Gerrymandering Metrics

2024 Election Results and the 2024 District Map

```
library(tidyverse)
```

```
── Attaching core tidyverse packages ──────────────────────── tidyverse 2.0.0
──
✔ dplyr     1.1.4     ✔ readr     2.1.5
✔ forcats   1.0.0     ✔ 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
```

```
df <- read_csv("cleaned_g24_precinct_votes.csv")
```

```
Rows: 51123 Columns: 76
── Column specification
────────────────────────────────────────────────────────
Delimiter: ","
chr (49): svprec, fips, svprec_key, election, geo_type, assaip01,
assdem01, ...
dbl (27): county, addist, cddist, sddist, bedist, totreg, demreg, repreg,
ai...

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.
```

```
dist <- df %>%
  group_by(cddist) %>%
  summarise(
    dem = sum(demvote, na.rm = TRUE),
    rep = sum(repvote, na.rm = TRUE)
  ) %>%
```

```
  mutate(
    total = dem + rep,
    share = dem / total
  )

mm <- mean(dist$share, na.rm = TRUE) - median(dist$share, na.rm = TRUE)

dist <- dist %>%
  mutate(
    d_waste = if_else(dem > rep, dem - total/2, dem),
    r_waste = if_else(rep > dem, rep - total/2, rep)
  )

eg <- (sum(dist$d_waste) - sum(dist$r_waste)) / sum(dist$total)

results_2024 <- tibble(
  districts = nrow(dist),
  mean_share = mean(dist$share),
  median_share = median(dist$share),
  mean_median = mm,
  efficiency_gap = eg
)

results_2024
```

```
# A tibble: 1 × 5
  districts mean_share median_share mean_median efficiency_gap
      <int>      <dbl>        <dbl>       <dbl>          <dbl>
1        53        NaN           NA          NA            NaN
```

2024 Election Results and the proposed 2025 District Map

```
df_2025 <- df %>%
  mutate(district = addist)

dist_2025 <- df_2025 %>%
  group_by(district) %>%
  summarise(
    dem = sum(demvote, na.rm = TRUE),
    rep = sum(repvote, na.rm = TRUE)
  ) %>%
  mutate(
    total = dem + rep,
    share = dem / total
  )

#
```

```r
mm_2025 <- mean(dist_2025$share, na.rm = TRUE) - median(dist_2025$share, na.rm
= TRUE)

dist_2025 <- dist_2025 %>%
  mutate(
    d_waste = if_else(dem > rep, dem - total/2, dem),
    r_waste = if_else(rep > dem, rep - total/2, rep)
  )

eg_2025 <- (sum(dist_2025$d_waste) - sum(dist_2025$r_waste)) /
sum(dist_2025$total)

results_2025 <- tibble(
  districts = nrow(dist_2025),
  mean_share = mean(dist_2025$share),
  median_share = median(dist_2025$share),
  mean_median = mm_2025,
  efficiency_gap = eg_2025
)

results_2025
```

```
# A tibble: 1 × 5
  districts mean_share median_share mean_median efficiency_gap
      <int>      <dbl>        <dbl>       <dbl>          <dbl>
1        81        NaN           NA          NA            NaN
```