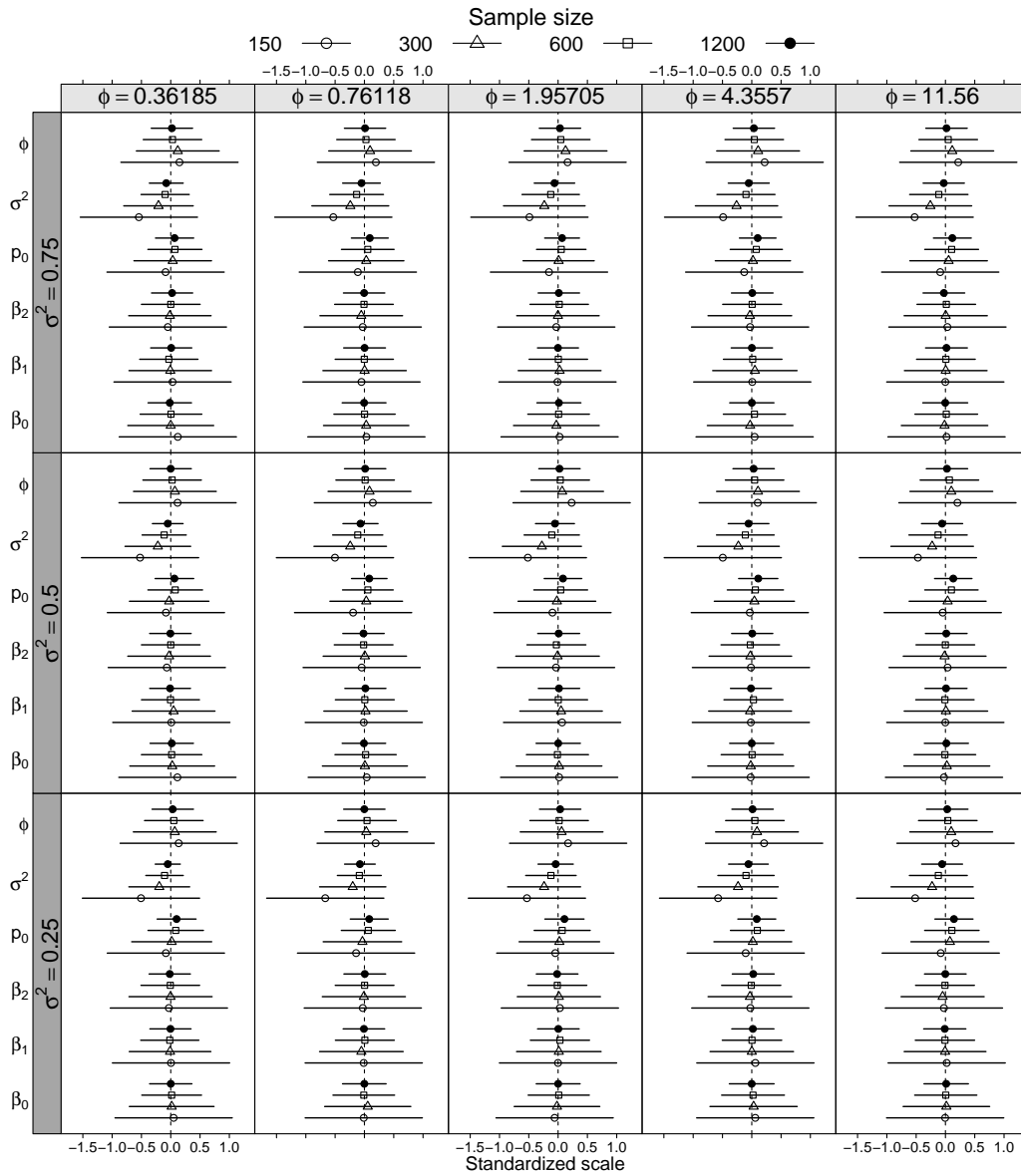


Figure 11: Average bias and confidence intervals on a standardized scale by sample size and simulation scenarios.

