Study 3A (Race Biopic)

December 19, 2025

Items

Read Data

```
# Set this to TRUE if you have API access, FALSE if using CSV
USE_API <- T

if(USE_API) {
  ## Pull directly from Qualtrics API
  qual_data <- fetch_survey(surveyID='SV_eFIgYjv3jONWknQ',
                    label = T,
                    convert = F,
                    start_date = "2023-12-14",
                    force_request = T)
} else {
  # Read the processed data directly from CSV
  d0 <- read.csv('Study3A.csv', check.names = F)
  num_excluded <- unique(d0$num_excluded_total)
}

# Define the categories
race_list <- c('Salem','Harriet', 'Ali', '42')
budget <- c('Oppenheimer', 'Moneyball', 'Ali', 'Braveheart', 'A Beautiful Mind' ,'The
↪  Aviator', 'The King\'s Speech', 'Rocketman', 'The Greatest Showman','Walk the Line')
year <- c('A Beautiful Day in the Neighborhood', 'Oppenheimer', 'Salem', 'Moneyball',
↪  'The Imitation Game', 'Tolkien', 'Jobs', 'J. Edgar', 'Hitchcock', 'LBJ','On The Basis
↪  of Sex', 'The Founder','Chappaquiddick', 'Rocketman', 'The Greatest Showman','Walk
↪  the Line', 'Harriet')
duration <- c('Moneyball', 'Chaplin', 'W. A Life Misunderstood', 'The Aviator', 'J.
↪  Edgar', 'Oppenheimer', 'Selma', 'The Doors', 'A Beautiful Mind', 'Harriet', 'Nixon',
↪  'On The Basis of Sex', 'Jobs' ,'Braveheart', 'Ali', '42', 'Patton', 'Rocketman',
↪  'Walk the Line')

if(USE_API) {
  # Process the API data
  d0 <- qual_data %>%
    dplyr::filter(!is.na(`choice-8`), Finished==1) %>%
    dplyr::mutate(
      race_feedback = as.numeric(grepl("featured a racial minority protagonist",
      ↪  feedbackItem1) |
                    grepl("featured a racial minority protagonist", feedbackItem2) |
                    grepl("featured a racial minority protagonist", feedbackItem3)),
      budget_shown = as.numeric(grepl("had a big budget \\(>\\$40 million\\)",
      ↪  feedbackItem1) |
                    grepl("had a big budget \\(>\\$40 million\\)", feedbackItem2) |
                    grepl("had a big budget \\(>\\$40 million\\)", feedbackItem3)),
      year_shown = as.numeric(grepl("were released after 2010", feedbackItem1) |
                   grepl("were released after 2010", feedbackItem2) |
                   grepl("were released after 2010", feedbackItem3)),
      duration_shown = as.numeric(grepl("had a runtime over 2 hrs", feedbackItem1) |
                    grepl("had a runtime over 2 hrs", feedbackItem2) |
                    grepl("had a runtime over 2 hrs", feedbackItem3)),
      race_pick = case_when(`choice-8` %in% race_list ~ 1,
                            TRUE ~ 0),
      budget_pick = case_when(`choice-8` %in% budget ~ 1,
                            TRUE ~ 0),
```

```
      year_pick = case_when(`choice-8` %in% year ~ 1,
                            TRUE ~ 0),
      duration_pick = case_when(`choice-8` %in% duration ~ 1,
                            TRUE ~ 0),
      gender_code = case_when(gender=="Man" ~ 1, TRUE ~ 0),
      race_code = case_when(race=="White / Caucasian" ~ 1, TRUE ~ 0),
      base_race = rowSums(across(`choice-1`:`choice-7`, ~ . %in% race_list))) %>%
    dplyr::select(race_feedback:duration_pick, gender, base_race, `choice-1`:`choice-8`,
↪   race, age, gender_code, race_code) %>%
    slice(1:1000) # pre-registered sample size

  # Calculate the number of excluded participants
  num_excluded <- nrow(qual_data) - nrow(d0)

  # Save num_excluded in d0
  d0$num_excluded_total <- num_excluded  # As a column

  # Write the API-pulled data into a CSV file
  write.csv(d0, 'Study3A.csv', row.names = FALSE, quote = TRUE)
}
```

