Gerrymandering Metrics

```
library(tidyverse)
```

```
── Attaching core tidyverse packages ──────────────────────── tidyverse 2.0.0
──
✔ dplyr     1.1.4     ✔ readr     2.1.5
✔ forcats   1.0.1     ✔ stringr   1.5.2
✔ ggplot2   4.0.0     ✔ tibble    3.3.0
✔ lubridate 1.9.4     ✔ tidyr     1.3.1
✔ purrr     1.1.0
── Conflicts ────────────────────────────────────────── tidyverse_conflicts()
──
✖ dplyr::filter() masks stats::filter()
✖ dplyr::lag()    masks stats::lag()
ℹ Use the conflicted package (<http://conflicted.r-lib.org/>) to force all
conflicts to become errors
```

```
district_votes <- read_csv("data/district_votes_2024.csv")
```

```
Rows: 53 Columns: 6
── Column specification ────────────────────────────────────────────────────
Delimiter: ","
chr (1): winner
dbl (5): CDDIST, dem_votes, rep_votes, total_votes, dem_share

ℹ Use `spec()` to retrieve the full column specification for this data.
ℹ Specify the column types or set `show_col_types = FALSE` to quiet this
message.
```

2024 Election Results and the 2024 District Map

```
library(tidyverse)

precinct_votes <- read_csv("data/precinct_votes_clean.csv")
```

```
Rows: 51123 Columns: 7
── Column specification ────────────────────────────────────────────────────
Delimiter: ","
```

```
chr (1): SVPREC_KEY
dbl (6): COUNTY, CDDIST, dem_votes, rep_votes, total_votes, dem_share

ℹ Use `spec()` to retrieve the full column specification for this data.
ℹ Specify the column types or set `show_col_types = FALSE` to quiet this
message.
```

```
gerry_2024 <- precinct_votes |>
    group_by(CDDIST) |>
    summarize(
        dem_votes = sum(dem_votes, na.rm = TRUE),
        rep_votes = sum(rep_votes, na.rm = TRUE)
    ) |>
    mutate(
        total_votes = dem_votes + rep_votes,
        dem_share = if_else(total_votes > 0, dem_votes / total_votes, NA),
        rep_share = if_else(total_votes > 0, rep_votes / total_votes, NA),
        winner = if_else(
            dem_votes > rep_votes,
            "DEM",
            if_else(rep_votes > dem_votes, "REP", "TIE")
        ),
        d_wasted = if_else(
            winner == "DEM",
            dem_votes - 51,
            dem_votes
        ),
        r_wasted = if_else(
            winner == "REP",
            rep_votes - 51,
            rep_votes
        )
    )

write_csv(gerry_2024, "data/gerrymandering_table_2024.csv")

mean_median_2024 <- gerry_2024 |>
    mutate(v_i = dem_share) |>
    summarize(
        mean_v = mean(v_i, na.rm = TRUE),
        med_v = median(v_i, na.rm = TRUE)
    ) |>
    mutate(
        mean_median = mean_v - med_v
    )

eg_2024 <- gerry_2024 |>
```

```
    summarize(
        total_d_wasted = sum(d_wasted, na.rm = TRUE),
        total_r_wasted = sum(r_wasted, na.rm = TRUE),
        total_votes = sum(total_votes, na.rm = TRUE)
    ) |>
    mutate(
        efficiency_gap = (total_r_wasted - total_d_wasted) / total_votes
    )

mean_median_2024
```

```
# A tibble: 1 × 3
  mean_v med_v mean_median
   <dbl> <dbl>       <dbl>
1  0.616 0.627     -0.0116
```

```
eg_2024
```

```
# A tibble: 1 × 4
  total_d_wasted total_r_wasted total_votes efficiency_gap
           <dbl>          <dbl>       <dbl>          <dbl>
1       61641273       39945667   101589643         -0.214
```

```
#save this district-level table so we can reuse it in other parts

write_csv(gerry_2024, "data/gerrymandering_table_2024.csv")
```

2024 Election Results and the proposed 2025 District Map

library(tidyverse)

final <- read_csv("data/final.csv")

mean_median_new <- final |> summarize(mean_dem = mean(d_prop, na.rm = TRUE), median_dem = median(d_prop, na.rm = TRUE)) |> mutate(mean_median = mean_dem - median_dem)

final2 <- final |> mutate(d_wasted = if_else(winner == "D", d_votes_total_dist - 51, d_votes_total_dist), r_wasted = if_else(winner == "R", r_votes_total_dist - 51, r_votes_total_dist))

total_d_wasted <- sum(final2$d_wasted, na.rm = TRUE) total_r_wasted <- sum(final2$r_wasted, na.rm = TRUE) total_votes <- sum(final2$total, na.rm = TRUE)

new_eg_value <- (total_r_wasted - total_d_wasted) / total_votes

mean_median_new new_eg_value