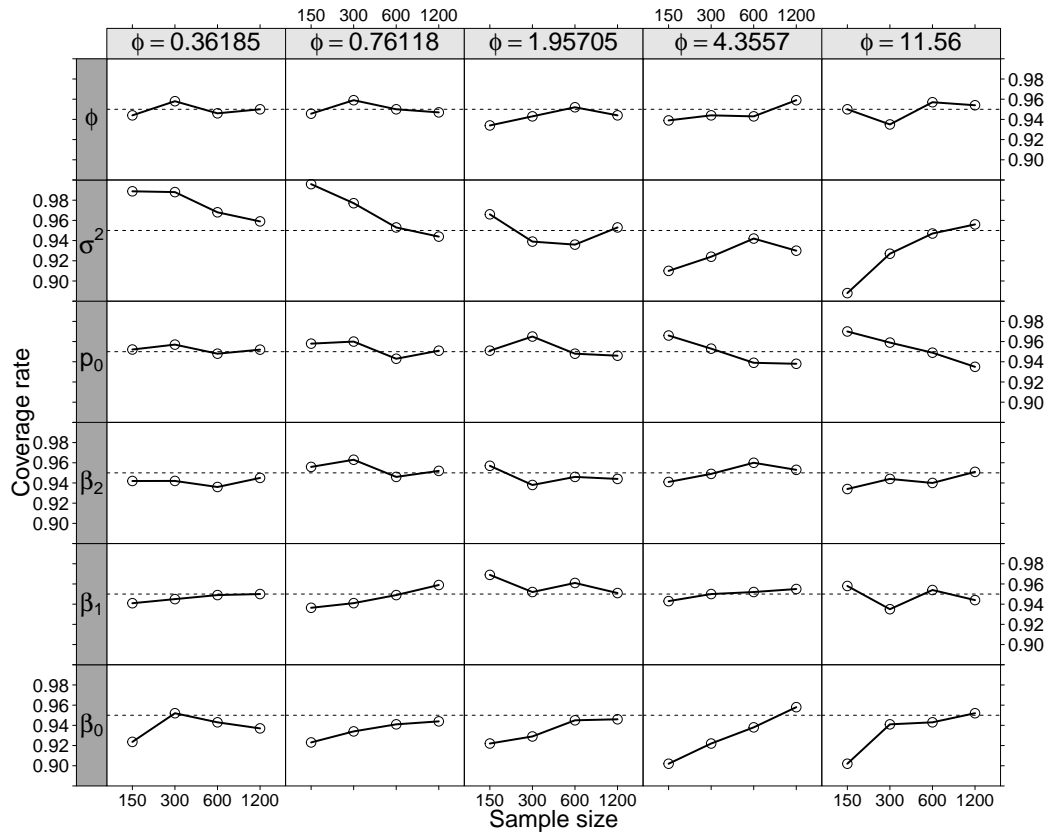


Figure 12: Coverage rate for each parameter by sample size and simulation scenarios with σ^2 fixed at 0.25.

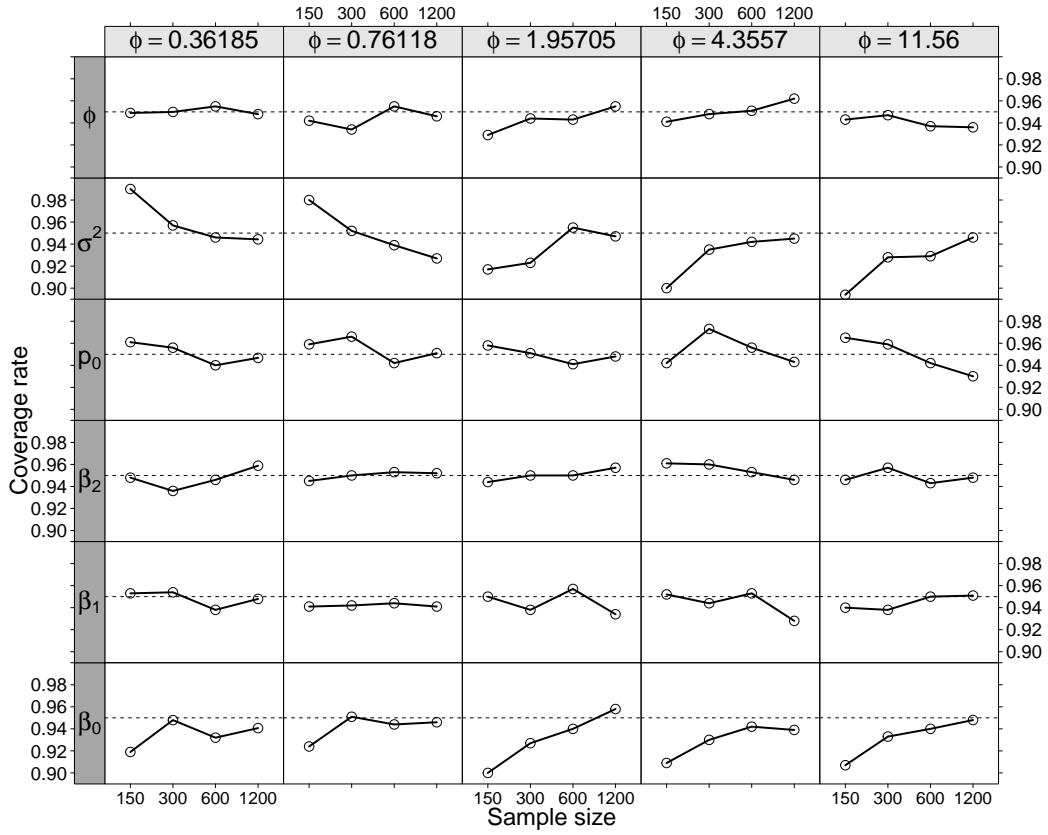


Figure 13: Coverage rate for each parameter by sample size and simulation scenarios with σ^2 fixed at 0.5.