Variable Names

Variable	Description
race_feedback	Binary indicator of whether participant was randomly assigned to race feedback condition.
race_pick	Binary indicator of whether participant selected a racial minority protagonist for their seventh film selection
budget_shown	Binary indicator of whether participant was randomly assigned to receive budget feedback.
budget_pick	Binary indicator of whether participant selected a film with a big budget for their seventh selection.
year_shown	Binary indicator of whether participant was randomly assigned to receive film year feedback.
year_pick	Binary indicator of whether participant selected a film released after 2010 for their seventh selection.
duration_shown	Binary indicator of whether participant was randomly assigned to receive film budget feedback
duration_pick	Binary indicator of whether participant selected a film with a big budget for their seventh selection.
base_race	Count of the number of films with racial minority protagonists selected in the initial seven films.
choice-1 to choice-7	The selected films
gender	Self-selected gender.
race	Self-selected race.
age	Self-entered age.
gender_code	Dummy code for gender (male = 1).
race_code	Dummy code for race (white = 1).

Demographics

```
## Excluded Participants: 138
```

```
##                         Percentage gender
## 1 Another gender not listed here:    0.1
## 2                              Man   46.1
## 3                       Non-binary    2.4
## 4                            Woman   51.4
```

```
##                           Percentage Race
## 1 American Indian or Alaskan Native  0.7
## 2          Asian / Pacific Islander  8.8
## 3         Black or African American 12.0
## 4                 Hispanic / Latinx  6.2
## 5                 White / Caucasian 72.3
```

```
## # A tibble: 1 x 2
##   mean_age sd_age
##      <dbl>  <dbl>
## 1     42.2   13.1
```

```
## Mean (num of initial women selected):  1.13
```

```
## SD (num of initial women selected):  0.86
```

```
## Percentage (initial women selected):  0.1614286
```

```
## SD (initial women selected):  0.1228571
```

```
## # A tibble: 2 x 2
##   race_feedback  mean
##           <dbl> <dbl>
## 1             0 0.166
## 2             1 0.158
```

```
##
##  Welch Two Sample t-test
##
## data:  base_race/7 by race_feedback
## t = 1.0065, df = 997.76, p-value = 0.3144
## alternative hypothesis: true difference in means between group 0 and group 1 is not equal to 0
## 95 percent confidence interval:
##  -0.007452731  0.023146696
## sample estimates:
## mean in group 0 mean in group 1
##       0.1659078       0.1580608
```

Primary Analysis

```r
# primary model
r1 <- lm(race_pick ~ race_feedback, data=d0)

# Display the summary with robust standard errors
robust_summary(r1)
```

```
##
## Call:
## lm(formula = race_pick ~ race_feedback, data = d0)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.2711 -0.2711 -0.1773 -0.1773  0.8227
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    0.17729    0.01708   10.38  < 2e-16 ***
## race_feedback  0.09379    0.02627    3.57 0.000373 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4147 on 998 degrees of freedom
## Multiple R-squared:  0.01265,    Adjusted R-squared:  0.01166
## F-statistic: 12.79 on 1 and 998 DF,  p-value: 0.0003654
```

```r
robust_confint(r1)
```

```
##                    2.5 %    97.5 %
## (Intercept)   0.14377458 0.2108071
## race_feedback 0.04224332 0.1453437
```

