

# Simulation study 1

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Transform to a long format:

```
sim.results.long <- sim.results %>%
  dplyr::select(dgp, alpha1,
    beta1, gamma1, gamma2, n,
    FD = est.fd.semipar, `FD TD` = est.eif.fd.td.semipar,
    BD = est.bd.semipar, `BD TD` = est.eif.td.bd.semipar,
    TD = est.td.semipar, `BD FD TD` = est.eif.all.semipar
  ) %>%
  gather(method, ate.est, FD:`BD FD TD`, factor_key = TRUE) %>%
  group_by(dgp, n, method) %>%
  summarise(
    alpha = mean(alpha1),
    beta = mean(beta1),
    gamma1 = mean(gamma1),
    gamma2 = mean(gamma2),
    sc.emp.var = var(sqrt(n) * ate.est)
  ) %>%
  ungroup()
```

## `summarise()` has grouped output by 'dgp', 'n'. You can override using the  
## `.groups` argument.

Calculate performance measures:

```
sim.results.bias <- sim.results %>%
  dplyr::select(dgp, n, alpha = alpha1, beta = beta1, gamma1, gamma2,
    `FD` = est.fd.semipar, `FD TD` = est.eif.fd.td.semipar,
    `BD` = est.bd.semipar, `BD TD` = est.eif.td.bd.semipar,
    `TD` = est.td.semipar, `BD FD TD` = est.eif.all.semipar
  ) %>%
  gather(method, ate.est, `FD`:`BD FD TD`, factor_key = TRUE) %>%
  group_by(dgp, n, method) %>%
  summarise(
    sc.emp.var = var(sqrt(n) * ate.est)
  )
```

```
## `summarise()` has grouped output by 'dgp', 'n'. You can override using the
## `.groups` argument.
```

```
sim.results.bounds <- sim.results %>%
  dplyr::select(dgp, alpha = alpha1,
    beta = beta1, gamma1, gamma2, n) %>%
  group_by(dgp) %>%
  summarise(
    alpha = mean(alpha),
    beta = mean(beta),
    gamma1 = mean(gamma1),
    gamma2 = mean(gamma2)
  )
sim <- merge(sim.results.bias, sim.results.bounds) %>%
  mutate(
    mc.se.of.sc.emp.var = sqrt(2 * sc.emp.var^2 / number.of.replicates)) %>%
  arrange(dgp, method, n)
rm(sim.results.bias, sim.results.bounds)
```

## Figure

```
cbbPalette <- c("#E69F00", "#D55E00", "#56B4E9", "#0072B2", "#009E73", "#000000") # colorblind-friendly
names(cbbPalette) <- levels(sim.results.long$method)[!levels(sim.results.long$method) == "naive"] # naive
shapes <- 1:6
names(shapes) <- levels(sim.results.long$method)[!levels(sim.results.long$method) == "naive"] # naive e

p1 <- sim %>%
  mutate(
    alpha_gamma2 = paste0("list(alpha==", alpha, ", gamma[2]==", gamma2,")"),
    beta_gamma1 = paste0("list(beta==", beta, ", gamma[1]==", gamma1,")")
  ) %>%
  ggplot(aes(x = n, y = sc.emp.var)) +
  geom_ribbon(aes(
    ymin = sc.emp.var - qnorm(0.975) * mc.se.of.sc.emp.var,
    ymax = sc.emp.var + qnorm(0.975) * mc.se.of.sc.emp.var,
    group = method, fill = method
  ),
  linetype = 1, alpha = 0.2
  ) +
  geom_line(aes(group = method, col = method), size = 0.3, linetype = 1) +
