Data Challenge 8: Rules and Enforcement

In the lecture notes on **rules and enforcement**, we saw that the more countries are subordinated under U.S. security hierarchy, the less likely they are to initiate militarized disputes with other states in the international system. Subordination under U.S. economic hierarchy is also a negative predictor of conflict initiation, but the relationship was more modest and inconsistent relative to security hierarchy.

We could extend the analysis in the lecture in many different ways. One interesting extension is to examine the role of U.S. authority in promoting peace between countries that fall under its authority. If the ability to make and enforce rules is a reliable pathway to peace, its effects should be most pronounced among countries that jointly fall under U.S. hierarchy.

To test this claim, use an undirected dyad dataset to model the probability that a conflict erupts between a pair of countries given the minimum U.S. security hierarchy and minimum U.S. economic hierarchy score between the two. Estimate a logit model of MID onset (`midonset`) controlling for:

- `min_otherallies` - the minimum count of other allies a country has other than with the U.S.
- `min_income` - the worst GDP per capita between a pair of countries
- `minratio` - the weakest link military capabilities ratio
- `ldist` - the natural log of the distance in kilometers between two countries capitals.
- A cubic peace spells trend.

The code on the next page will get you the data you need to perform this analysis. When you're done, submit your work to canvas as a rendered document.

```r
## packages
library(tidyverse)
library(peacesciencer)
library(sandwich)
library(lmtest)
library(sjPlot)
library(patchwork)
library(coolorrr)
set_theme()
set_palette()


## create data in steps
## 1. dyad-year data of conflict initiation
##    and peace spells
create_dyadyears(
  subset_years = 1950:2000,
  directed = F
) |>
  add_gml_mids() |>
  add_spells() |>
  add_capital_distance() -> Data

## 2. Lake (2007) data for int'l hierarchy
haven::read_dta(
  here::here(
    "DPR 390",
    "Quarto Notes",
    "studying-conflict-with-r",
    "Data",
    "ISreplicationdataset.dta"
    )
) -> lake_dt

## 3. prep lake_dt to merge with dyad-year data
lake_dt |>
  transmute(
    ccode1 = ccode,
    year,
    us_SH19951 = us_SH1995,
    us_EH19951 = us_EH1995,
```

```
    otherallies1 = otherallies,
    rgdpc_k1 = rgdpc_k,
    cap1 = cap
  ) -> lake_dt1
lake_dt |>
  transmute(
    ccode2 = ccode,
    year,
    us_SH19952 = us_SH1995,
    us_EH19952 = us_EH1995,
    otherallies2 = otherallies,
    rgdpc_k2 = rgdpc_k,
    cap2 = cap
  ) -> lake_dt2


## 4. merge the datasets
Data |>
  left_join(
    lake_dt1
  ) |>
  left_join(
    lake_dt2
  )-> Data

## 5. recode some variables for analysis
Data |>
  mutate(
    ## min. security and economic hierarchy score
    ## between sides
    min_SH = pmin(us_SH19951, us_SH19952),
    min_EH = pmin(us_EH19951, us_EH19952),
    ## minimum number of allies other than the US
    min_otherallies = pmin(otherallies1, otherallies2),
    ## minimum gdp per capita between sides
    min_income = pmin(rgdpc_k1, rgdpc_k2),
    ## capabilities ratio in favor of side 1
    capratio1 = cap1 / (cap1 + cap2),
    ## minimum capabilities ratio between sides
    minratio = pmin(capratio1, 1 - capratio1),
    ## log of distance between sides' capitals
```

```
  ldist = log(capdist)
) -> Data
```