Thesis

Table of contents

0.1 Quarto

Quarto enables you to weave together content and executable code into a finished document. To learn more about Quarto see https://quarto.org.

```
library(tidyverse)
```

```
-- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
v dplyr     1.1.4     v readr     2.1.5
v forcats   1.0.0     v stringr   1.5.1
v ggplot2   3.5.1     v tibble    3.2.1
v lubridate 1.9.3     v tidyr     1.3.1
v purrr     1.0.2
-- Conflicts ------------------------------------------ tidyverse_conflicts() --
x dplyr::filter() masks stats::filter()
x dplyr::lag()    masks stats::lag()
i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to becor
```

```
library(janitor)
```

```
Attaching package: 'janitor'

The following objects are masked from 'package:stats':

    chisq.test, fisher.test
```

```
library(tinytex)
library(tidymodels)
```

```
-- Attaching packages --------------------------------------- tidymodels 1.2.0 --
v broom        1.0.6     v rsample      1.2.1
v dials        1.3.0     v tune         1.2.1
v infer        1.0.7     v workflows    1.1.4
v modeldata    1.4.0     v workflowsets 1.1.0
v parsnip      1.2.1     v yardstick    1.3.1
v recipes      1.1.0
-- Conflicts ------------------------------------------ tidymodels_conflicts() --
x scales::discard() masks purrr::discard()
x dplyr::filter()   masks stats::filter()
x recipes::fixed()  masks stringr::fixed()
x dplyr::lag()      masks stats::lag()
x yardstick::spec() masks readr::spec()
x recipes::step()   masks stats::step()
* Use tidymodels_prefer() to resolve common conflicts.
```

```
library(readxl)
```

```
gen_con <- read_csv("data/gen_con_status.csv")
```

```
Rows: 154 Columns: 13
-- Column specification --------------------------------------------------------
Delimiter: ","
chr (11): Participant, Signature_Date, Ratification_Type, Ratification_Year,...
dbl  (2): Signatory_Status, Ratification_Status

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.
```

```
tmk <- read_csv("data/edited_tmk_annual_release_1.2.csv")
```

```
Rows: 476 Columns: 8
-- Column specification --------------------------------------------------------
Delimiter: ","
chr (1): primary.location
dbl (7): year, pl.ccode, tmk.onset, genpol.onset, genpol.ongoing.sum, tmk.on...
```

```
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.
```

```
tmk_2 <- read_excel("data/tmk_events_release_1.2.xls")
```

```
tmk_2_edit <- tmk_2 |>
  select(
    year, duration, tmk.ordinal, genpol.ongoing, genpol.onset, group1.tmk.rel, group1.tmk.et
    ) |>
  filter(group1.tmk.rel == 1 | group1.tmk.eth == 1) |>
  clean_names() |> mutate(primary_location = case_when(
  primary_location == "Soviet Union" ~ "Russia",
  primary_location == "DRC Congo (Zaire)" ~ "DR Congo",
  primary_location == "Myanmar (Burma)" ~ "Myanmar",
  primary_location == "Zanzibar" ~ "Tanzania",
  primary_location == "Bosnia-Herzegovina" ~ "Bosnia-Herzogovina",
  primary_location == "DR Congo (Zaire)" ~ "DR Congo",
  primary_location == "Russia (Soviet Union)" ~ "Russia",
  primary_location == "Serbia (Yugoslavia)" ~ "Serbia",
  primary_location == "Sudan, Chad" ~ "Sudan",
  primary_location == "India/Pakistan" ~ "India",
  primary_location == "Cambodia (Kampuchea)" ~ "Cambodia",
  TRUE ~ primary_location
  ))
```

```
gen_2 <- gen_con |>
  left_join(tmk_2_edit, by = join_by(Participant == primary_location))
view(gen_2)
```

```
gen_2 <- gen_2 |>
  clean_names() |>
  mutate(