  geom_point(aes(shape = method, col = method), size = 0.5) +
  facet_grid(alpha_gamma2 ~ beta_gamma1,
    scales = "free",
    labeller = label_parsed
  ) +
  labs(y = "Scaled empirical variance", x = "Sample size") +
  theme_bw() +
  theme(
    text = element_text(size = 6),
    axis.title = element_text(size = 8),
    strip.text = element_text(size = 8)
  ) +
  scale_shape_manual(values = shapes) +
```

```

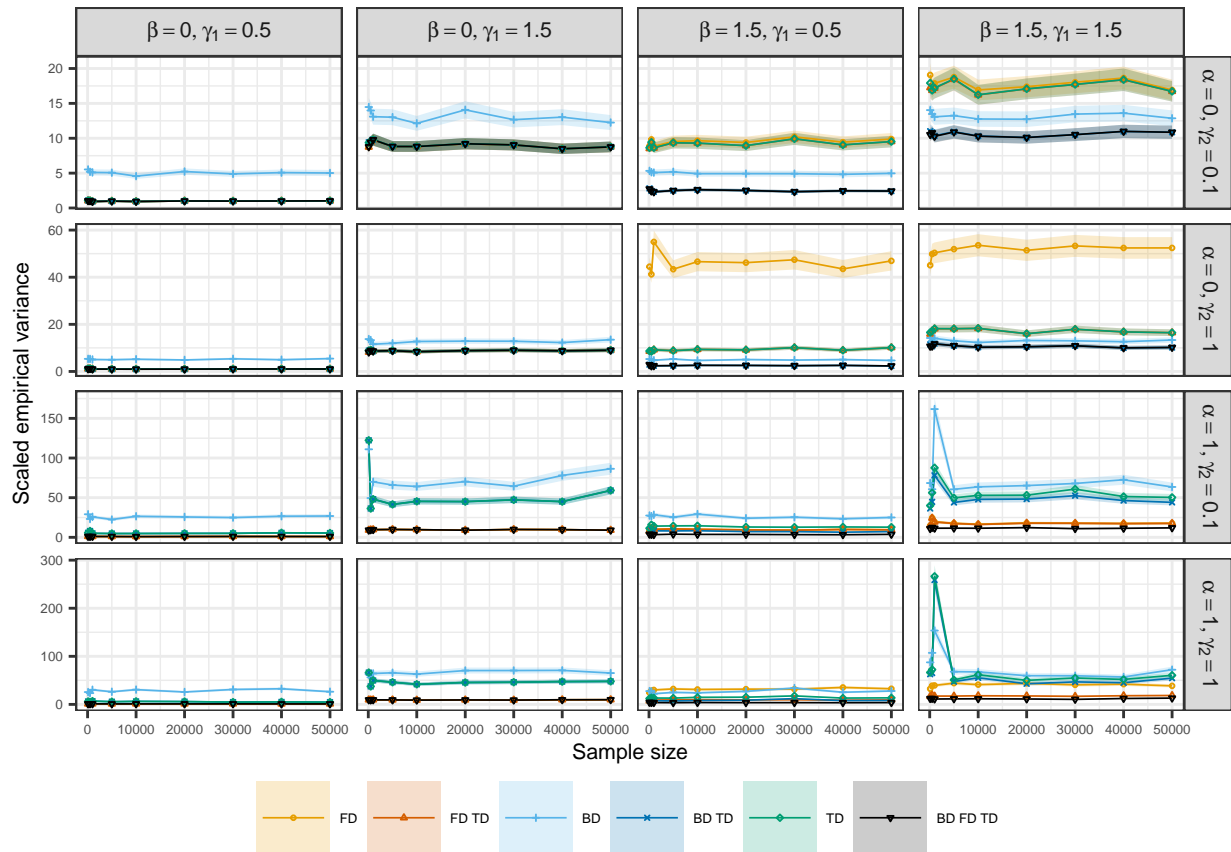
scale_colour_manual(values = cbbPalette) +
scale_fill_manual(values = cbbPalette) +
theme(
  legend.key.size = unit(2, "line"),
  legend.position = "bottom",
  legend.title = element_blank()
) +
guides(colour = guide_legend(nrow = 1),
       shape = guide_legend(nrow = 1))

## Warning: Using `size` aesthetic for lines was deprecated in ggplot2 3.4.0.
## i Please use `linewidth` instead.

g_legend <- function(a.gplot) {
  tmp <- ggplot_gtable(ggplot_build(a.gplot))
  leg <- which(sapply(tmp$grobs, function(x) x$name) == "guide-box")
  legend <- tmp$grobs[[leg]]
  return(legend)
}

mylegend <- g_legend(p1)
grid.arrange(arrangeGrob(p1 + theme(legend.position = "none"),
  nrow = 1),
mylegend,
nrow = 2, heights = c(10, 1)
)

```



```
pdf("Figure_sim_study_mv_cov.pdf", height = 5, width = 6)
grid.arrange(arrangeGrob(p1 + theme(legend.position = "none"),
  nrow = 1),
mylegend,
nrow = 2, heights = c(10, 1)
)
dev.off()

## pdf
## 2
```

## DGP vs parameters

```
print(xtable(sim.results %>%
  dplyr::select(dgp, alpha1, beta1, gamma1, gamma2) %>%
  group_by(dgp) %>%
  summarise(
    alpha = mean(alpha1),
    beta = mean(beta1),
    gamma1 = mean(gamma1),
    gamma2 = mean(gamma2)
  ),
digits = c(0, 0, 1, 1, 1,1), align = rep("r", 6)
),
include.rownames = F
)

## % latex table generated in R 4.2.1 by xtable 1.8-4 package
## % Thu Aug 10 12:42:25 2023
## \begin{table}[ht]
## \centering
## \begin{tabular}{rrrrr}
## \hline
## dgp & alpha & beta & gamma1 & gamma2 \\
## \hline
## 1 & 0.0 & 0.0 & 0.5 & 0.1 \\
## 2 & 1.0 & 0.0 & 0.5 & 0.1 \\
## 3 & 0.0 & 1.5 & 0.5 & 0.1 \\
## 4 & 1.0 & 1.5 & 0.5 & 0.1 \\
## 5 & 0.0 & 0.0 & 1.5 & 0.1 \\
## 6 & 1.0 & 0.0 & 1.5 & 0.1 \\
## 7 & 0.0 & 1.5 & 1.5 & 0.1 \\
## 8 & 1.0 & 1.5 & 1.5 & 0.1 \\
## 9 & 0.0 & 0.0 & 0.5 & 1.0 \\
## 10 & 1.0 & 0.0 & 0.5 & 1.0 \\
## 11 & 0.0 & 1.5 & 0.5 & 1.0 \\
## 12 & 1.0 & 1.5 & 0.5 & 1.0 \\
## 13 & 0.0 & 0.0 & 1.5 & 1.0 \\
## 14 & 1.0 & 0.0 & 1.5 & 1.0 \\
## 15 & 0.0 & 1.5 & 1.5 & 1.0 \\
## 16 & 1.0 & 1.5 & 1.5 & 1.0 \\
## \hline
## \end{tabular}
```

```
## \end{table}
```

## Scaled empirical variance

```
print(xtable(sim %>%
  mutate(estim = paste0(format(round(sc.emp.var, digits = 3), nsmall = 3), " (", format(round(mc.se.of.
