Analyzing Voting Trends United Nations

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Overview

- **Goal #1**: Prove that the countries receiving the most foreign aid from the United States nearly always oppose the U.S. diplomatic initiatives voting against the U.S.
  - Data from Harvard Dataverse
  - 1946 - 2017
- Clean, visualize and model historical data
- Evaluate “Yes” votes
- Compare yes votes of the top 5 countries receiving security aid from the United States
- Goal #2: Improve proficiency programming with R

Data

ORIGINAL DATA

	rcid	session	vote	ccode	member	importantvote	date	unres	me	nu	di	hr	co	ec	year
1	3	1	1	2	1	0	1/1/1946	R/1/66	0	0	0	0	0	0	1946
2	3	1	3	20	1	0	1/1/1946	R/1/66	0	0	0	0	0	0	1946
3	3	1	9	31	NA	0	1/1/1946	R/1/66	0	0	0	0	0	0	1946
4	3	1	1	40	1	0	1/1/1946	R/1/66	0	0	0	0	0	0	1946
5	3	1	1	41	1	0	1/1/1946	R/1/66	0	0	0	0	0	0	1946
6	3	1	1	42	1	0	1/1/1946	R/1/66	0	0	0	0	0	0	1946
7	3	1	9	51	NA	0	1/1/1946	R/1/66	0	0	0	0	0	0	1946
8	3	1	9	52	NA	0	1/1/1946	R/1/66	0	0	0	0	0	0	1946
9	3	1	9	53	NA	0	1/1/1946	R/1/66	0	0	0	0	0	0	1946
10	3	1	9	54	NA	0	1/1/1946	R/1/66	0	0	0	0	0	0	1946

1 = Yes Vote
2 = Abstain
3 = No Vote

rcid = roll call ID
session = which session vote was cast
vote = country's choice
ccode = country code

PROCESSED DATA

```
> votes_processed
# A tibble: 353,547 x 6
    rcid session  vote ccode  year country
   <dbl>   <dbl> <dbl> <int> <dbl> <chr>
 1  46.0    2.00  1.00     2  1947 United States
 2  46.0    2.00  1.00    20  1947 Canada
 3  46.0    2.00  1.00    40  1947 Cuba
 4  46.0    2.00  1.00    41  1947 Haiti
 5  46.0    2.00  1.00    42  1947 Dominican Republic
 6  46.0    2.00  1.00    70  1947 Mexico
 7  46.0    2.00  1.00    90  1947 Guatemala
 8  46.0    2.00  1.00    91  1947 Honduras
 9  46.0    2.00  1.00    92  1947 El Salvador
10  46.0    2.00  1.00    93  1947 Nicaragua
# ... with 353,537 more rows
```

Sorting and Filtering Data

By sorting and filtering you can easily see which country voted yes more often.

It is also possible to rule out countries with low voting instances

```
> by_country
# A tibble: 200 x 3
   country              total percent_yes
   <chr>                <int>       <dbl>
 1 Afghanistan           2373       0.859
 2 Albania               1695       0.717
 3 Algeria               2213       0.899
 4 Andorra                719       0.638
 5 Angola                1431       0.924
```

```
> by_country %>%
+     arrange(percent_yes)
# A tibble: 200 x 3
   country                          total percent_yes
   <chr>                            <int>       <dbl>
 1 Zanzibar                             2       0
 2 United States                     2568       0.269
 3 Palau                              369       0.339
 4 Israel                            2380       0.341
 5 Federal Republic of Germany       1075       0.397
```

```
> by_country %>%
+     arrange(desc(percent_yes))
# A tibble: 200 x 3
   country                total percent_yes
   <chr>                  <int>       <dbl>
 1 Sao Tome and Principe   1091       0.976
 2 Seychelles               881       0.975
 3 Djibouti                1598       0.961
 4 Guinea-Bissau           1538       0.960
 5 Timor-Leste              326       0.957
```

