Goodness of fit

```r
library(knitr)
library(dplyr)
library(ggplot2)

load("data/goodness_of_fit_dc.RData")

kable(tab_results, digits = 4)
```

	Home	Draw	Away
Observed	0.4882	0.2686	0.2433
Model 0	0.4827	0.2608	0.2565
Model 3	0.4846	0.2788	0.2366

```r
kable(tab_home_goals, digits = 4)
```

	0	1	2	3	4	5+
Observed	0.2282	0.3617	0.2465	0.1173	0.0350	0.0113
Model 0	0.2661	0.3500	0.2329	0.1050	0.0343	0.0117
Model 3	0.2425	0.3670	0.2510	0.1036	0.0287	0.0073

```r
kable(tab_away_goals, digits = 4)
```

	0	1	2	3	4	5+
Observed	0.3870	0.3671	0.1792	0.0474	0.0151	0.0043
Model 0	0.4965	0.3464	0.1239	0.0273	0.0052	0.0007
Model 3	0.4892	0.3609	0.1209	0.0250	0.0036	0.0003

```r
tibble(x = sims[["loglik_results_mod_0"]]) %>%
  ggplot(aes(x = x)) +
  geom_histogram(bins = 50) +
  theme_bw() +
  geom_vline(xintercept = loglik_observed_results_mod_0, col = "red") +
  xlab("Log-likelihood") +
  ylab("Count") +
  ggtitle("Results model 0")
```
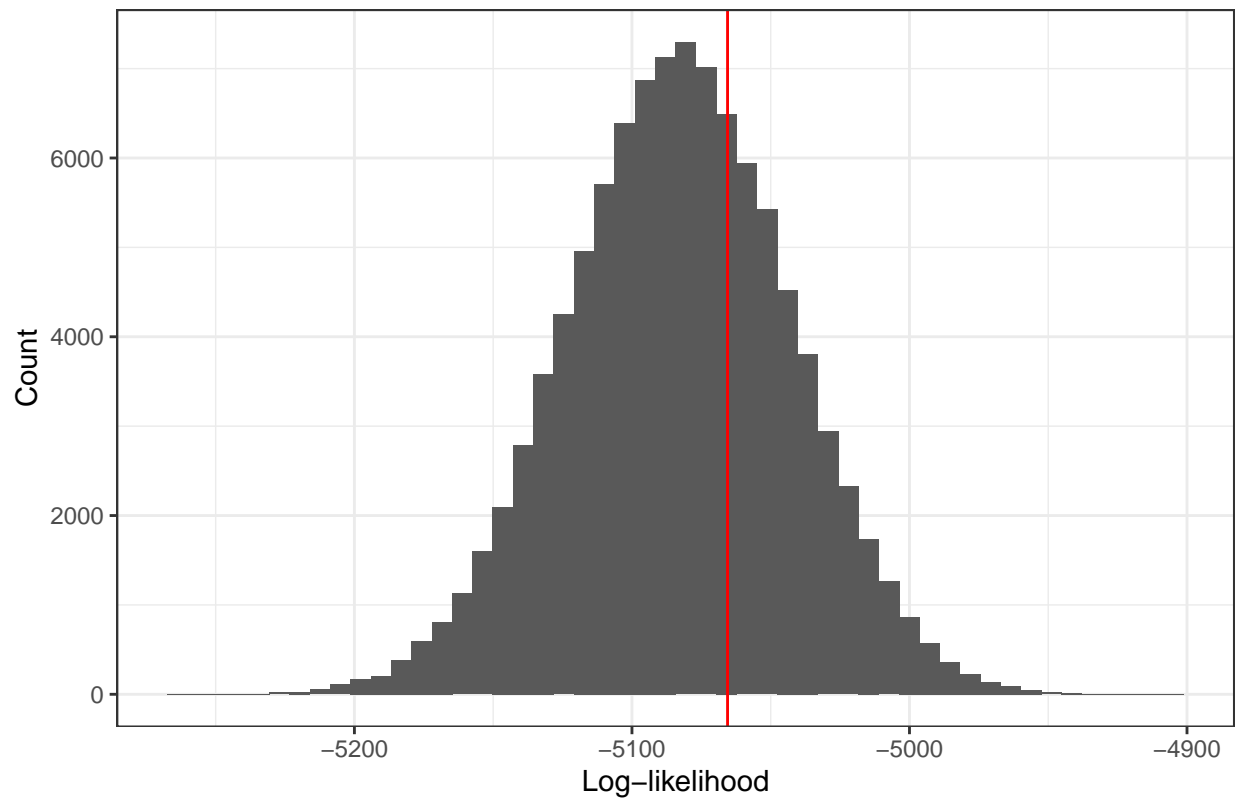
Results model 0
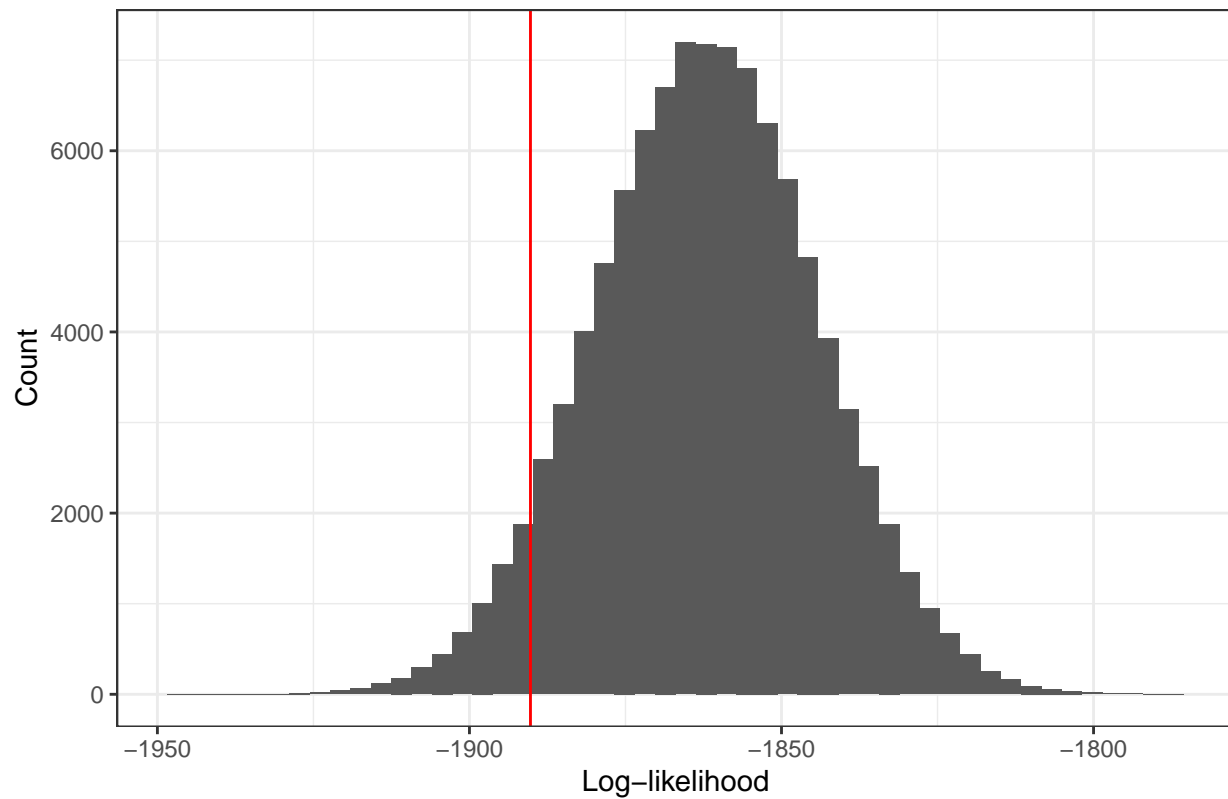

```r
sum(sims[["loglik_results_mod_0"]] <= loglik_observed_results_mod_0) /
  length(sims[["loglik_results_mod_0"]])
```

```
## [1] 0.05879
```

```r
tibble(x = sims[["loglik_scores_mod_0"]]) %>%
  ggplot(aes(x = x)) +
  geom_histogram(bins = 50) +