    state_system_membership_year = as.integer(
      state_system_membership_year),
    signatory_status = as.factor(signatory_status),
    signature_date = as.integer(signature_date),
    ratification_status = as.factor(ratification_status),
    in_effect_ix_reservation = as.factor(in_effect_ix_reservation),
    historical_reservation_made_to_article_ix_no_longer_in_effect = as.factor(historical_res
    ever_reserved = case_when(
    in_effect_ix_reservation == 1 | historical_reservation_made_to_article_ix_no_longer_in_e
```

```
    in_effect_ix_reservation == 0 & historical_reservation_made_to_article_ix_no_longer_in_ef
  filter(ratification_status == 1)
```

```
Warning: There were 2 warnings in `mutate()`.
The first warning was:
i In argument: `state_system_membership_year =
  as.integer(state_system_membership_year)`.
Caused by warning:
! NAs introduced by coercion
i Run `dplyr::last_dplyr_warnings()` to see the 1 remaining warning.
```

```
gen_2 |>
  filter(ratification_year >= year) |>
  group_by(participant) |>
  count()
```

```
# A tibble: 17 x 2
# Groups:   participant [17]
   participant            n
   <chr>              <int>
 1 Azerbaijan             1
 2 Bangladesh            10
 3 Bosnia-Herzogovina     2
 4 Burundi                9
 5 China                  2
 6 Cyprus                 1
 7 DR Congo               3
 8 India                  4
 9 Myanmar                1
10 Nigeria                5
11 Pakistan               2
12 Rwanda                 3
13 Serbia                 2
14 Sudan                 23
15 Tanzania               1
16 Uganda                19
17 Zimbabwe               5
```

```
tmk_priors <- gen_2 |>
  filter(ratification_year >= year) |>
  group_by(participant) |>
```

```
  summarize(sum = sum(tmk_ordinal))

tmk_priors
```

```
# A tibble: 17 x 2
   participant          sum
   <chr>              <dbl>
 1 Azerbaijan             1
 2 Bangladesh            15
 3 Bosnia-Herzogovina     5
 4 Burundi               41
 5 China                 15
 6 Cyprus                 1
 7 DR Congo               9
 8 India                 26
 9 Myanmar                1
10 Nigeria               24
11 Pakistan              12
12 Rwanda                 8
13 Serbia                12
14 Sudan                 90
15 Tanzania               2
16 Uganda                66
17 Zimbabwe              35
```

```
gen_2 <- gen_2 |>
  mutate(sum_of_prior_tmks = case_when(
    participant == "Azerbaijan" ~ 1,
    participant == "Bangladesh" ~ 15,
    participant == "Bosnia-Herzogovina" ~ 5,
    participant == "Burundi" ~ 41,
    participant == "China" ~ 15,
    participant == "Cyprus" ~ 1,
    participant == "DR Congo" ~ 9,
    participant == "India" ~ 26,
    participant == "Myanmar" ~ 1,
    participant == "Nigeria" ~ 24,
    participant == "Pakistan" ~ 12,
    participant == "Rwanda" ~ 8,
    participant == "Serbia" ~ 12,
    participant == "Sudan" ~ 90,
```

```
    participant == "Tanzania" ~ 2,
    participant == "Uganda" ~ 66,
    participant == "Zimbabwe" ~ 35,
    TRUE ~ 0
  ),
  ever_reserved = as.factor(ever_reserved))
```

```
tmk_fit <- logistic_reg() |>
  fit(ever_reserved ~ sum_of_prior_tmks, data = gen_2)

tidy(tmk_fit)
```

```
# A tibble: 2 x 5
  term              estimate std.error statistic  p.value
  <chr>                <dbl>     <dbl>     <dbl>    <dbl>
1 (Intercept)       -1.49      0.139     -10.8   5.17e-27
2 sum_of_prior_tmks -0.00396   0.00487    -0.812 4.17e- 1
```