Quantifying Trends

LINEAR REGRESSION

Finding the slope and p-value

Slope

```
> summary(US_fit)

Call:
lm(formula = percent_yes ~ year, data = US_by_year)

Residuals:
      Min        1Q    Median        3Q       Max
-0.222491 -0.080635 -0.008661  0.081948  0.194307

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept) 12.6641455  1.8379743   6.890 8.48e-08 ***
year        -0.0062393  0.0009282  -6.722 1.37e-07 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.1062 on 32 degrees of freedom
Multiple R-squared:  0.5854,    Adjusted R-squared:  0.5724
F-statistic: 45.18 on 1 and 32 DF,  p-value: 1.367e-07
```

P-value

Models are difficult to combine in R

- broom package – turns a linear model into a data frame of coefficients
  - Allows you to extract data
  - Tidy models can be combined
  - Build a model for each country and combine them all

```
> bind_rows(US_tidied, AF_tidied)
         term      estimate    std.error statistic      p.value
1 (Intercept)  12.664145512 1.8379742715  6.890274 8.477089e-08
2        year  -0.006239305 0.0009282243 -6.721764 1.366904e-07
3 (Intercept) -11.063084650 1.4705189228 -7.523252 1.444892e-08
4        year   0.006009299 0.0007426499  8.091698 3.064797e-09
```

Fitting Multiple Models

```
> # Add another mutate that applies tidy() to each model
> by_year_country %>%
+     nest(-country) %>%
+     mutate(model = map(data, ~ lm(percent_yes ~ year, data = .)),
+            tidied = map(model, tidy))
# A tibble: 200 x 4
   country                  data              model    tidied
   <chr>                    <list>            <list>   <list>
 1 Afghanistan              <tibble [34 × 3]> <S3: lm> <data.frame [2 × 5]>
 2 Argentina                <tibble [34 × 3]> <S3: lm> <data.frame [2 × 5]>
 3 Australia                <tibble [34 × 3]> <S3: lm> <data.frame [2 × 5]>
 4 Belarus                  <tibble [34 × 3]> <S3: lm> <data.frame [2 × 5]>
 5 Belgium                  <tibble [34 × 3]> <S3: lm> <data.frame [2 × 5]>
```

```
> country_coefficients
# A tibble: 399 x 6
   country     term          estimate std.error statistic       p.value
   <chr>       <chr>            <dbl>     <dbl>     <dbl>         <dbl>
 1 Afghanistan (Intercept) -11.1       1.47         -7.52 0.0000000144
 2 Afghanistan year          0.00601   0.000743      8.09 0.00000000306
 3 Argentina   (Intercept) - 9.46      2.10         -4.50 0.0000832
 4 Argentina   year          0.00515   0.00106       4.85 0.0000305
 5 Australia   (Intercept) - 4.55      2.15         -2.12 0.0422
```

Join Datasets

Descriptions dataset

- UN Resolution – what resolution the vote was applied to
- Topic Information – whether each vote pertained to one of six topics

Combine with votes_processed dataset

```
> votes_processed %>%
+     inner_join(descriptions, by = c("rcid", "session"))
# A tibble: 353,547 x 14
    rcid session  vote ccode  year country     date                unres    me    nu    di    hr    co
   <dbl>   <dbl> <dbl> <int> <dbl> <chr>       <dttm>              <chr> <dbl> <dbl> <dbl> <dbl> <dbl>
 1  46.0    2.00  1.00     2  1947 United Sta… 1947-09-04 00:00:00 R/2/…     0     0     0     0     0
 2  46.0    2.00  1.00    20  1947 Canada      1947-09-04 00:00:00 R/2/…     0     0     0     0     0
 3  46.0    2.00  1.00    40  1947 Cuba        1947-09-04 00:00:00 R/2/…     0     0     0     0     0
 4  46.0    2.00  1.00    41  1947 Haiti       1947-09-04 00:00:00 R/2/…     0     0     0     0     0
 5  46.0    2.00  1.00    42  1947 Dominican … 1947-09-04 00:00:00 R/2/…     0     0     0     0     0
```