  select(dgp, n, method, estim) %>%
  spread(method, estim) %>%
  select(dgp, n, BD, FD, TD, `BD TD`, `FD TD`, `BD FD TD`),
align = rep("r", 9),
digits = 0
),
include.rownames = F
)
```

```
## % latex table generated in R 4.2.1 by xtable 1.8-4 package
## % Thu Aug 10 12:42:25 2023
## \begin{table}[ht]
## \centering
## \begin{tabular}{rrrrrrrr}
## \hline
## dgp & n & BD & FD & TD & BD TD & FD TD & BD FD TD \\
## \hline
## 1 & 100 & 5.526 ( 0.247) & 1.035 ( 0.046) & 1.076 ( 0.048) & 1.086 ( 0.049) & 1.033 ( 0.046) & 1.033 ( 0.046)
## 1 & 500 & 5.184 ( 0.232) & 1.027 ( 0.046) & 1.047 ( 0.047) & 1.045 ( 0.047) & 1.031 ( 0.046) & 1.031 ( 0.046)
## 1 & 1000 & 5.102 ( 0.228) & 0.938 ( 0.042) & 0.932 ( 0.042) & 0.933 ( 0.042) & 0.935 ( 0.042) & 0.935 ( 0.042)
## 1 & 5000 & 5.066 ( 0.227) & 0.984 ( 0.044) & 0.986 ( 0.044) & 0.986 ( 0.044) & 0.984 ( 0.044) & 0.984 ( 0.044)
## 1 & 10000 & 4.571 ( 0.204) & 0.933 ( 0.042) & 0.934 ( 0.042) & 0.934 ( 0.042) & 0.933 ( 0.042) & 0.933 ( 0.042)
## 1 & 20000 & 5.226 ( 0.234) & 1.009 ( 0.045) & 1.009 ( 0.045) & 1.009 ( 0.045) & 1.009 ( 0.045) & 1.009 ( 0.045)
## 1 & 30000 & 4.886 ( 0.219) & 0.990 ( 0.044) & 0.990 ( 0.044) & 0.990 ( 0.044) & 0.990 ( 0.044) & 0.990 ( 0.044)
## 1 & 40000 & 5.074 ( 0.227) & 1.005 ( 0.045) & 1.006 ( 0.045) & 1.006 ( 0.045) & 1.005 ( 0.045) & 1.005 ( 0.045)
## 1 & 50000 & 5.019 ( 0.224) & 1.022 ( 0.046) & 1.022 ( 0.046) & 1.022 ( 0.046) & 1.022 ( 0.046) & 1.022 ( 0.046)
## 2 & 100 & 29.059 ( 1.300) & 1.139 ( 0.051) & 5.713 ( 0.255) & 5.718 ( 0.256) & 1.135 ( 0.051) & 1.135 ( 0.051)
## 2 & 500 & 23.142 ( 1.035) & 0.971 ( 0.043) & 8.002 ( 0.358) & 7.999 ( 0.358) & 0.971 ( 0.043) & 0.971 ( 0.043)
## 2 & 1000 & 25.807 ( 1.154) & 1.087 ( 0.049) & 5.001 ( 0.224) & 5.001 ( 0.224) & 1.086 ( 0.049) & 1.086 ( 0.049)
## 2 & 5000 & 22.428 ( 1.003) & 1.016 ( 0.045) & 4.791 ( 0.214) & 4.791 ( 0.214) & 1.015 ( 0.045) & 1.015 ( 0.045)
## 2 & 10000 & 26.541 ( 1.187) & 0.923 ( 0.041) & 4.822 ( 0.216) & 4.822 ( 0.216) & 0.923 ( 0.041) & 0.923 ( 0.041)
## 2 & 20000 & 25.703 ( 1.149) & 1.032 ( 0.046) & 4.954 ( 0.222) & 4.954 ( 0.222) & 1.031 ( 0.046) & 1.031 ( 0.046)
## 2 & 30000 & 24.924 ( 1.115) & 1.070 ( 0.048) & 5.001 ( 0.224) & 5.001 ( 0.224) & 1.070 ( 0.048) & 1.070 ( 0.048)
## 2 & 40000 & 26.654 ( 1.192) & 1.038 ( 0.046) & 5.710 ( 0.255) & 5.710 ( 0.255) & 1.038 ( 0.046) & 1.038 ( 0.046)
## 2 & 50000 & 26.874 ( 1.202) & 1.010 ( 0.045) & 5.403 ( 0.242) & 5.403 ( 0.242) & 1.010 ( 0.045) & 1.010 ( 0.045)
## 3 & 100 & 5.322 ( 0.238) & 8.884 ( 0.397) & 8.638 ( 0.386) & 2.820 ( 0.126) & 8.521 ( 0.397) & 8.521 ( 