Robustness

```
## which feedback was shown with gender, remove constant due to ollinearity
r2 <- lm(race_pick ~ race_feedback + budget_shown + year_shown + duration_shown - 1,
↪  data=d0)

# Display the summary with robust standard errors
robust_summary(r2)
```

```
##
## Call:
## lm(formula = race_pick ~ race_feedback + budget_shown + year_shown +
##     duration_shown - 1, data = d0)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.3459 -0.2312 -0.1773 -0.1773  0.8227
##
## Coefficients:
##                Estimate Std. Error t value Pr(>|t|)
## race_feedback   0.15450    0.02300   6.716 3.13e-11 ***
## budget_shown    0.10058    0.02790   3.605 0.000328 ***
## year_shown     -0.01412    0.03020  -0.467 0.640293
## duration_shown  0.09083    0.02835   3.204 0.001399 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4135 on 996 degrees of freedom
## Multiple R-squared:  0.2397, Adjusted R-squared:  0.2366
## F-statistic:  78.5 on 4 and 996 DF,  p-value: < 2.2e-16
```

```
robust_confint(r2)
```

```
##                      2.5 %     97.5 %
## race_feedback   0.10936106 0.19964428
## budget_shown    0.04582953 0.15532974
## year_shown     -0.07338967 0.04515278
## duration_shown  0.03519875 0.14646055
```

```
## robust to demographic controls

r3 <- lm(race_pick ~ race_feedback + gender_code + race_code + age, data=d0)

# Display the summary with robust standard errors
robust_summary(r3)
```

```
##
## Call:
## lm(formula = race_pick ~ race_feedback + gender_code + race_code +
##     age, data = d0)
```

```
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.3367 -0.2555 -0.1915 -0.1248  0.9042
##
## Coefficients:
##                Estimate Std. Error t value Pr(>|t|)
## (Intercept)    0.259405   0.051570   5.030 5.81e-07 ***
## race_feedback  0.094981   0.026362   3.603  0.00033 ***
## gender_code   -0.029398   0.026583  -1.106  0.26904
## race_code      0.022992   0.029049   0.792  0.42883
## age           -0.002033   0.001028  -1.977  0.04829 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4142 on 995 degrees of freedom
## Multiple R-squared:  0.01779,    Adjusted R-squared:  0.01384
## F-statistic: 4.505 on 4 and 995 DF,  p-value: 0.001304
```

```
robust_confint(r3)
```

```
##                      2.5 %        97.5 %
## (Intercept)    0.158205407  3.606037e-01
## race_feedback  0.043249782  1.467125e-01
## gender_code   -0.081563722  2.276770e-02
## race_code     -0.034011207  7.999584e-02
## age           -0.004050017 -1.529919e-05
```

```
## logistic regression
# Fit the logistic regression model
r4 <- glm(race_pick ~ race_feedback, family = binomial, data=d0)

# Odds ratio
tidy_r4 <- tidy(r4, exponentiate = TRUE, conf.int = T)
print(tidy_r4)
```

```
## # A tibble: 2 x 7
##   term          estimate std.error statistic  p.value conf.low conf.high
##   <chr>            <dbl>     <dbl>     <dbl>    <dbl>    <dbl>     <dbl>
## 1 (Intercept)      0.215     0.117    -13.1  2.12e-39    0.170     0.270
## 2 race_feedback    1.73      0.154      3.54 4.07e- 4    1.28      2.34
```