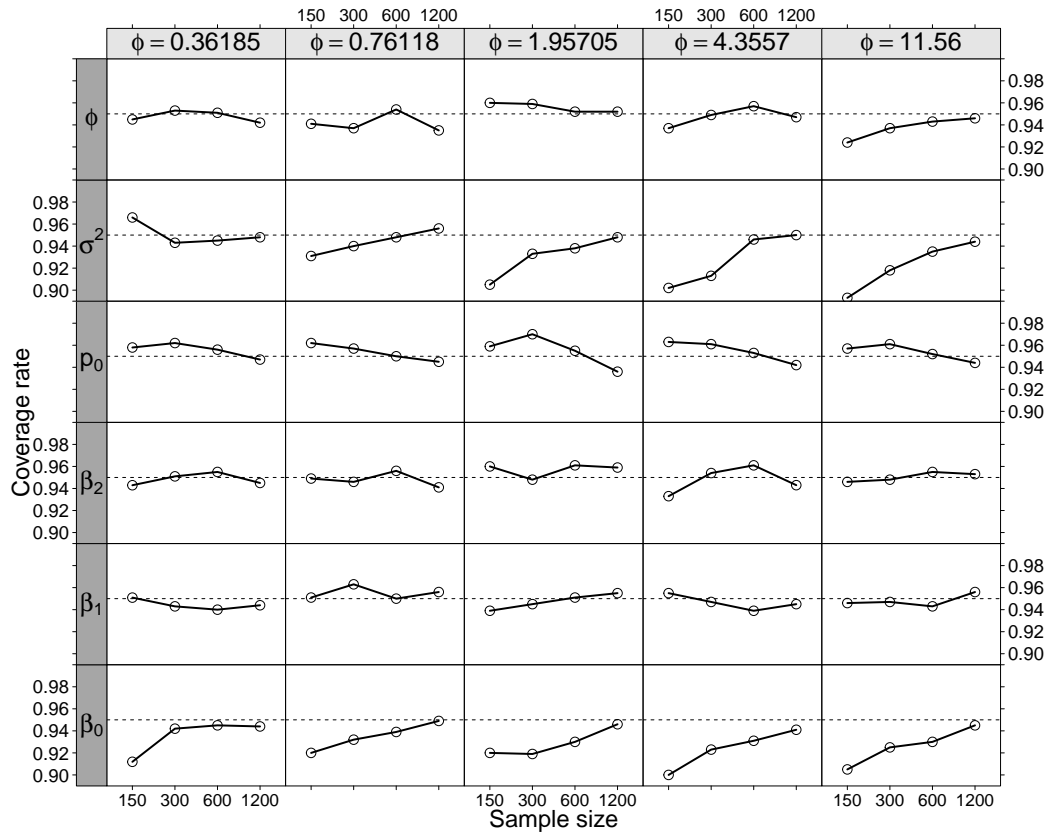


Figure 14: Coverage rate for each parameter by sample size and simulation scenarios with σ^2 fixed at 0.75.