0.397)
## 3 & 500 & 5.129 ( 0.229) & 9.835 ( 0.440) & 9.426 ( 0.422) & 2.448 ( 0.109) & 9.413 ( 0.440) & 9.413 ( 0.440)
## 3 & 1000 & 5.076 ( 0.227) & 8.854 ( 0.396) & 8.641 ( 0.386) & 2.323 ( 0.104) & 8.601 ( 0.396) & 8.601 ( 0.396)
## 3 & 5000 & 5.186 ( 0.232) & 9.535 ( 0.426) & 9.349 ( 0.418) & 2.507 ( 0.112) & 9.346 ( 0.426) & 9.346 ( 0.426)
## 3 & 10000 & 4.923 ( 0.220) & 9.650 ( 0.432) & 9.301 ( 0.416) & 2.621 ( 0.117) & 9.308 ( 0.432) & 9.308 ( 0.432)
## 3 & 20000 & 4.925 ( 0.220) & 9.396 ( 0.420) & 8.939 ( 0.400) & 2.515 ( 0.112) & 8.942 ( 0.420) & 8.942 ( 0.420)
## 3 & 30000 & 4.918 ( 0.220) & 10.201 ( 0.456) & 9.918 ( 0.444) & 2.336 ( 0.104) & 9.918 ( 0.444) & 9.918 ( 0.444)
## 3 & 40000 & 4.827 ( 0.216) & 9.442 ( 0.422) & 9.054 ( 0.405) & 2.466 ( 0.110) & 9.050 ( 0.422) & 9.050 ( 0.422)
## 3 & 50000 & 4.971 ( 0.222) & 9.887 ( 0.442) & 9.522 ( 0.426) & 2.429 ( 0.109) & 9.524 ( 0.442) & 9.524 ( 0.442)
## 4 & 100 & 27.476 ( 1.229) & 7.768 ( 0.347) & 11.463 ( 0.513) & 7.321 ( 0.327) & 7.425 ( 0.347) & 7.425 ( 0.347)
## 4 & 500 & 26.663 ( 1.192) & 12.802 ( 0.573) & 15.898 ( 0.711) & 9.623 ( 0.430) & 10.391 ( 0.573) & 10.391 ( 0.573)
## 4 & 1000 & 28.438 ( 1.272) & 10.170 ( 0.455) & 14.143 ( 0.632) & 8.190 ( 0.366) & 10.013 ( 0.455) & 10.013 ( 0.455)
```

##	4 &	5000 &	25.361 ( 1.134) &	10.802 ( 0.483) &	14.430 ( 0.645) &	8.090 ( 0.362) &	10.545 ( 0.475) &
##	4 &	10000 &	29.269 ( 1.309) &	10.149 ( 0.454) &	14.558 ( 0.651) &	8.315 ( 0.372) &	10.075 ( 0.445) &
##	4 &	20000 &	24.081 ( 1.077) &	9.555 ( 0.427) &	13.032 ( 0.583) &	7.211 ( 0.322) &	9.303 ( 0.405) &
##	4 &	30000 &	25.390 ( 1.135) &	9.072 ( 0.406) &	12.748 ( 0.570) &	7.184 ( 0.321) &	8.960 ( 0.395) &
##	4 &	40000 &	23.328 ( 1.043) &	9.997 ( 0.447) &	13.090 ( 0.585) &	6.494 ( 0.290) &	9.883 ( 0.435) &
##	4 &	50000 &	25.066 ( 1.121) &	9.628 ( 0.431) &	12.794 ( 0.572) &	7.198 ( 0.322) &	9.426 ( 0.415) &
##	5 &	100 &	14.476 ( 0.647) &	8.746 ( 0.391) &	9.374 ( 0.419) &	9.410 ( 0.421) &	8.739 ( 0.385) &
##	5 &	500 &	13.978 ( 0.625) &	9.434 ( 0.422) &	9.492 ( 0.425) &	9.489 ( 0.424) &	9.433 ( 0.422) &
##	5 &	1000 &	13.094 ( 0.586) &	9.789 ( 0.438) &	9.817 ( 0.439) &	9.812 ( 0.439) &	9.791 ( 0.438) &
##	5 &	5000 &	13.018 ( 0.582) &	8.821 ( 0.394) &	8.827 ( 0.395) &	8.827 ( 0.395) &	8.820 ( 0.394) &
##	5 &	10000 &	12.134 ( 0.543) &	8.812 ( 0.394) &	8.826 ( 0.395) &	8.826 ( 0.395) &	8.813 ( 0.394) &
##	5 &	20000 &	14.071 ( 0.629) &	9.208 ( 0.412) &	9.226 ( 0.413) &	9.226 ( 0.413) &	9.208 ( 0.412) &
##	5 &	30000 &	12.663 ( 0.566) &	9.046 ( 0.405) &	9.048 ( 0.405) &	9.048 ( 0.405) &	9.046 ( 0.405) &
##	