How does the policy affect the Brandenburg Residents?

Data Science for Agent Based Transport Simulations

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Comparing Mode Share: Base vs. Policy Scenario

BASE

```r
mode_share_bb_base <- base_data %>%
  select(trip_id, main_mode) %>%
  filter(grepl("^bb", trip_id, ignore.case = TRUE)) %>%
  count(main_mode) %>%
  mutate(share = n / sum(n)) %>%
  mutate(scenario = "base") %>%
  select(scenario, main_mode, share)
```

POLICY

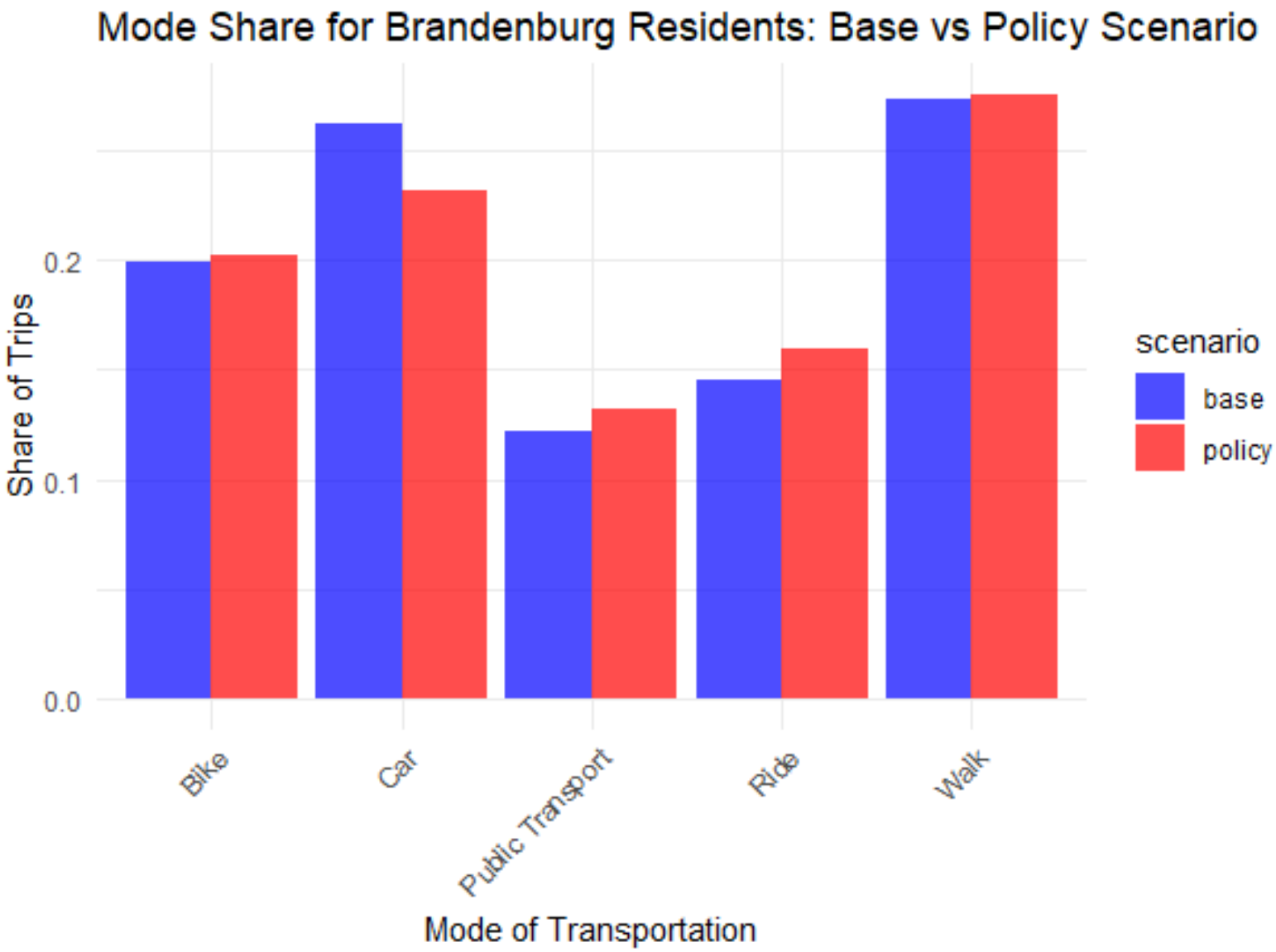
```r
mode_share_bb_policy <- policy_data %>%
  select(trip_id, main_mode) %>%
  filter(grepl("^bb", trip_id, ignore.case = TRUE)) %>%
  count(main_mode) %>%
  mutate(share = n / sum(n)) %>%
  mutate(scenario = "policy") %>%
  select(scenario, main_mode, share)
```

Combining datasets:

```r
mode_share_bb_combined <- bind_rows(mode_share_bb_base, mode_share_bb_policy) %>%
  mutate(main_mode = fct_recode(main_mode,
                                "Bike" = "bike",
                                "Car" = "car",
                                "Public Transport" = "pt",
                                "Ride" = "ride",
                                "Walk" = "walk"))
```

scenario	main_mode	share
base	Bike	0.1985050
base	Car	0.2613513
base	Public Transport	0.1218756
base	Ride	0.1450950
base	Walk	0.2731731
policy	Bike	0.2019774
policy	Car	0.2310017
policy	Public Transport	0.1323720
policy	Ride	0.1593819
policy	Walk	0.2752671

Comparing Mode Share: Base vs. Policy Scenario



Comparing Mean and Median Travel Time by Main Mode: Policy minus Base

MEAN, DATASET 1

MEDIAN, DATASET 2

```r
base_data_bb <- base_data %>%
  filter(grepl("^bb", trip_id, ignore.case = TRUE)) %>%
  mutate(total_trav_time = trav_time + wait_time)
policy_data_bb <- policy_data %>%
  filter(grepl("^bb", trip_id, ignore.case = TRUE)) %>%
  mutate(total_trav_time = trav_time + wait_time)
```

```r
mode_base_summary1 <- base_data_bb %>%
  group_by(main_mode) %>%
  summarise (avg_travel_time = mean(total_trav_time, na.rm = TRUE))
```

mode_base_summary2

median

```r
mode_policy_summary1 <- policy_data_bb %>%
  group_by(main_mode) %>%
  summarise (avg_travel_time = mean(total_trav_time, na.rm = TRUE))
```

mode_policy_summary2

median

```r
mode_summary_combined1 <- left_join(mode_base_summary1, mode_policy_summary1,
                                    by = "main_mode",
                                    suffix = c("_base", "_policy")) %>%
  mutate(avg_travel_time_diff = avg_travel_time_policy - avg_travel_time_base) %>%
  mutate(color_diff = ifelse(avg_travel_time_diff > 0, "Positive", "Negative")) %>%
  mutate(main_mode = fct_recode(main_mode,
                                "Bike" = "bike",
                                "Car" = "car",
                                "Public Transport" = "pt",
                                "Ride" = "ride",
                                "Walk" = "walk"))
```

mode_summary_combined2

Comparing Mean and Median Travel Time by Main Mode: Policy minus Base