ANALYSIS

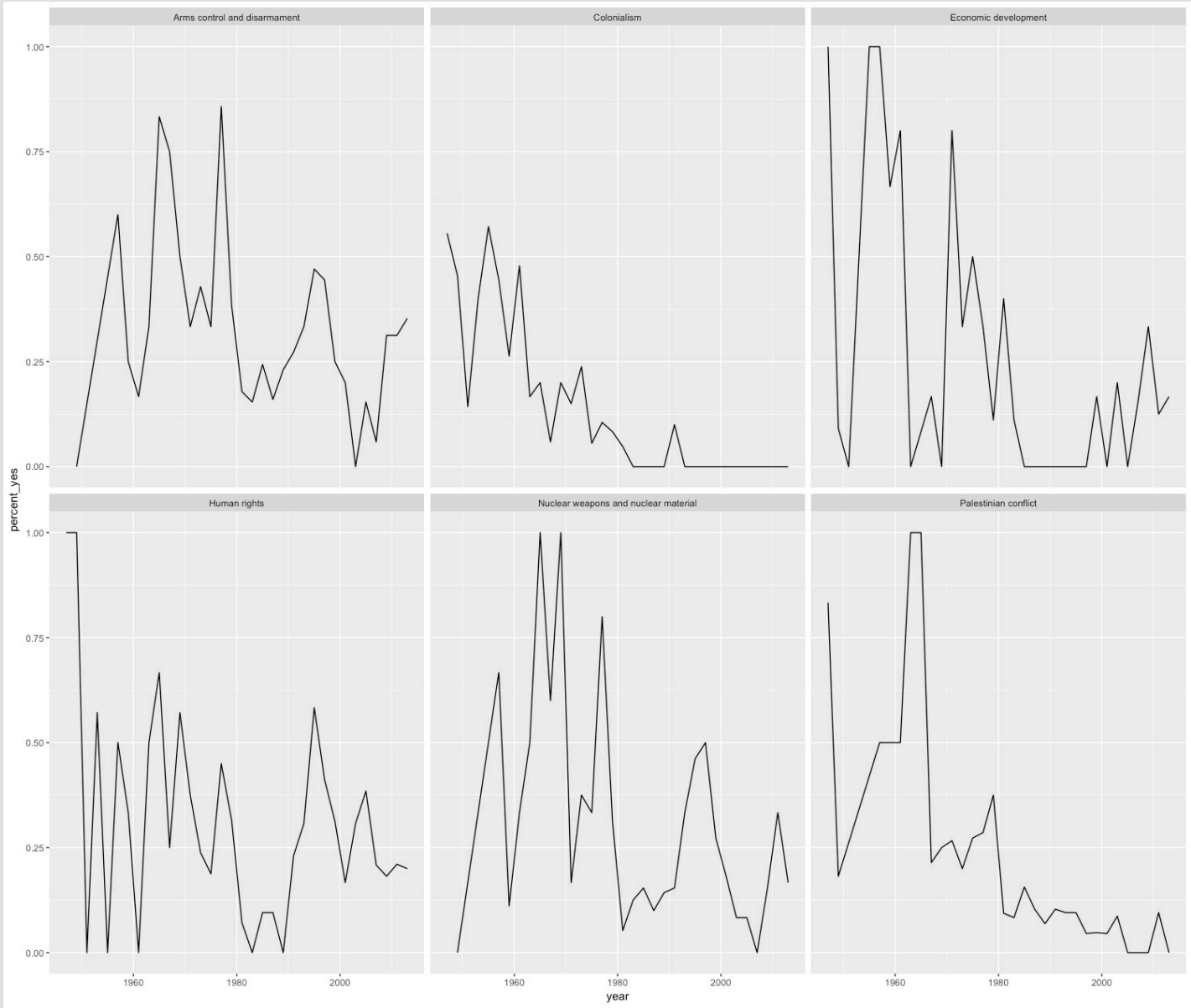
- Top countries receiving security assistance aid from the United States:
  - Afghanistan - $3.67B
  - Israel - $3.1B
  - Egypt - $1.31B
  - Iraq - $808M
  - Jordan - $367.6M
- The argument: Countries receiving security assistance aid from the U.S. routinely oppose the diplomatic initiatives and vote against the U.S.