5 &	40000 &	13.027 ( 0.583) &	8.492 ( 0.380) &	8.485 ( 0.379) &	8.485 ( 0.379) &	8.493 ( 0.380) &
##	5 &	50000 &	12.250 ( 0.548) &	8.755 ( 0.392) &	8.767 ( 0.392) &	8.767 ( 0.392) &	8.757 ( 0.392) &
##	6 &	100 &	110.994 ( 4.964) &	9.044 ( 0.404) &	122.328 ( 5.471) &	122.320 ( 5.470) &	9.054 ( 0.405) &
##	6 &	500 &	49.493 ( 2.213) &	9.470 ( 0.423) &	36.351 ( 1.626) &	36.353 ( 1.626) &	9.476 ( 0.423) &
##	6 &	1000 &	69.967 ( 3.129) &	9.698 ( 0.434) &	48.141 ( 2.153) &	48.140 ( 2.153) &	9.694 ( 0.434) &
##	6 &	5000 &	65.897 ( 2.947) &	9.896 ( 0.443) &	41.541 ( 1.858) &	41.541 ( 1.858) &	9.896 ( 0.443) &
##	6 &	10000 &	64.108 ( 2.867) &	9.666 ( 0.432) &	45.373 ( 2.029) &	45.373 ( 2.029) &	9.665 ( 0.432) &
##	6 &	20000 &	70.295 ( 3.144) &	8.975 ( 0.401) &	45.055 ( 2.015) &	45.056 ( 2.015) &	8.974 ( 0.401) &
##	6 &	30000 &	64.432 ( 2.881) &	9.894 ( 0.442) &	47.285 ( 2.115) &	47.285 ( 2.115) &	9.893 ( 0.442) &
##	6 &	40000 &	78.064 ( 3.491) &	9.684 ( 0.433) &	45.049 ( 2.015) &	45.049 ( 2.015) &	9.684 ( 0.433) &
##	6 &	50000 &	86.437 ( 3.866) &	9.019 ( 0.403) &	59.158 ( 2.646) &	59.158 ( 2.646) &	9.019 ( 0.403) &
##	7 &	100 &	14.032 ( 0.628) &	19.080 ( 0.853) &	17.919 ( 0.801) &	11.010 ( 0.492) &	17.255 ( 0.795) &
##	7 &	500 &	13.478 ( 0.603) &	17.312 ( 0.774) &	16.864 ( 0.754) &	10.844 ( 0.485) &	16.867 ( 0.754) &
##	7 &	1000 &	13.069 ( 0.584) &	17.869 ( 0.799) &	17.208 ( 0.770) &	10.353 ( 0.463) &	17.185 ( 0.770) &
##	7 &	5000 &	13.245 ( 0.592) &	18.767 ( 0.839) &	18.513 ( 0.828) &	10.940 ( 0.489) &	18.443 ( 0.828) &
##	7 &	10000 &	12.759 ( 0.571) &	16.924 ( 0.757) &	16.238 ( 0.726) &	10.328 ( 0.462) &	16.217 ( 0.726) &
##	7 &	20000 &	12.729 ( 0.569) &	17.390 ( 0.778) &	17.080 ( 0.764) &	10.114 ( 0.452) &	17.079 ( 0.764) &
##	7 &	30000 &	13.465 ( 0.602) &	18.032 ( 0.806) &	17.713 ( 0.792) &	10.517 ( 0.470) &	17.715 ( 0.792) &
##	7 &	40000 &	13.603 ( 0.608) &	18.636 ( 0.833) &	18.392 ( 0.823) &	10.979 ( 0.491) &	18.392 ( 0.823) &
##	7 &	50000 &	12.863 ( 0.575) &	16.925 ( 0.757) &	16.723 ( 0.748) &	10.868 ( 0.486) &	16.718 ( 0.748) &
##	8 &	100 &	68.441 ( 3.061) &	14.864 ( 0.665) &	40.062 ( 1.792) &	36.377 ( 1.627) &	14.756 ( 0.665) &
##	8 &	500 &	60.633 ( 2.712) &	24.658 ( 1.103) &	56.216 ( 2.514) &	44.763 ( 2.002) &	24.247 ( 1.103) &
##	8 &	1000 &	161.693 ( 7.231) &	19.547 ( 0.874) &	87.635 ( 3.919) &	78.136 ( 3.494) &	19.382 ( 0.874) &
##	8 &	5000 &	60.515 ( 2.706) &	17.717 ( 0.792) &	49.715 ( 2.223) &	43.973 ( 1.967) &	17.437 ( 0.792) &
##	8 &	10000 &	63.620 ( 2.845) &	16.518 ( 0.739) &	52.928 ( 2.367) &	47.845 ( 2.140) &	16.192 ( 0.739) &
##	8 &	20000 &	65.244 ( 2.918) &	18.120 ( 0.810) &	53.155 ( 2.377) &	48.255 ( 2.158) &	17.839 ( 0.810) &
##	8 &	30000 &	67.921 ( 3.038) &	17.838 ( 0.798) &	60.753 ( 2.717) &	52.532 ( 2.349) &	17.679 ( 0.798) &
##	8 &	40000 &	72.604 ( 3.247) &	17.502 ( 0.783) &	51.462 ( 2.301) &	46.380 ( 2.074) &	17.246 ( 0.783) &
##	8 &	50000 &	63.512 ( 2.840) &	17.825 ( 0.797) &	50.326 ( 2.251) &	44.108 ( 1.973) &	17.525 ( 0.797) &
##	9 &	100 &	5.337 ( 0.239) &	1.333 ( 0.060) &	1.181 ( 0.053) &	1.179 ( 0.053) &	1.083 ( 0.053) &
##	9 &	500 &	5.313 ( 0.238) &	1.238 ( 0.055) &	1.182 ( 0.053) &	1.184 ( 0.053) &	1.166 ( 0.053) &
##	9 &	1000 &	5.073 ( 0.227) &	1.030 ( 0.046) &	1.016 ( 0.045) &	1.015 ( 0.045) &	1.014 ( 0.045) &
##	9 &	5000 &	4.981 ( 0.223) &	0.982 ( 0.044) &	0.979 ( 0.044) &	0.979 ( 0.044) &	0.979 ( 0.044) &
##	9 &	10000 &	5.184 ( 0.232) &	0.974 ( 0.044) &	0.971 ( 0.043) &	0.971 ( 0.043) &	0.971 ( 0.043) &
##	9 &	20000 &	4.875 ( 0.218) &	0.982 ( 0.044) &	0.982 ( 0.044) &	0.982 ( 0.044) &	0.982 ( 0.044) &
##	9 &	30000 &	5.364 ( 0.240) &	1.053 ( 0.047) &	1.050 ( 0.047) &	1.050 ( 0.047) &	1.051 ( 0.047) &
##	9 &	40000 &	4.978 ( 0.223) &	1.055 ( 0.047) &	1.051 ( 0.047) &	1.051 ( 0.047) &	1.051 ( 0.047) &
##	9 &	50000 &	5.449 ( 0.244) &	1.034 ( 0.046) &	1.034 ( 0.046) &	1.034 ( 0.046) &	1.034 ( 0.046) &
##	10 &	100 &	25.579 ( 1.144) &	1.105 ( 0.049) &	6.070 ( 0.271) &	6.070 ( 0.271) &	1.000 ( 0.049) &
##	10 &	500 &	23.455 ( 1.049) &	1.121 ( 0.050) &	4.947 ( 0.221) &	4.945 ( 0.221) &	1.109 ( 0.050) &
##	10 &	1000 &	30.338 ( 1.357) &	1.194 ( 0.053) &	6.736 ( 0.301) &	6.737 ( 0.301) &	1.156 ( 0.053) &

##	10	&	5000	&	26.216	(	1.172	)	&	0.964	(	0.043	)	&	5.568	(	0.249	)	&	5.569	(	0.249	)	&	0.956	(		)
##	10	&	10000	&	30.665	(	1.371	)	&	1.035	(	0.046	)	&	6.202	(	0.277	)	&	6.202	(	0.277	)	&	1.035	(		)
##	10	&	20000	&	25.751	(	1.152	)	&	1.026	(	0.046	)	&	5.772	(	0.258	)	&	5.772	(	0.258	)	&	1.022	(		)
##	10	&	30000	&	30.961	(	1.385	)	&	1.065	(	0.048	)	&	4.723	(	0.211	)	&	4.723	(	0.211	)	&	1.069	(		)
##	10	&	40000	&	32.451	(	1.451	)	&	0.987	(	0.044	)	&	5.149	(	0.230	)	&	5.149	(	0.230	)	&	0.987	(		)
##	10	&	50000	&	26.334	(	1.178	)	&	0.979	(	0.044	)	&	4.652	(	0.208	)	&	4.652	(	0.208	)	&	0.979	(		)
##	11	&	100	&	5.260	(	0.235	)	&	44.473	(	1.989	)	&	8.672	(	0.388	)	&	2.908	(	0.130	)	&	8.579	(		)
##	11	&	500	&	5.040	(	0.225	)	&	41.215	(	1.843	)	&	8.480	(	0.379	)	&	2.366	(	0.106	)	&	8.476	(		)
##	11	&	1000	&	4.747	(	0.212	)	&	54.978	(	2.459	)	&	9.183	(	0.411	)	&	2.413	(	0.108	)	&	9.176	(		)
##	11	&	5000	&	5.261	(	0.235	)	&	43.385	(	1.940	)	&	8.823	(	0.395	)	&	2.481	(	0.111	)	&	8.821	(		)
##	