Secondary Analysis

```
## budget feedback
r_budget <- lm(budget_pick ~ budget_shown, data=d0)

# Display the robust_summary with robust standard errors
robust_summary(r_budget)
```

```
##
## Call:
## lm(formula = budget_pick ~ budget_shown, data = d0)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.3699 -0.3676 -0.3676  0.6324  0.6324
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)   0.369942   0.036919  10.020   <2e-16 ***
## budget_shown -0.002348   0.040556  -0.058    0.954
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4827 on 998 degrees of freedom
## Multiple R-squared:  3.393e-06,  Adjusted R-squared:  -0.0009986
## F-statistic: 0.003386 on 1 and 998 DF,  p-value: 0.9536
```

```
robust_confint(r_budget)
```

```
##                    2.5 %     97.5 %
## (Intercept)   0.29749412 0.44239027
## budget_shown -0.08193365 0.07723668
```

```
## year feedback
r_year <- lm(year_pick ~ year_shown, data=d0)

# Display the robust_summary with robust standard errors
robust_summary(r_year)
```

```
##
## Call:
## lm(formula = year_pick ~ year_shown, data = d0)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.5434 -0.5434  0.4566  0.4566  0.5220
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.47799    0.03986  11.990   <2e-16 ***
```

```
## year_shown   0.06541    0.04342   1.507    0.132
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4988 on 998 degrees of freedom
## Multiple R-squared:  0.002299,   Adjusted R-squared:  0.001299
## F-statistic: 2.299 on 1 and 998 DF,  p-value: 0.1297
```

```
robust_confint(r_year)
```

```
##                   2.5 %    97.5 %
## (Intercept)  0.39975887 0.5562160
## year_shown  -0.01978351 0.1506101
```

```
## duration feedback
r_duration <- lm(duration_pick ~ duration_shown, data=d0)

# Display the robust_summary with robust standard errors
robust_summary(r_duration)
```

```
##
## Call:
## lm(formula = duration_pick ~ duration_shown, data = d0)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.7711 -0.7038  0.2962  0.2962  0.2962
##
## Coefficients:
##                Estimate Std. Error t value Pr(>|t|)
## (Intercept)     0.77108    0.03281  23.504   <2e-16 ***
## duration_shown -0.06725    0.03643  -1.846   0.0652 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4512 on 998 degrees of freedom
## Multiple R-squared:  0.003072,   Adjusted R-squared:  0.002073
## F-statistic: 3.076 on 1 and 998 DF,  p-value: 0.07978
```

```
robust_confint(r_duration)
```

```
##                     2.5 %      97.5 %
## (Intercept)     0.7067069 0.835461807
## duration_shown -0.1387264 0.004231546
```

```
## interaction of base gender
# primary model
r_interaction <- lm(race_pick ~ race_feedback*base_race, data=d0)


# Display the summary with robust standard errors
robust_summary(r_interaction)
```

```
##
## Call:
## lm(formula = race_pick ~ race_feedback * base_race, data = d0)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.39468 -0.28297 -0.17126 -0.00706  0.90035
##
## Coefficients:
##                          Estimate Std. Error t value Pr(>|t|)
## (Intercept)               0.28481    0.03094   9.204  < 2e-16 ***
## race_feedback             0.10987    0.04586   2.396   0.0168 *
## base_race                -0.09258    0.01679  -5.513  4.5e-08 ***
## race_feedback:base_race -0.01913    0.02618  -0.731   0.4651
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4056 on 996 degrees of freedom
## Multiple R-squared:  0.05743,    Adjusted R-squared:  0.05459
## F-statistic: 20.23 on 3 and 996 DF,  p-value: 9.916e-13
```