HTTPS://WWW.WASHINGTONPOST.COM/GRAPHICS/WORLD/WHICH-COUNTRIES-GET-THE-MOST-FOREIGN-AID/

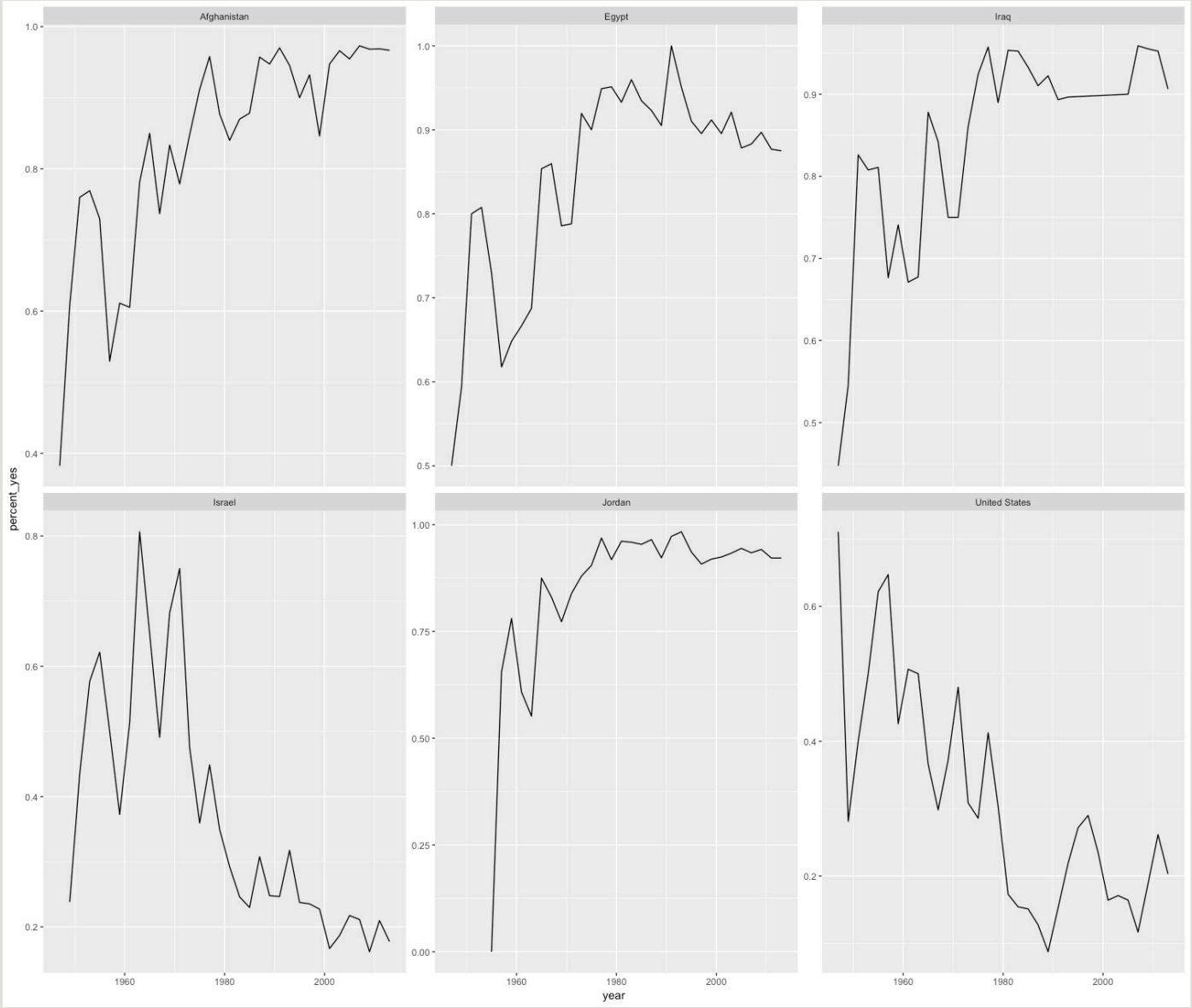
UNITED STATES BY TOPIC OVER TIME

Topics:

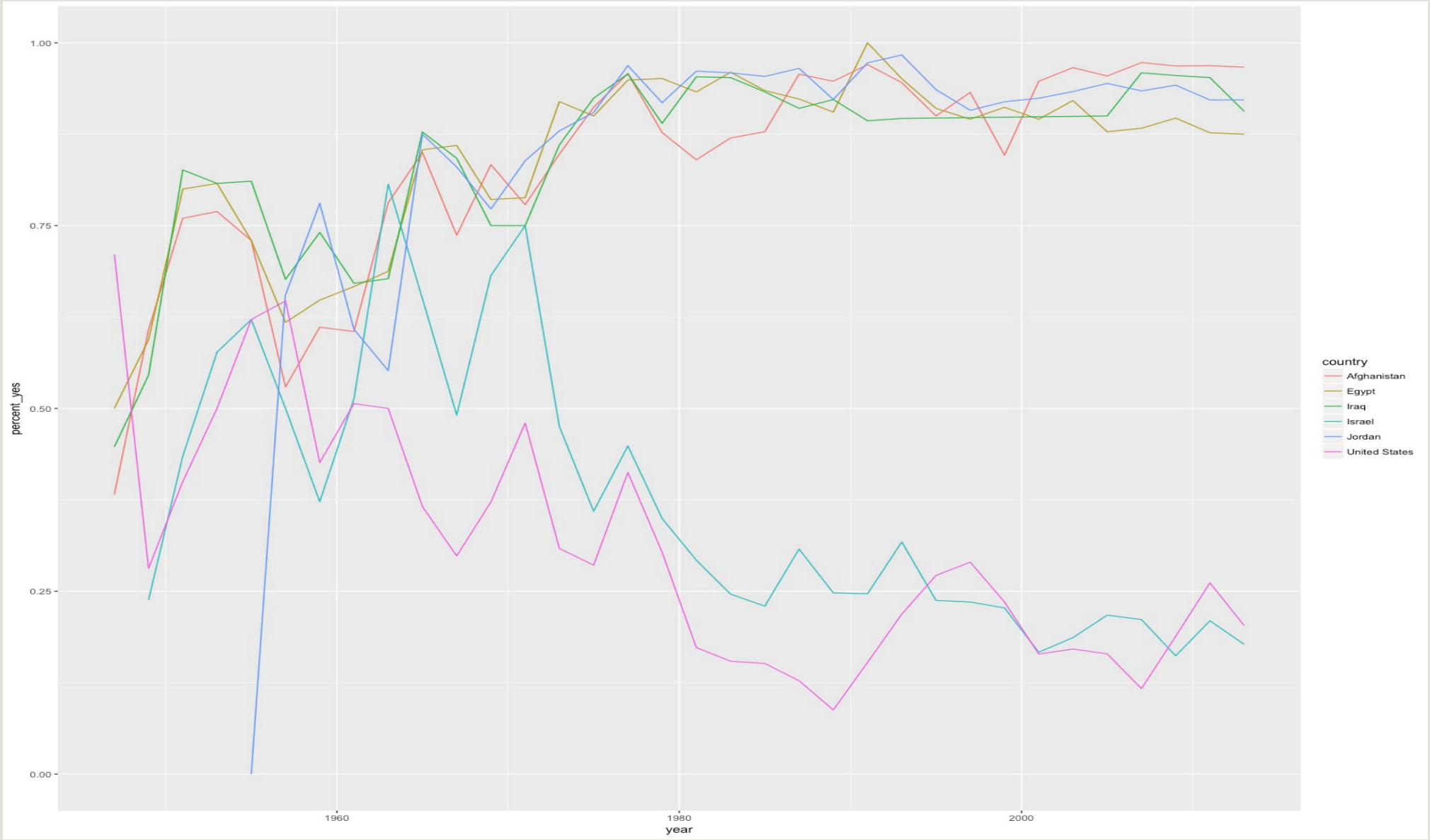
1. Palestinian conflict
2. Nuclear weapons and nuclear material
3. Arms control and disarmament
4. Human rights
5. Colonialism
6. Economic Development



