# HW2

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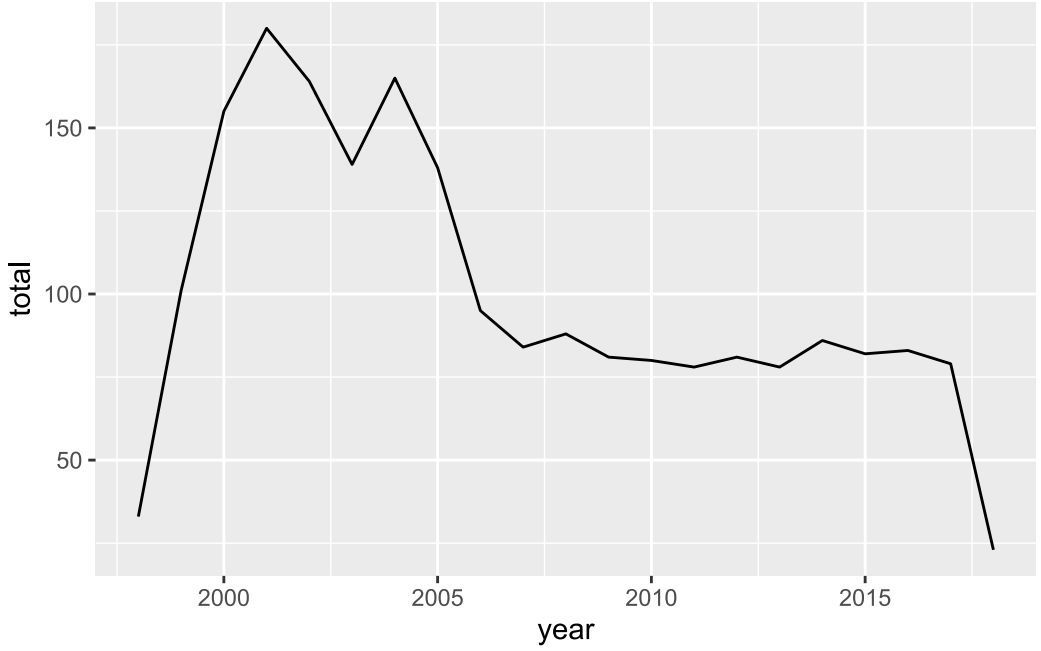
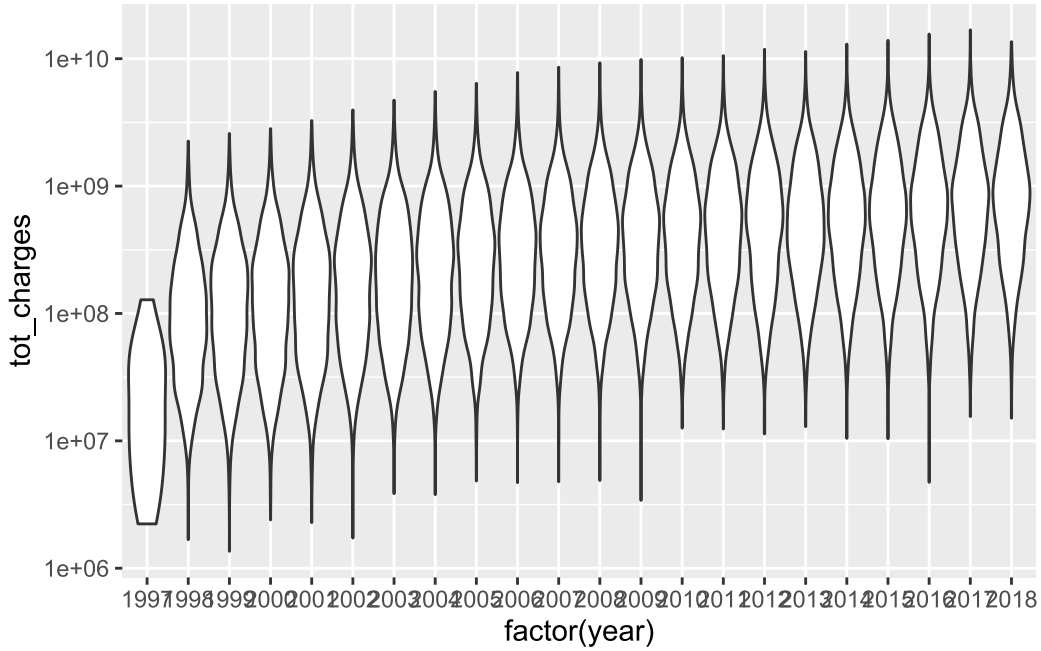
1. Hospital reports over time