11	&	10000	&	4.656	(	0.208	)	&	46.606	(	2.084	)	&	9.351	(	0.418	)	&	2.588	(	0.116	)	&	9.351	(		)
##	11	&	20000	&	5.043	(	0.226	)	&	46.175	(	2.065	)	&	9.127	(	0.408	)	&	2.559	(	0.114	)	&	9.128	(		)
##	11	&	30000	&	4.824	(	0.216	)	&	47.409	(	2.120	)	&	10.094	(	0.451	)	&	2.457	(	0.110	)	&	10.094	(		)
##	11	&	40000	&	5.036	(	0.225	)	&	43.515	(	1.946	)	&	8.971	(	0.401	)	&	2.566	(	0.115	)	&	8.967	(		)
##	11	&	50000	&	4.671	(	0.209	)	&	46.933	(	2.099	)	&	10.121	(	0.453	)	&	2.343	(	0.105	)	&	10.119	(		)
##	12	&	100	&	27.565	(	1.233	)	&	24.418	(	1.092	)	&	12.041	(	0.538	)	&	8.612	(	0.385	)	&	7.211	(		)
##	12	&	500	&	26.830	(	1.200	)	&	28.556	(	1.277	)	&	13.640	(	0.610	)	&	8.088	(	0.362	)	&	9.366	(		)
##	12	&	1000	&	22.104	(	0.989	)	&	29.971	(	1.340	)	&	13.199	(	0.590	)	&	7.698	(	0.344	)	&	9.094	(		)
##	12	&	5000	&	24.909	(	1.114	)	&	32.123	(	1.437	)	&	13.037	(	0.583	)	&	7.083	(	0.317	)	&	9.337	(		)
##	12	&	10000	&	24.016	(	1.074	)	&	30.976	(	1.385	)	&	14.693	(	0.657	)	&	8.009	(	0.358	)	&	9.963	(		)
##	12	&	20000	&	27.107	(	1.212	)	&	31.631	(	1.415	)	&	14.931	(	0.668	)	&	8.664	(	0.387	)	&	9.365	(		)
##	12	&	30000	&	33.908	(	1.516	)	&	31.587	(	1.413	)	&	17.604	(	0.787	)	&	11.920	(	0.533	)	&	9.605	(		)
##	12	&	40000	&	25.191	(	1.127	)	&	35.220	(	1.575	)	&	13.116	(	0.587	)	&	7.864	(	0.352	)	&	8.665	(		)
##	12	&	50000	&	27.827	(	1.244	)	&	32.483	(	1.453	)	&	13.549	(	0.606	)	&	8.138	(	0.364	)	&	9.252	(		)
##	13	&	100	&	13.732	(	0.614	)	&	8.425	(	0.377	)	&	8.829	(	0.395	)	&	8.834	(	0.395	)	&	8.187	(		)
##	13	&	500	&	13.303	(	0.595	)	&	8.970	(	0.401	)	&	9.105	(	0.407	)	&	9.106	(	0.407	)	&	8.961	(		)
##	13	&	1000	&	11.552	(	0.517	)	&	8.689	(	0.389	)	&	8.590	(	0.384	)	&	8.588	(	0.384	)	&	8.648	(		)
##	13	&	5000	&	11.971	(	0.535	)	&	8.823	(	0.395	)	&	8.816	(	0.394	)	&	8.816	(	0.394	)	&	8.798	(		)
##	13	&	10000	&	12.715	(	0.569	)	&	8.395	(	0.375	)	&	8.400	(	0.376	)	&	8.400	(	0.376	)	&	8.389	(		)
##	13	&	20000	&	12.865	(	0.575	)	&	8.820	(	0.394	)	&	8.835	(	0.395	)	&	8.835	(	0.395	)	&	8.814	(		)
##	13	&	30000	&	12.827	(	0.574	)	&	9.004	(	0.403	)	&	9.004	(	0.403	)	&	9.004	(	0.403	)	&	9.005	(		)
##	13	&	40000	&	12.252	(	0.548	)	&	8.735	(	0.391	)	&	8.728	(	0.390	)	&	8.728	(	0.390	)	&	8.731	(		)
##	13	&	50000	&	13.486	(	0.603	)	&	9.014	(	0.403	)	&	9.000	(	0.403	)	&	9.000	(	0.403	)	&	9.010	(		)
##	14	&	100	&	63.020	(	2.818	)	&	9.351	(	0.418	)	&	66.100	(	2.956	)	&	66.105	(	2.956	)	&	9.383	(		)
##	14	&	500	&	56.290	(	2.517	)	&	9.230	(	0.413	)	&	37.402	(	1.673	)	&	37.407	(	1.673	)	&	9.189	(		)
##	14	&	1000	&	64.273	(	2.874	)	&	9.321	(	0.417	)	&	49.792	(	2.227	)	&	49.789	(	2.227	)	