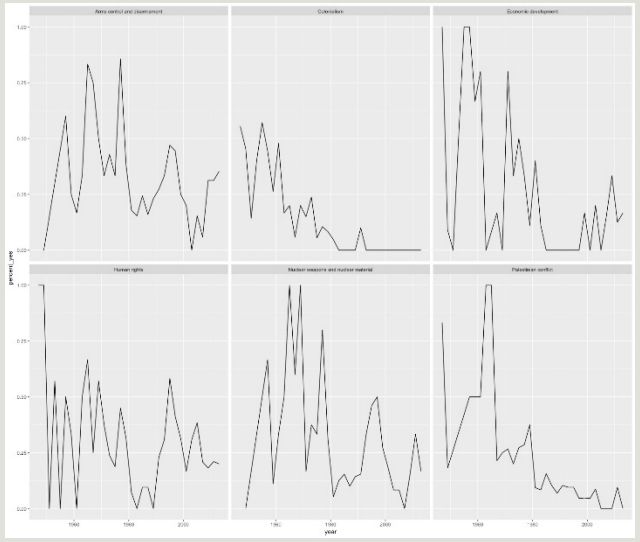
BY COUNTRY YES VOTE OVER TIME



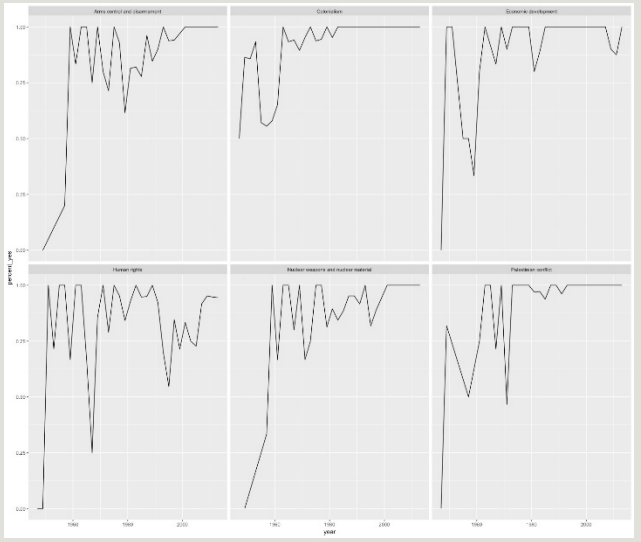
BY COUNTRY YES VOTE OVER TIME



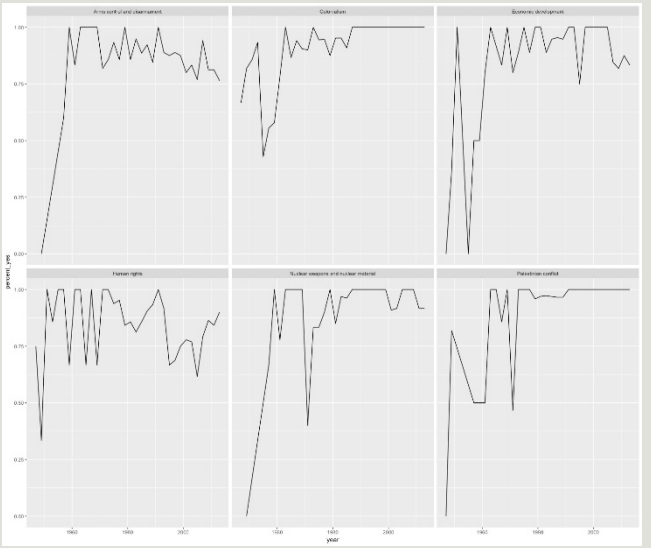
BY COUNTRY BY TOPIC OVER TIME



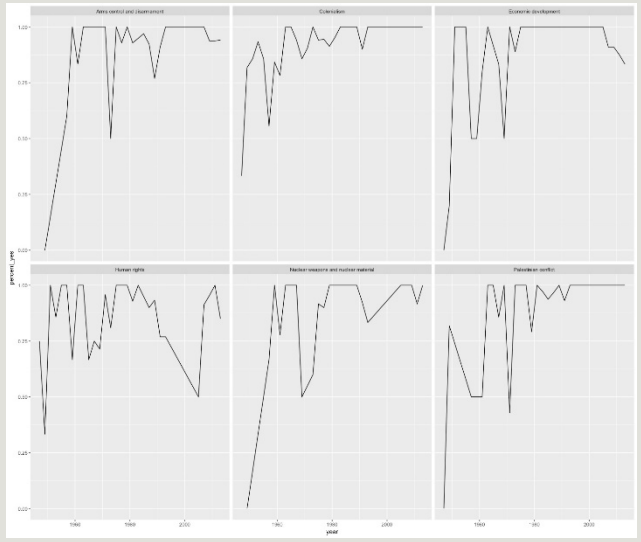
UNITED STATES



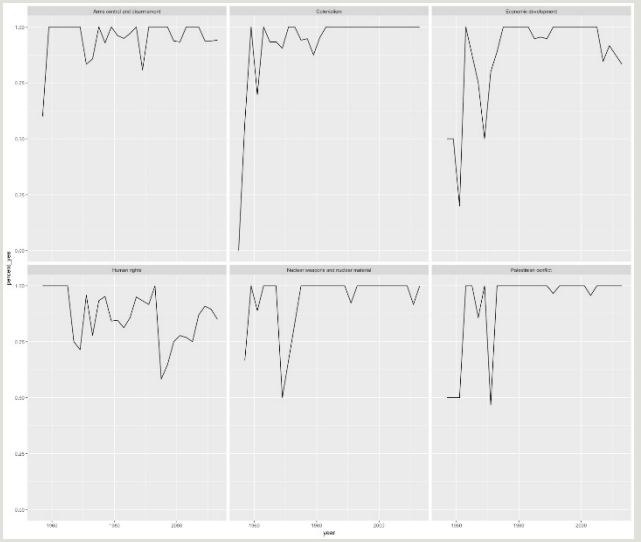
AFGHANISTAN



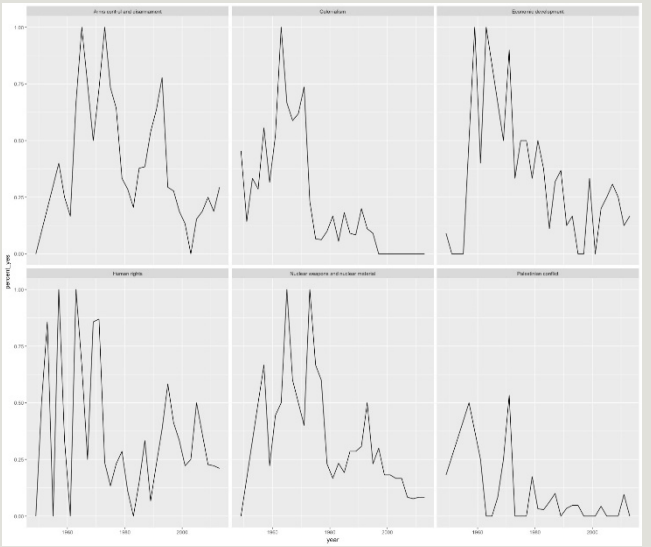