  theme_bw() +
  geom_vline(xintercept = loglik_observed_scores_mod_0, col = "red") +
  xlab("Log-likelihood") +
  ylab("Count") +
  ggtitle("Scores model 0")
```
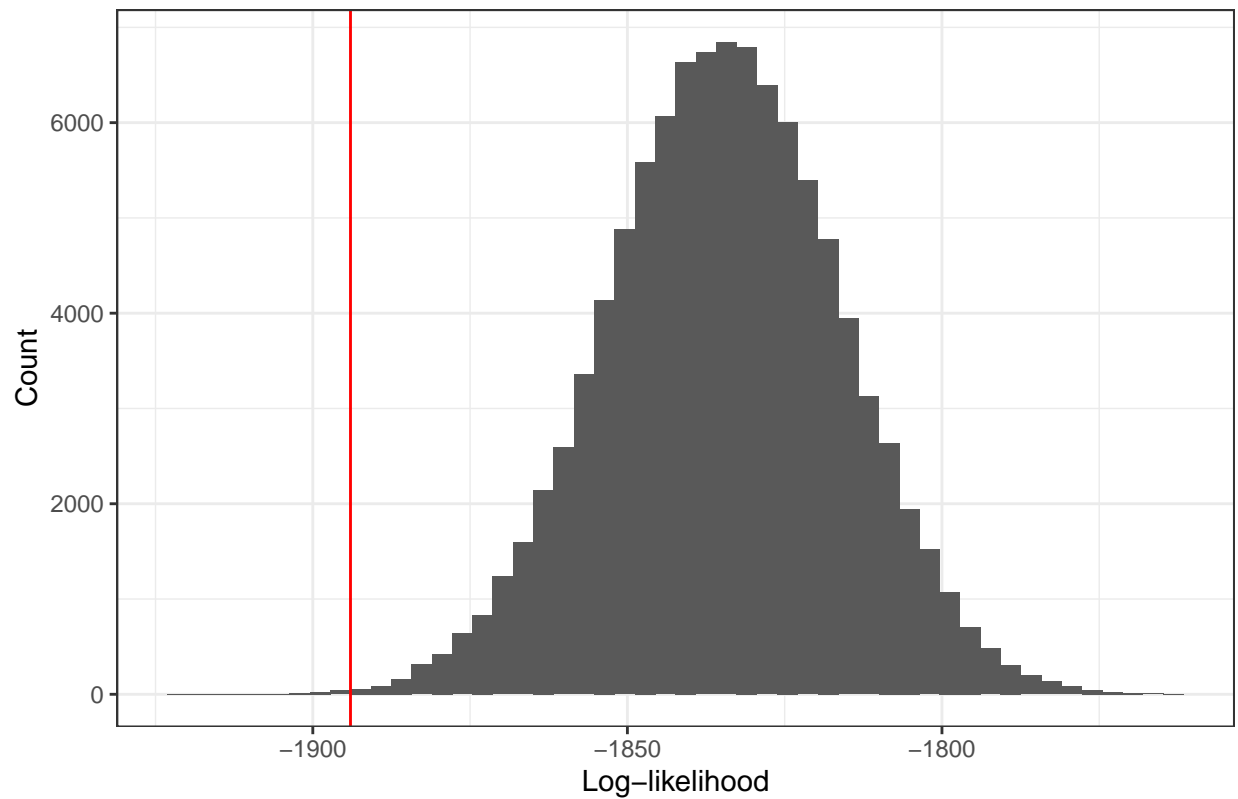
Scores model 0


```
sum(sims[["loglik_scores_mod_0"]] >= loglik_observed_scores_mod_0) /
  length(sims[["loglik_scores_mod_0"]])
```

```
## [1] 0.33205
```

```
tibble(x = sims[["loglik_results_mod_3"]]) %>%
  ggplot(aes(x = x)) +
  geom_histogram(bins = 50) +
  theme_bw() +
  geom_vline(xintercept = loglik_observed_results_mod_3, col = "red") +
  xlab("Log-likelihood") +
  ylab("Count") +
  ggtitle("Results model 3")
