The Intersection of Sports and Politics

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Problem

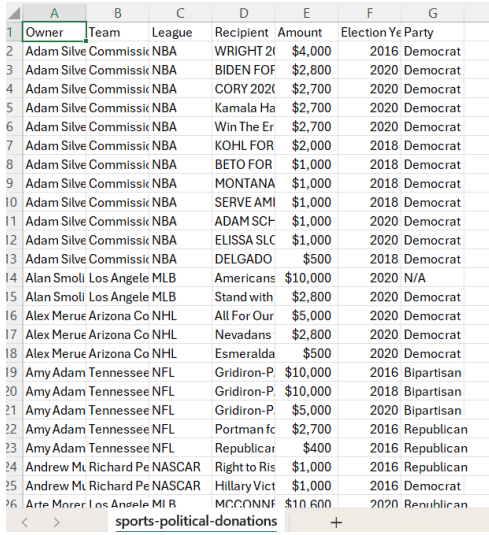
- Common form of political support is monetary contributions
- Search for any interesting trends/correlations between sports political donations and politics

Objective / Early Thoughts

- Find data for political success
- Examine sports political contributions file to find any interesting patterns
- Could possibly look at how donations change surrounding major sports/political events

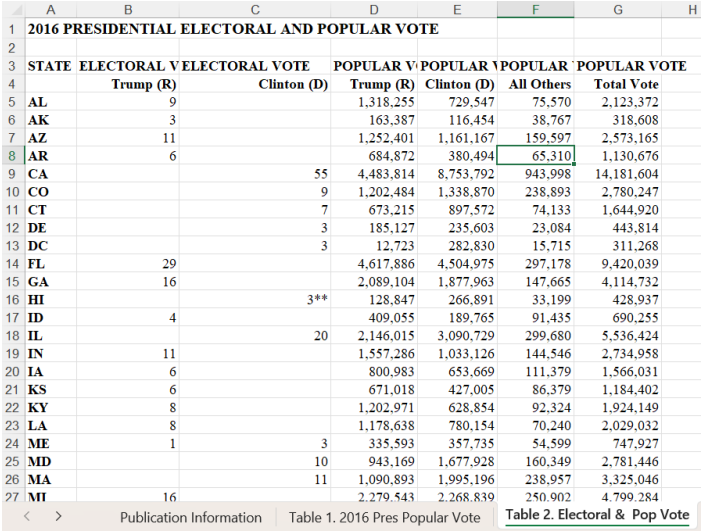
Finding the Data

- `sports_political_donations.csv` from fivethirtyeight.com
- Federal Elections data from 2016, 2018, 2020 from fec.gov
  - had to manually change relevant sheets into `csv` files



