Erdős–Rényi model

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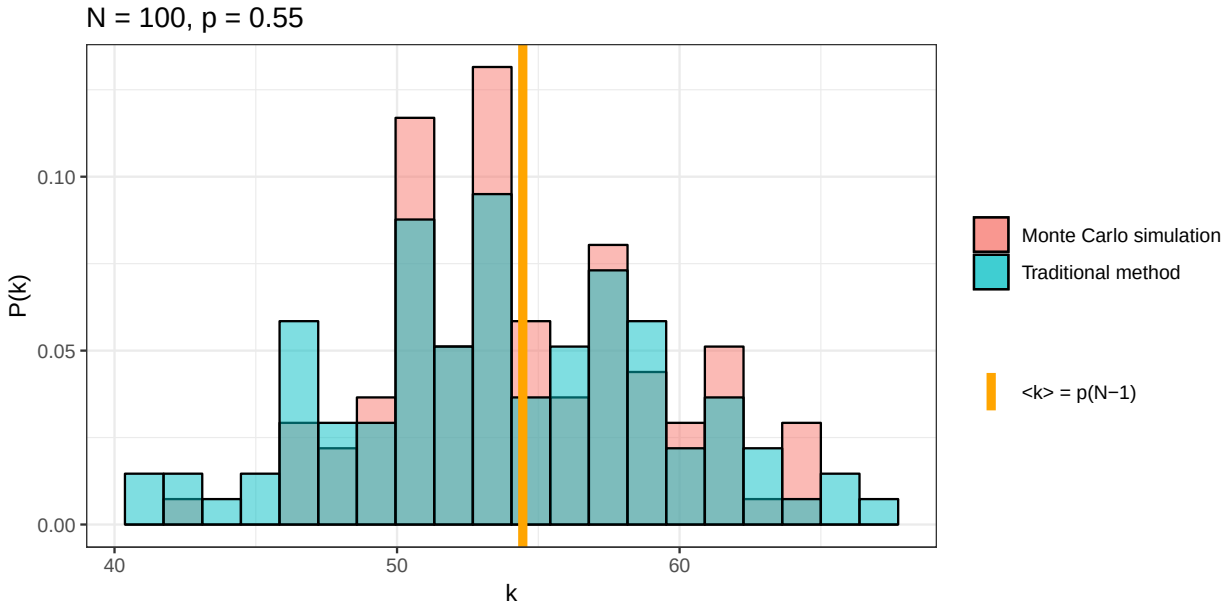
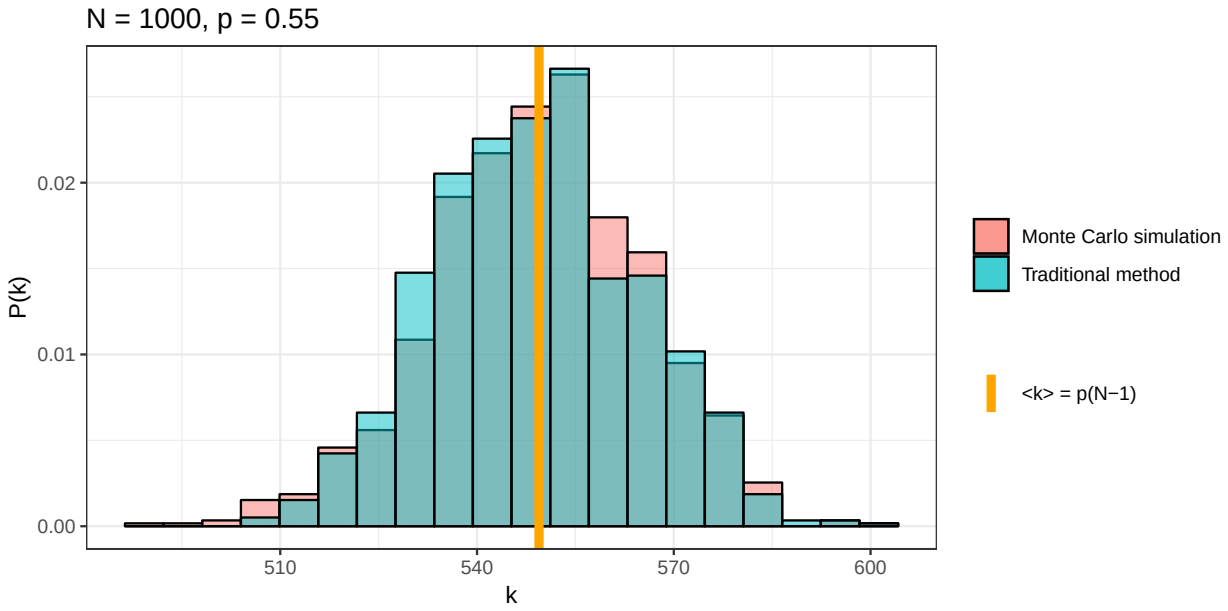
```
load_er_graph_degrees <- function(filename_traditional, filename_mc) {
  deg_er <- read_csv(filename_traditional, col_names = c("traditional_degree"))
  deg_er_mc <- read_csv(filename_mc, col_names = c("MC degree"))
  deg_er %>% add_column(MC_degree = deg_er_mc$`MC degree`)
}

plot_er_degree <- function(deg, N, p) {
  ggplot(deg) +
  geom_histogram(aes(MC_degree, y = ..density.., fill = "Monte Carlo simulation"),
                 bins = 20, alpha = 0.5, color = "black") +
  geom_histogram(aes(traditional_degree, y = ..density.., fill = "Traditional method"),
                 bins = 20, alpha = 0.5, color = "black") +
  geom_vline(aes(xintercept = p * (N - 1), color = "<k> = p(N-1)"), size = 2) +
  scale_fill_discrete(name = "") +
  scale_color_manual(name = "", values = c(`<k> = p(N-1)` = "orange")) +
  labs(x = "k", y = "P(k)", title = paste("N = ", N, ", p = ", p, sep = "")) +
  theme_bw()
}
```