```
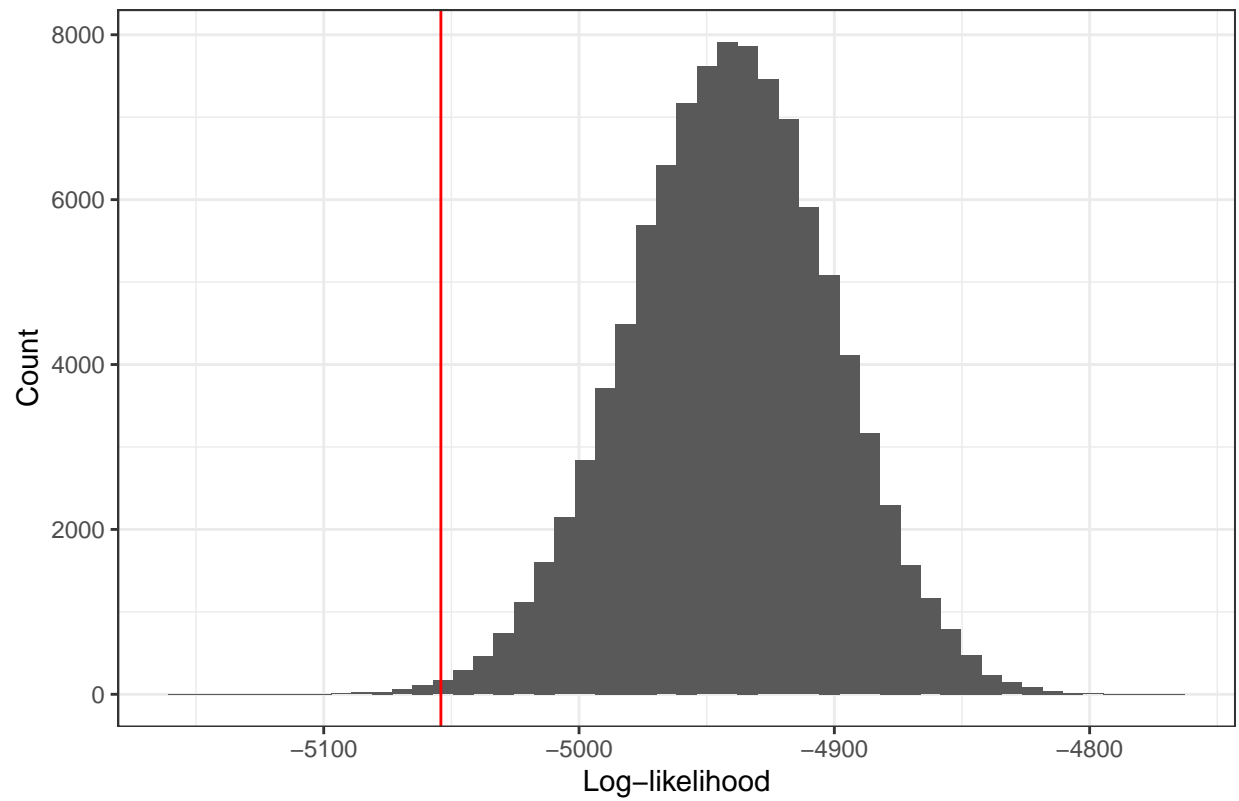
Results model 3


```r
sum(sims[["loglik_results_mod_3"]] <= loglik_observed_results_mod_3) /
  length(sims[["loglik_results_mod_3"]])
```

```
## [1] 0.00091
```

```r
tibble(x = sims[["loglik_scores_mod_3"]]) %>%
  ggplot(aes(x = x)) +
  geom_histogram(bins = 50) +
  theme_bw() +
  geom_vline(xintercept = loglik_observed_scores_mod_3, col = "red") +
  xlab("Log-likelihood") +
  ylab("Count") +
  ggtitle("Scores model 3")
```

Scores model 3


```r
sum(sims[["loglik_scores_mod_3"]] <= loglik_observed_scores_mod_3) /
  length(sims[["loglik_scores_mod_3"]])
```

```
## [1] 0.00276
```