One augmented unit-gamma mixed regression model

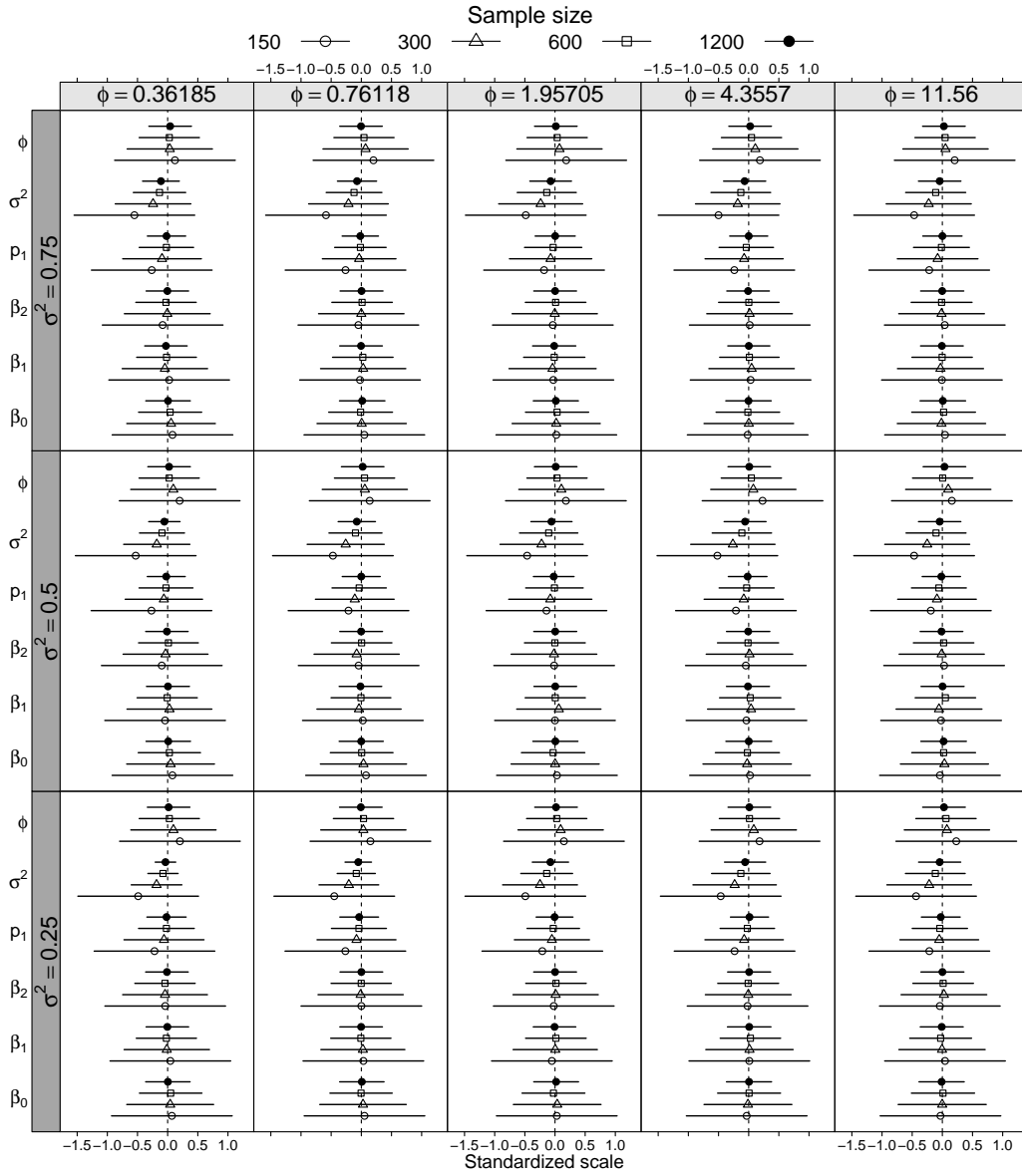


Figure 15: Average bias and confidence intervals on a standardized scale by sample size and simulation scenarios.

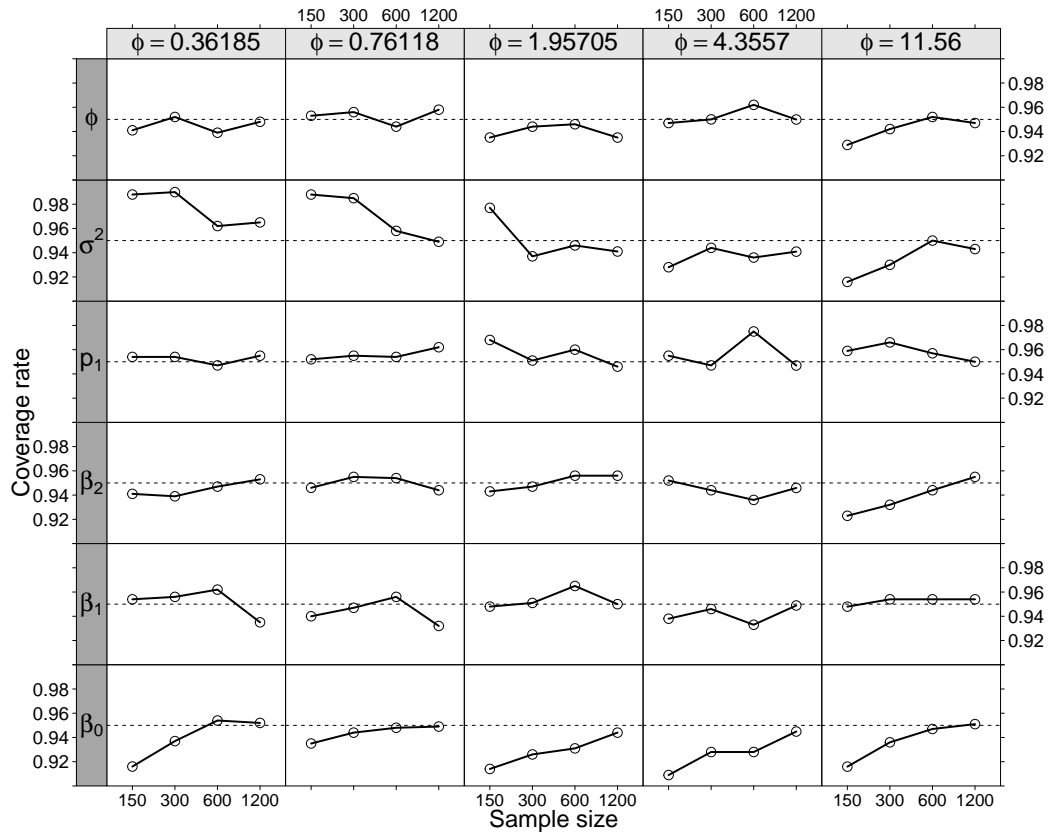


Figure 16: Coverage rate for each parameter by sample size and simulation scenarios with σ^2 fixed at 0.25.