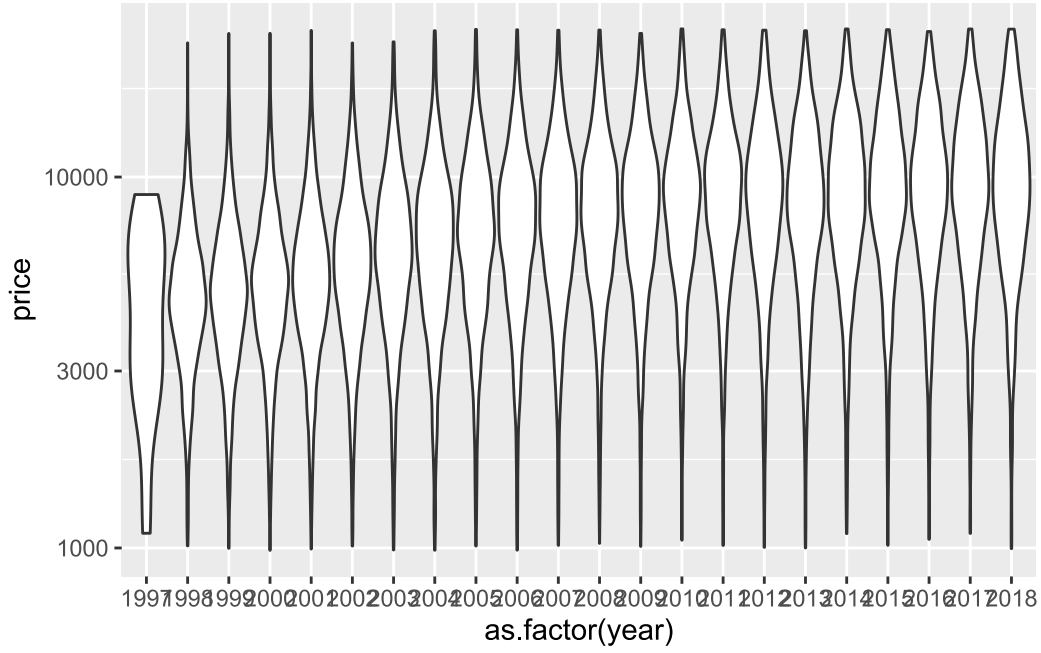

2. Number of unique hospital ids

```
# A tibble: 1 × 1
  Unique_hospital_ids
                <int>
1                  21
```

3. Distribution of total charges




4. Distribution of price




5. Average prices of penalized and non-penalized hospitals

```
# A tibble: 1 × 2
   year avg_price_nopen
```

```
  <dbl>           <dbl>
1  2012          11589.
```

```
# A tibble: 1 × 2
   year avg_price_pen
  <dbl>         <dbl>
1  2012         9825.
```

6. Bed size quantiles and their average prices

| Bed Quartile | Avg Price (In Group) | Avg Price (Not in Group) |
|---|---|---|
| bed_1 | 7519.612 | 10613.925 |
| bed_2 | 9015.002 | 10101.116 |
| bed_3 | 9888.857 | 9811.928 |
| bed_4 | 12919.388 | 8799.158 |

Table 1: Average Price by Bed Quartile Group

7. Calculating different estimators

| Method | ATE |
|---|---|
| Inverse Variance Distance | 2130.7904 |
| Mahalanobis Distance | 434.0899 |
| Inverse Propensity Weighting | 5954.2383 |
| Simple Linear Regression | 20331.4884 |

Table 2: Estimated Treatment Effects by Method

8. Each of these estimators produce very different estimates.
9. Due to the limited number of penalized hospitals in the dataset, I do not believe the causal effect was properly captured.
10. For some reason, working with this data was difficult because running the same code with different people was producing different outputs, which was kind of frustrating.

**Github Repository Link:** https://github.com/miracleephraim/hw2.git