Figure S2 Figure Code

```
##### race

d_race_plot <- d0 |>
  dplyr::select(race_feedback, race_pick) |>
  group_by(race_feedback) |>
  dplyr::summarise(
    n = n(),
    freq = mean(race_pick),
    sd = sd(race_pick) * 100,
    se = (sd(race_pick) / sqrt(n())) * 100
  ) |>
  mutate(race_feedback = case_when(race_feedback==1 ~ "\"Treatment\"",
                           TRUE ~ "\"Control\"")) |>
  rename(Condition = race_feedback)

##### budget


d_budget_plot <- d0 |>
  dplyr::select(budget_shown, budget_pick) |>
  group_by(budget_shown) |>
  dplyr::summarise(
    n = n(),
    freq = mean(budget_pick),
    sd = sd(budget_pick) * 100,
    se = (sd(budget_pick) / sqrt(n())) * 100
  ) |>
  mutate(budget_shown = case_when(budget_shown==1 ~ "\"Treatment\"",
                           TRUE ~ "\"Control\"")) |>
  rename(Condition = budget_shown)


##### year

d_year_plot <- d0 |>
  dplyr::select(year_shown, year_pick) |>
  group_by(year_shown) |>
  dplyr::summarise(
    n = n(),
    freq = mean(year_pick),
    sd = sd(year_pick) * 100,
    se = (sd(year_pick) / sqrt(n())) * 100
  ) |>
  mutate(year_shown = case_when(year_shown==1 ~ "\"Treatment\"",
                           TRUE ~ "\"Control\"")) |>
  rename(Condition = year_shown)


#### duration


d_duration_plot <- d0 |>
```

```
  dplyr::select(duration_shown, duration_pick) |>
  group_by(duration_shown) |>
  dplyr::summarise(
    n = n(),
    freq = mean(duration_pick),
    sd = sd(duration_pick) * 100,
    se = (sd(duration_pick) / sqrt(n())) * 100
  ) |>
  mutate(duration_shown = case_when(duration_shown==1 ~ "\"Treatment\"",
                          TRUE ~ "\"Control\"")) |>
  rename(Condition = duration_shown)

## Combine plots

# Load the Times New Roman font
loadfonts(device = "pdf")

df_combined <- bind_rows(
  d_budget_plot %>% mutate(Category = "\nMade for a\nBudget of >$40M"),
  d_year_plot %>% mutate(Category = "\nReleased After\n2010"),
  d_duration_plot %>% mutate(Category = "\nOver Two Hours"),
  d_race_plot %>% mutate(Category = "\nAbout a Racial\nMinority Protagonist")
, .id = "id") %>%
  mutate(Category = factor(Category, levels = c('\nMade for a\nBudget of >$40M',
  ↪  '\nReleased After\n2010', '\nOver Two Hours', '\nAbout a Racial\nMinority
  ↪  Protagonist')))

p_combined_B <- ggplot(df_combined, aes(x = Condition, y = freq*100, fill = Condition)) +
  geom_bar(stat="identity", width = 0.85, position = position_dodge(width = 0.7)) +
  geom_text(aes(label=paste0(sprintf("%.1f", freq*100),"%")),
            position=position_dodge(width=0.7), vjust=3, size = 7, color = "white",
            ↪  family = "Times New Roman") +
  geom_errorbar(aes(ymin=freq*100-se, ymax=freq*100+se), width = .1, position =
  ↪  position_dodge(width = 0.7)) +
  facet_wrap(~factor(Category, c('\nMade for a\nBudget of >$40M', '\nReleased
  ↪  After\n2010', '\nOver Two Hours', '\nAbout a Racial\nMinority Protagonist')), nrow
  ↪  = 1, strip.position = "bottom") +
  geom_segment(data = df_combined %>% filter(Condition == "\"Treatment\""),
               aes(x = 1, xend = 2, y = freq*100 + se + 10, yend = freq*100 + se + 10),
               inherit.aes = FALSE) +
  geom_text(data = df_combined %>% filter(Category %in% c('\nMade for a\nBudget of
  ↪  >$40M',  '\nReleased After\n2010') & Condition == "\"Treatment\""),
            aes(x = 1.5, xend = 1.5, y = freq*100 + se + 12, yend = freq*100 + se + 12,
            ↪  label = "n.s."),
            inherit.aes = FALSE, vjust = 0, size = 7) +
  geom_text(data = df_combined %>% filter(Category %in% c('\nAbout a Racial\nMinority
  ↪  Protagonist') & Condition == "\"Treatment\""),
            aes(x = 1.5, xend = 1.5, y = freq*100 + se + 12, yend = freq*100 + se + 12,
            ↪  label = "***"),
            inherit.aes = FALSE, vjust = 0, size = 7) +
    geom_text(data = df_combined %>% filter(Category %in% c('\nOver Two Hours') &
    ↪  Condition == "\"Treatment\""),
            aes(x = 1.5, xend = 1.5, y = freq*100 + se + 12, yend = freq*100 + se + 12,
            ↪  label = "+"),
```

```
            inherit.aes = FALSE, vjust = 0, size = 7) +
  theme_bw() +
  scale_fill_manual(values = c("#011F5B", "#990000"), labels = c("No feedback provided",
  ↪  "Feedback provided"), "Feedback") +
  scale_y_continuous(labels = function(x) paste0(x,"%"), limits = c(0,100)) +
  scale_x_discrete(labels = c("\"Control\"" = "Not\nShown", "\"Treatment\"" = "Shown")) +
  labs(x = "Feedback on % of films that were...", y = "% of Final Films Selected with the
  ↪  Target Attribute",
       title = "The Effect of Getting Feedback on Your Biopic Selections") +
  theme(plot.caption = element_text(face = "italic", family = "Times New Roman"),
        legend.position = c(0.5, 0.85),
        legend.title = element_blank(),
        legend.direction = "horizontal",
        legend.text = element_text(size = 20, family = "Times New Roman"),
        legend.key.size = unit(7, 'mm'),
        legend.background = element_rect(fill = "white"),
        panel.grid.minor = element_blank(),
        panel.grid = element_blank(),
        panel.border = element_rect(fill= NA, color = "white"),
        plot.background = element_rect(fill = "white"),
        panel.background = element_rect(fill = "white"),
        axis.title.x = element_text(face="bold", size = 22, vjust = 17, family = "Times
        ↪  New Roman"),
        plot.title = element_blank(),
        axis.title.y = element_text(size = 20, color = "black", family = "Times New
        ↪  Roman"),
        axis.text.x = element_blank(),
        axis.ticks = element_blank(),
        axis.text.y = element_text(size = 20, color = "black", family = "Times New
        ↪  Roman"),
        strip.text = element_text(size = 20, color = "black", family = "Times New
        ↪  Roman"),
        strip.background = element_rect(colour = "white", fill = "white"))

#print(p_combined_B)

# # Save the plot
# ggsave("Figure-Study3A.pdf", plot = p_combined_B, width = 10, height = 8, units = "in",
↪  device = cairo_pdf, family = "Times New Roman")
# ggsave("Figure-Study3A.png", plot = p_combined_B, width = 10, height = 8, units = "in",
↪  dpi = 600)
# saveRDS(p_combined_B, file = "p_combined_B.rds")
```