	A	B	C	D	E	F	G
1	Owner	Team	League	Recipient	Amount	Election Ye	Party
2	Adam Silve	Commissi	NBA	WRIGHT 2(	$4,000	2016	Democrat
3	Adam Silve	Commissi	NBA	BIDEN FOF	$2,800	2020	Democrat
4	Adam Silve	Commissi	NBA	CORY 202(	$2,700	2020	Democrat
5	Adam Silve	Commissi	NBA	Kamala Ha	$2,700	2020	Democrat
6	Adam Silve	Commissi	NBA	Win The Er	$2,700	2020	Democrat
7	Adam Silve	Commissi	NBA	KOHL FOR	$2,000	2018	Democrat
8	Adam Silve	Commissi	NBA	BETO FOR	$1,000	2018	Democrat
9	Adam Silve	Commissi	NBA	MONTANA	$1,000	2018	Democrat
10	Adam Silve	Commissi	NBA	SERVE AMI	$1,000	2018	Democrat
11	Adam Silve	Commissi	NBA	ADAM SCH	$1,000	2020	Democrat
12	Adam Silve	Commissi	NBA	ELISSA SLC	$1,000	2020	Democrat
13	Adam Silve	Commissi	NBA	DELGADO	$500	2018	Democrat
14	Alan Smoli	Los Angele	MLB	Americans	$10,000	2020	N/A
15	Alan Smoli	Los Angele	MLB	Stand with	$2,800	2020	Democrat
16	Alex Meruе	Arizona Co	NHL	All For Our	$5,000	2020	Democrat
17	Alex Meruе	Arizona Co	NHL	Nevadans	$2,800	2020	Democrat
18	Alex Meruе	Arizona Co	NHL	Esmeralda	$500	2020	Democrat
19	Amy Adam	Tennessee	NFL	Gridiron-P	$10,000	2016	Bipartisan
20	Amy Adam	Tennessee	NFL	Gridiron-P	$10,000	2018	Bipartisan
21	Amy Adam	Tennessee	NFL	Gridiron-P	$5,000	2020	Bipartisan
22	Amy Adam	Tennessee	NFL	Portman fc	$2,700	2016	Republican
23	Amy Adam	Tennessee	NFL	Republicar	$400	2016	Republican
24	Andrew Mu	Richard Pe	NASCAR	Right to Ris	$1,000	2016	Republican
25	Andrew Mu	Richard Pe	NASCAR	Hillary Vict	$1,000	2016	Democrat
26	Arte Moreг	Los Angele	MLB	MCCONNE	$10,600	2020	Republican