ER graphs p = 0.55

```
deg_n_100 <- load_er_graph_degrees("output/p_55_n_100er_traditional_network.txt",
                                   "output/p_55_n_100er_mc_network.txt")

plot_er_degree(deg_n_100, N = 100, p = 0.55)
```

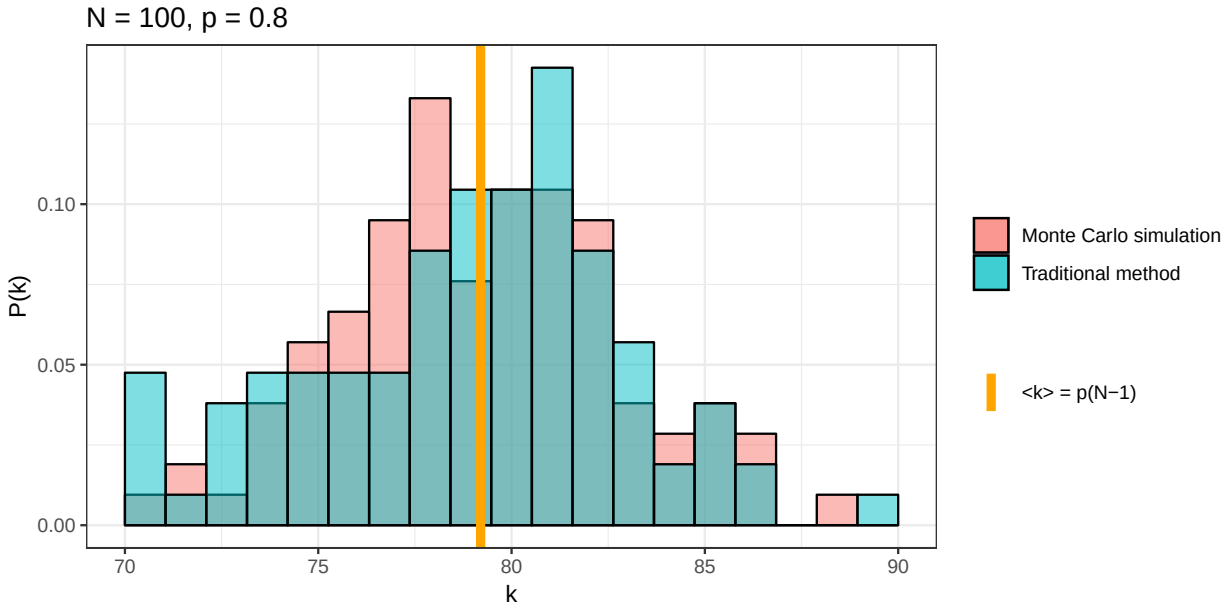


```
deg_n_1000 <- load_er_graph_degrees("output/p_55_n_1000er_traditional_network.txt",
                                    "output/p_55_n_1000er_mc_network.txt")

plot_er_degree(deg_n_1000, N = 1000, p = 0.55)
```



ER graphs `p = 0.8`

```
deg_n_100 <- load_er_graph_degrees("output/p_80_n_100er_traditional_network.txt",
                                   "output/p_80_n_100er_mc_network.txt")

plot_er_degree(deg_n_100, N = 100, p = 0.80)
```



```
deg_n_1000 <- load_er_graph_degrees("output/p_80_n_1000er_traditional_network.txt",
                                    "output/p_80_n_1000er_mc_network.txt")

plot_er_degree(deg_n_1000, N = 1000, p = 0.80)
```