EGYPT



IRAQ

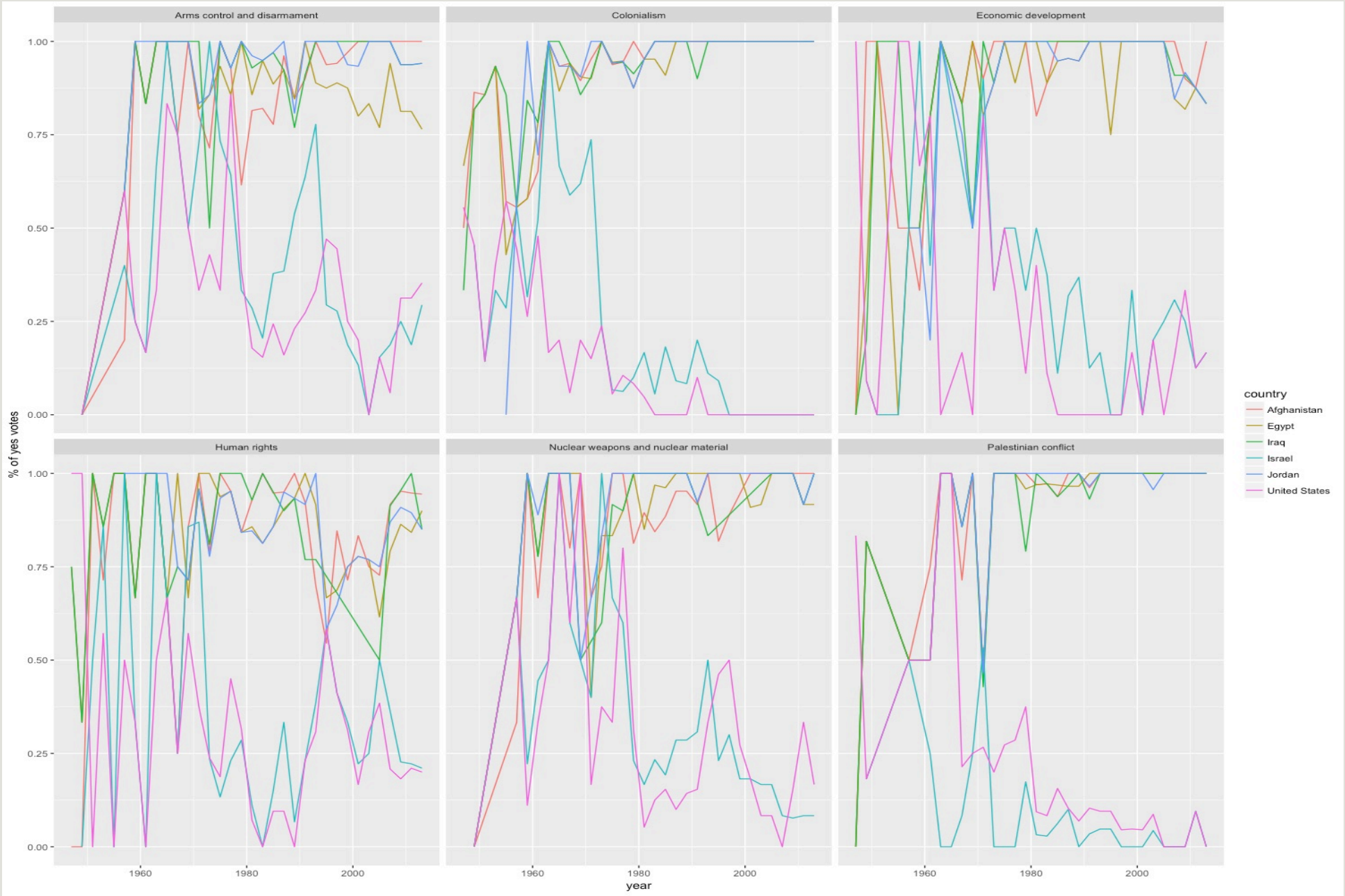


JORDAN



ISRAEL

ALL COUNTRIES BY TOPIC OVER TIME



CONCLUSION

- Of the top 5 countries receiving the most security aid from the United States annually, voting trends show that with the exception of Israel, the remaining four countries nearly always oppose the U.S. diplomatic initiatives by not aligning votes with the U.S.
  - Israel follows most closely to the U.S.
- Exploratory data analysis allows you to take a dataset and manipulate it to uncover trends
  - You could further explore by comparing which country's tended to agree or disagree with each other
  - Use machine learning to predict a country's vote on a particular resolution