sports-political-donations

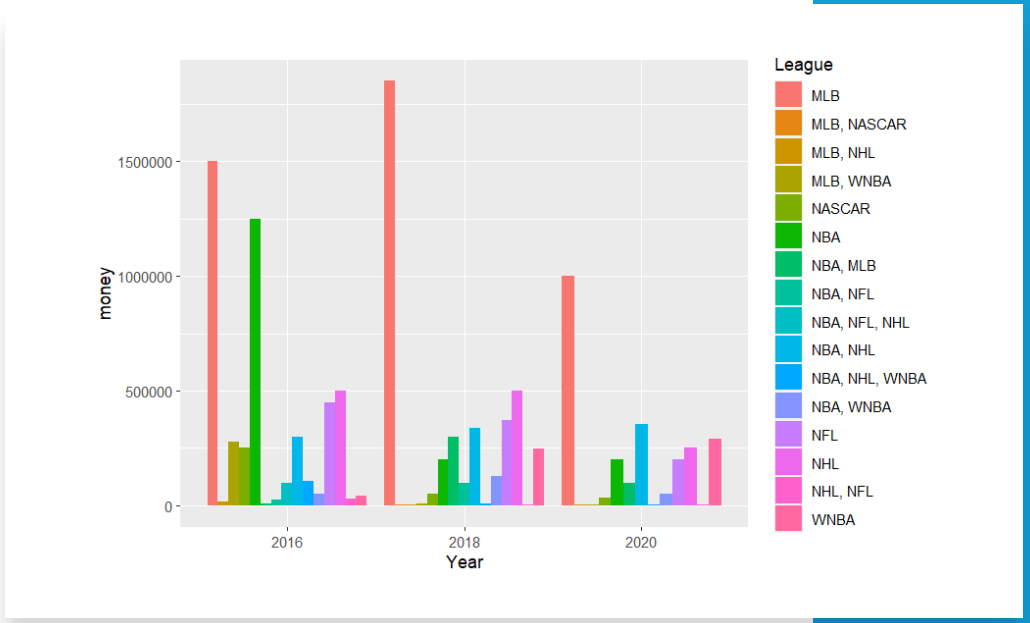


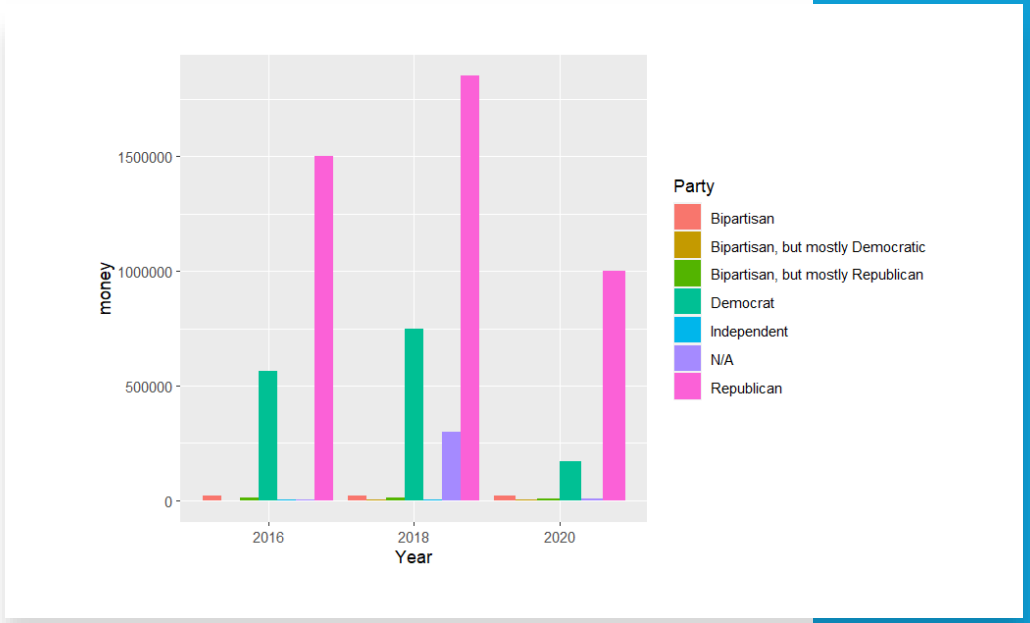
	A	B	C	D	E	F	G	H
1	2016 PRESIDENTIAL ELECTORAL AND POPULAR VOTE							
2								
3	STATE	ELECTORAL V	ELECTORAL VOTE	POPULAR V	POPULAR V	POPULAR	POPULAR VOTE	
4		Trump (R)	Clinton (D)	Trump (R)	Clinton (D)	All Others	Total Vote	
5	AL	9		1,318,255	729,547	75,570	2,123,372	
6	AK	3		163,387	116,454	38,767	318,608	
7	AZ	11		1,252,401	1,161,167	159,597	2,573,165	
8	AR	6		684,872	380,494	65,310	1,130,676	
9	CA		55	4,483,814	8,753,792	943,998	14,181,604	
10	CO		9	1,202,484	1,338,870	238,893	2,780,247	
11	CT		7	673,215	897,572	74,133	1,644,920	
12	DE		3	185,127	235,603	23,084	443,814	
13	DC		3	12,723	282,830	15,715	311,268	
14	FL	29		4,617,886	4,504,975	297,178	9,420,039	
15	GA	16		2,089,104	1,877,963	147,665	4,114,732	
16	HI		3**	128,847	266,891	33,199	428,937	
17	ID	4		409,055	189,765	91,435	690,255	
18	IL		20	2,146,015	3,090,729	299,680	5,536,424	
19	IN	11		1,557,286	1,033,126	144,546	2,734,958	
20	IA	6		800,983	653,669	111,379	1,566,031	
21	KS	6		671,018	427,005	86,379	1,184,402	
22	KY	8		1,202,971	628,854	92,324	1,924,149	
23	LA	8		1,178,638	780,154	70,240	2,029,032	
24	ME	1	3	335,593	357,735	54,599	747,927	
25	MD		10	943,169	1,677,928	160,349	2,781,446	
26	MA		11	1,090,893	1,995,196	238,957	3,325,046	
27	MI	16		2,279,543	2,268,839	250,902	4,799,284	