System of Equations

```
##
## systemfit results
## method: OLS
##
##           N   DF     SSR  detRCov   OLS-R2 McElroy-R2
## system 2000 1992 402.162 0.039798 0.010427   0.011688
##
##             N  DF     SSR      MSE     RMSE       R2   Adj R2
## budgeteq 1000 996 231.854 0.232785 0.482478 0.003106 0.000104
## raceeq   1000 996 170.309 0.170993 0.413513 0.020222 0.017271
##
## The covariance matrix of the residuals
##             budgeteq      raceeq
## budgeteq  0.23278471 -0.00262701
## raceeq   -0.00262701  0.17099282
##
## The correlations of the residuals
##            budgeteq     raceeq
## budgeteq  1.0000000 -0.0131673
## raceeq   -0.0131673  1.0000000
##
##
## OLS estimates for 'budgeteq' (equation 1)
## Model Formula: as.numeric(budget_pick) ~ race_feedback + budget_shown + year_shown +
##     duration_shown - 1
##
##                 Estimate Std. Error t value   Pr(>|t|)
## race_feedback  0.0882644  0.0259632 3.39959 0.00070163 ***
## budget_shown   0.1067685  0.0311134 3.43159 0.00062471 ***
## year_shown     0.1182201  0.0317417 3.72444 0.00020674 ***
## duration_shown 0.1634577  0.0314159 5.20303 2.3802e-07 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.482478 on 996 degrees of freedom
## Number of observations: 1000 Degrees of Freedom: 996
## SSR: 231.853569 MSE: 0.232785 Root MSE: 0.482478
## Multiple R-Squared: 0.003106 Adjusted R-Squared: 0.000104
##
##
## OLS estimates for 'raceeq' (equation 2)
## Model Formula: as.numeric(race_pick) ~ race_feedback + budget_shown + year_shown +
##     duration_shown - 1
##
##                  Estimate Std. Error  t value   Pr(>|t|)
## race_feedback   0.1545027  0.0222521  6.94329 6.9009e-12 ***
## budget_shown    0.1005796  0.0266661  3.77182 0.00017161 ***
## year_shown     -0.0141184  0.0272046 -0.51897 0.60389485
## duration_shown  0.0908296  0.0269253  3.37339 0.00077108 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
```

```
## Residual standard error: 0.413513 on 996 degrees of freedom
## Number of observations: 1000 Degrees of Freedom: 996
## SSR: 170.308849 MSE: 0.170993 Root MSE: 0.413513
## Multiple R-Squared: 0.020222 Adjusted R-Squared: 0.017271

##                       Test Wald.Coefficient      P_Value
## 1   Race Feedback - Budget         7.713366 0.0055326811
## 2     Race Feedback - Year        13.743929 0.0002152213
## 3 Race Feedback - Duration         6.916283 0.0086071867
```