&	9.442	(		)
##	14	&	5000	&	65.704	(	2.938	)	&	9.252	(	0.414	)	&	46.026	(	2.058	)	&	46.026	(	2.058	)	&	9.265	(		)
##	14	&	10000	&	62.914	(	2.814	)	&	8.873	(	0.397	)	&	41.801	(	1.869	)	&	41.801	(	1.869	)	&	8.863	(		)
##	14	&	20000	&	70.381	(	3.148	)	&	9.259	(	0.414	)	&	45.507	(	2.035	)	&	45.507	(	2.035	)	&	9.260	(		)
##	14	&	30000	&	70.430	(	3.150	)	&	8.969	(	0.401	)	&	46.123	(	2.063	)	&	46.124	(	2.063	)	&	8.969	(		)
##	14	&	40000	&	70.721	(	3.163	)	&	9.592	(	0.429	)	&	47.366	(	2.118	)	&	47.366	(	2.118	)	&	9.590	(		)
##	14	&	50000	&	65.161	(	2.914	)	&	9.677	(	0.433	)	&	47.915	(	2.143	)	&	47.915	(	2.143	)	&	9.669	(		)
##	15	&	100	&	14.203	(	0.635	)	&	45.077	(	2.016	)	&	16.556	(	0.740	)	&	11.467	(	0.513	)	&	15.872	(		)
##	15	&	500	&	12.935	(	0.578	)	&	49.839	(	2.229	)	&	17.138	(	0.766	)	&	10.694	(	0.478	)	&	17.232	(		)
##	15	&	1000	&	14.049	(	0.628	)	&	50.325	(	2.251	)	&	18.188	(	0.813	)	&	11.811	(	0.528	)	&	18.104	(		)
##	15	&	5000	&	13.016	(	0.582	)	&	51.914	(	2.322	)	&	18.138	(	0.811	)	&	10.950	(	0.490	)	&	18.133	(		)
##	15	&	10000	&	12.281	(	0.549	)	&	53.562	(	2.395	)	&	18.294	(	0.818	)	&	10.279	(	0.460	)	&	18.278	(		)
##	15	&	20000	&	13.148	(	0.588	)	&	51.415	(	2.299	)	&	16.030	(	0.717	)	&	10.493	(	0.469	)	&	16.015	(		)
##	15	&	30000	&	13.003	(	0.582	)	&	53.297	(	2.384	)	&	17.891	(	0.800	)	&	10.897	(	0.487	)	&	17.901	(		)
##	15	&	40000	&	12.621	(	0.564	)	&	52.419	(	2.344	)	&	16.790	(	0.751	)	&	10.014	(	0.448	)	&	16.795	(		)
##	15	&	50000	&	13.342	(	0.597	)	&	52.433	(	2.345	)	&	16.448	(	0.736	)	&	10.182	(	0.455	)	&	16.458	(		)
##	16	&	100	&	87.358	(	3.907	)	&	32.432	(	1.450	)	&	66.371	(	2.968	)	&	62.728	(	2.805	)	&	16.566	(		)
##	16	&	500	&	107.124	(	4.791	)	&	38.888	(	1.739	)	&	72.425	(	3.239	)	&	65.172	(	2.915	)	&	19.232	(		)
##	16	&	1000	&	153.531	(	6.866	)	&	39.391	(	1.762	)	&	266.236	(	11.906	)	&	258.586	(	11.564	)	&	17.238	(		)

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## 16 & 5000 & 67.995 ( 3.041) & 44.140 ( 1.974) & 50.934 ( 2.278) & 47.373 ( 2.119) & 17.267 (
## 16 & 10000 & 67.592 ( 3.023) & 41.062 ( 1.836) & 61.603 ( 2.755) & 55.286 ( 2.472) & 17.973 (
## 16 & 20000 & 59.580 ( 2.665) & 43.753 ( 1.957) & 49.953 ( 2.234) & 42.924 ( 1.920) & 17.548 (
## 16 & 30000 & 59.543 ( 2.663) & 40.627 ( 1.817) & 54.854 ( 2.453) & 46.793 ( 2.093) & 16.706 (
## 16 & 40000 & 56.936 ( 2.546) & 42.033 ( 1.880) & 51.886 ( 2.320) & 45.059 ( 2.015) & 18.020 (
## 16 & 50000 & 72.134 ( 3.226) & 38.512 ( 1.722) & 60.447 ( 2.703) & 54.527 ( 2.439) & 18.434 (
## \hline
## \end{tabular}
## \end{table}

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