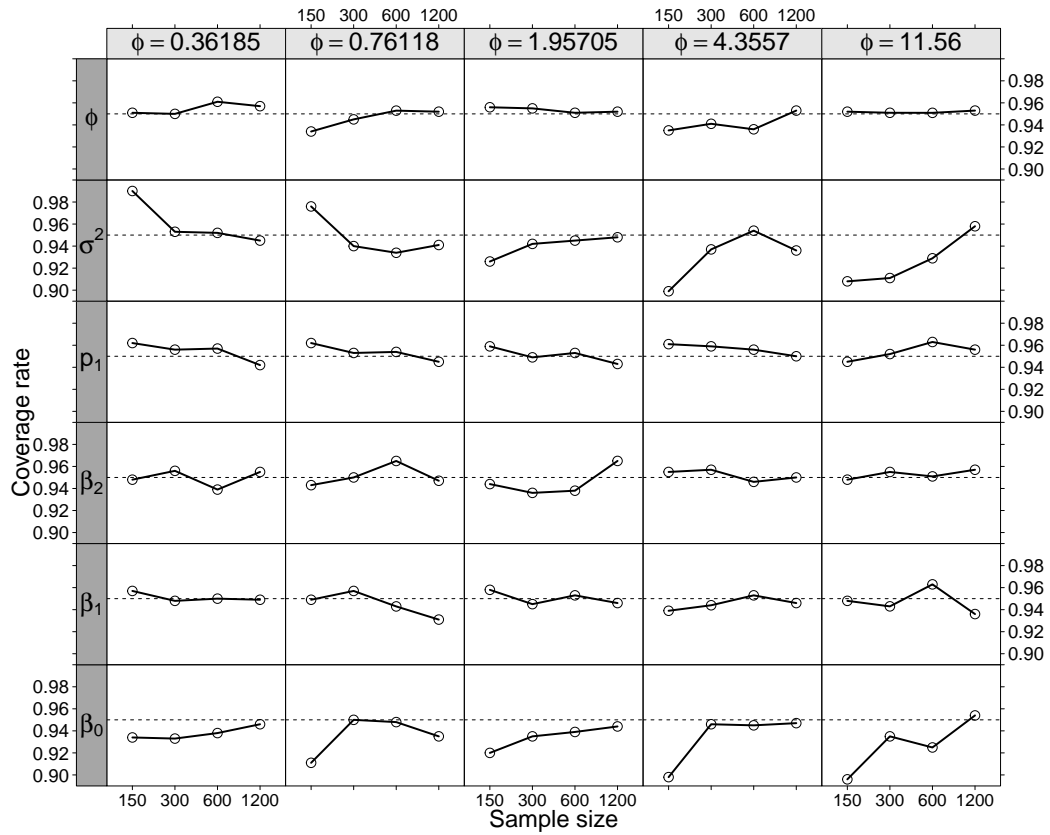


Figure 17: Coverage rate for each parameter by sample size and simulation scenarios with σ^2 fixed at 0.5.

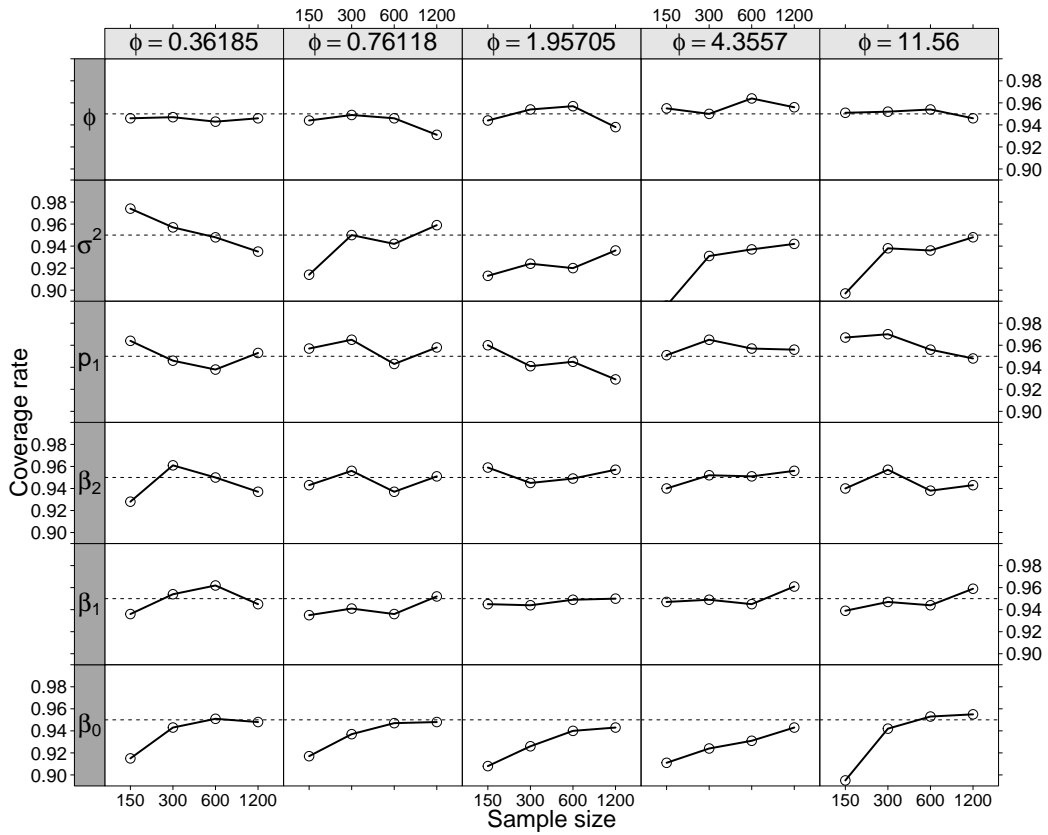


Figure 18: Coverage rate for each parameter by sample size and simulation scenarios with σ^2 fixed at 0.75.

Zero-and-one augmented unit-gamma mixed regression model

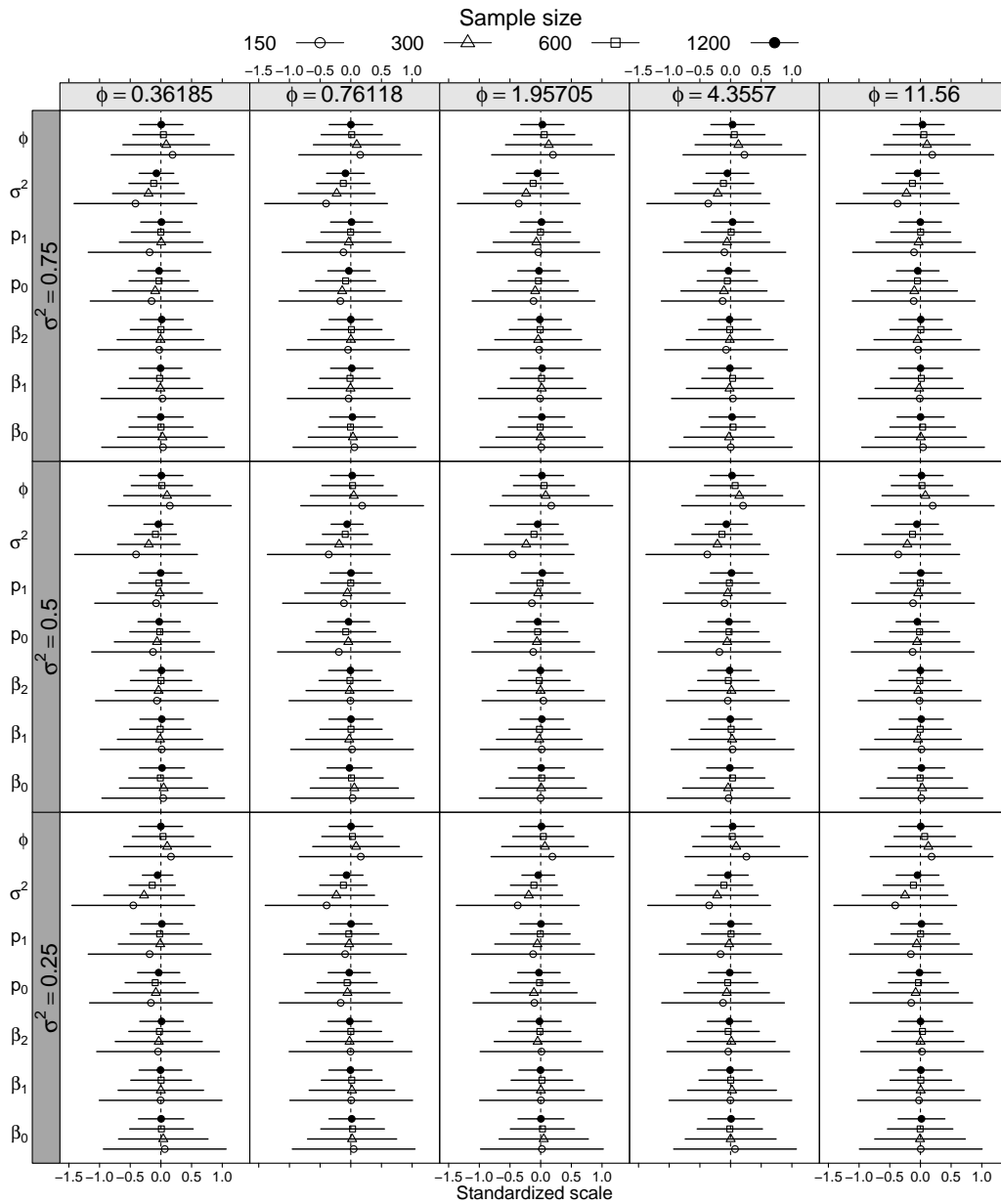


Figure 19: Average bias and confidence intervals on a standardized scale by sample size and simulation scenarios.

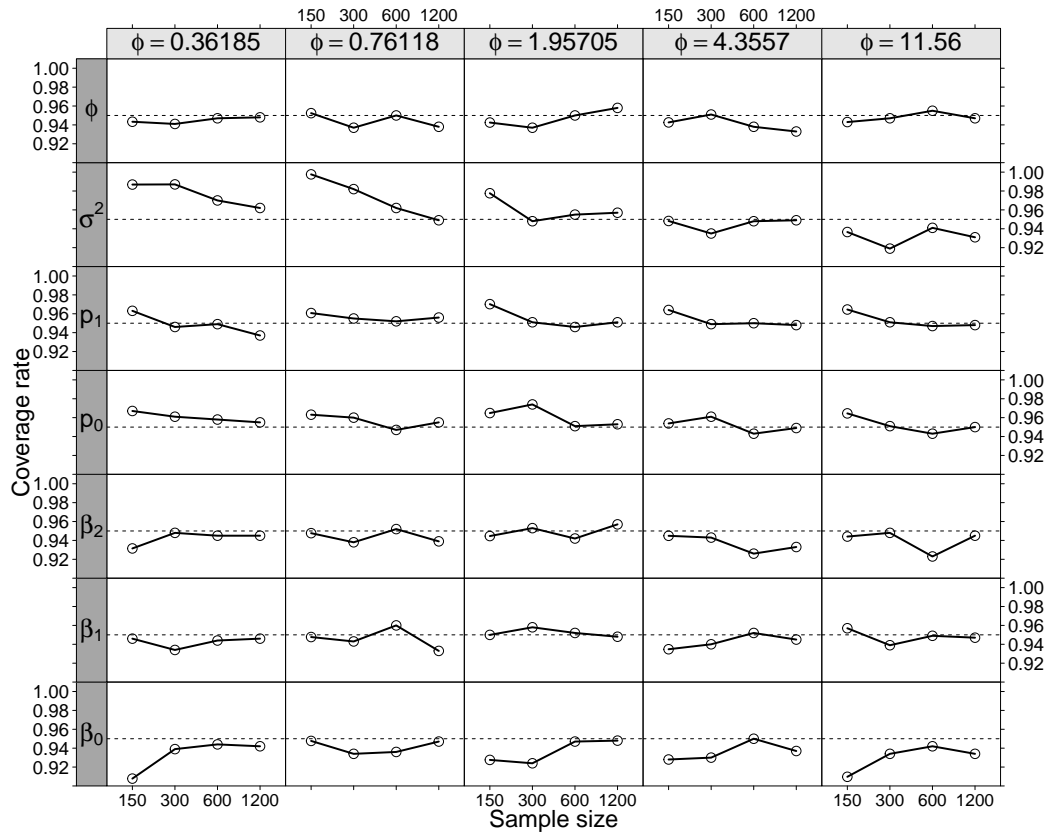


Figure 20: Coverage rate for each parameter by sample size and simulation scenarios with σ^2 fixed at 0.25.

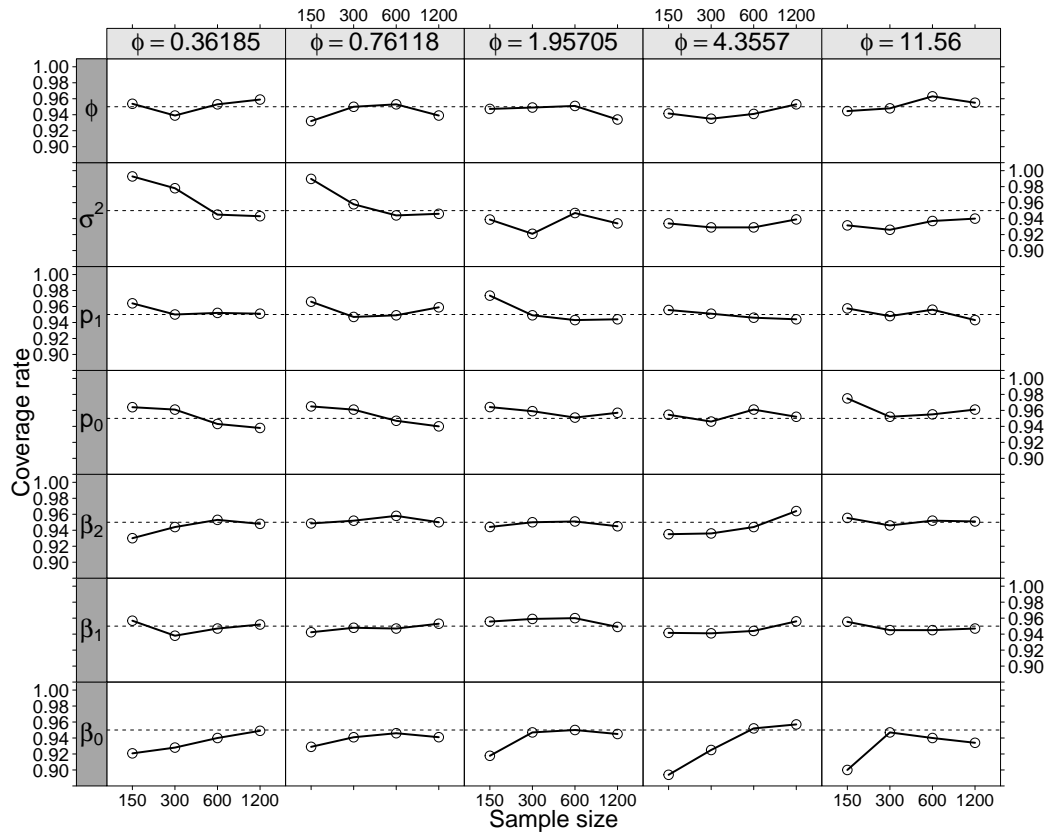


Figure 21: Coverage rate for each parameter by sample size and simulation scenarios with σ^2 fixed at 0.5.

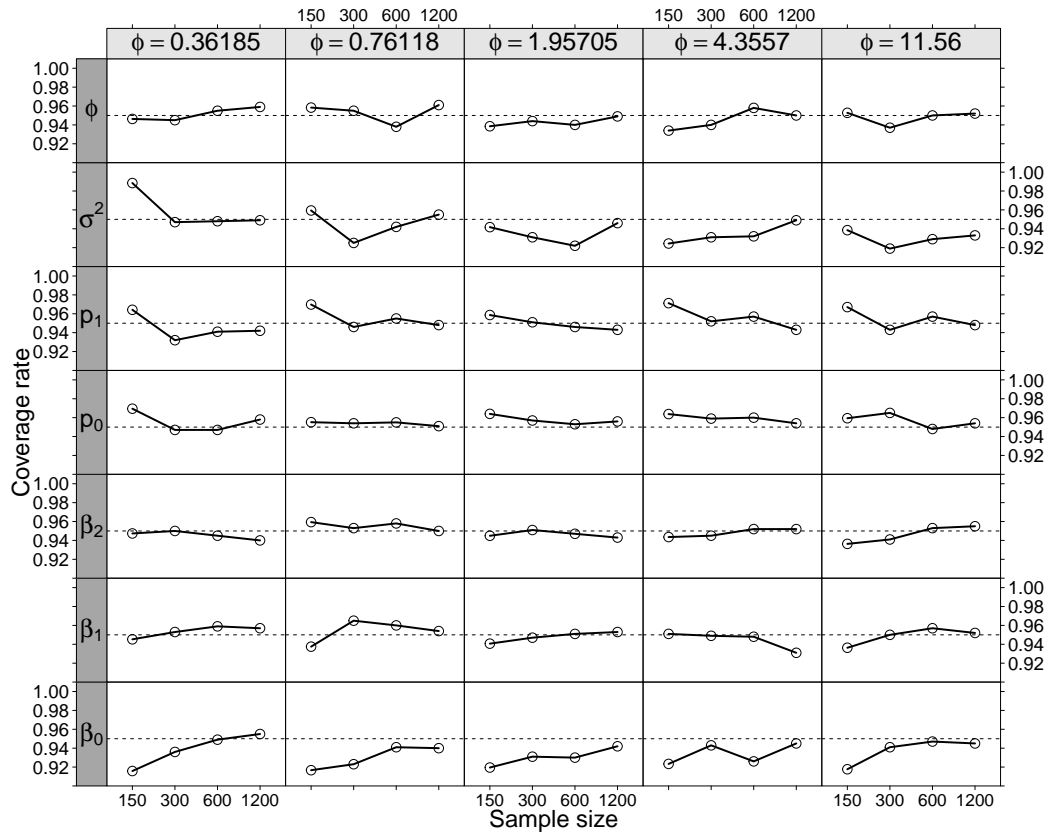


Figure 22: Coverage rate for each parameter by sample size and simulation scenarios with σ^2 fixed at 0.75.