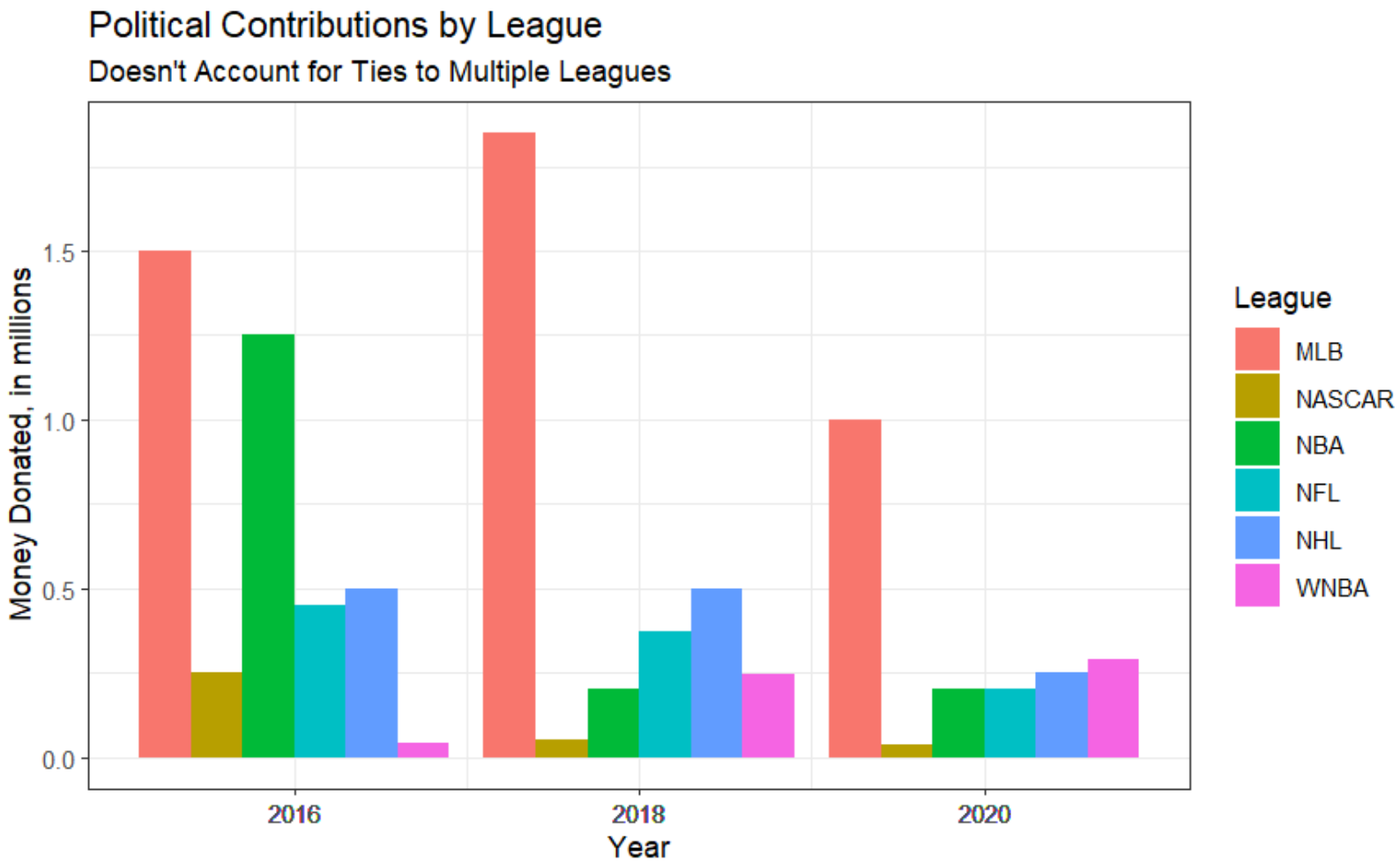
Publication Information | Table 1. 2016 Pres Popular Vote | Table 2. Electoral & Pop Vote

Exploratory Analysis

- 6 different political party categories
- Only 2016, 2018, 2020 data
- Some Owners correspond to multiple leagues






Political Contributions by League
Doesn't Account for Ties to Multiple Leagues
Money Donated, in millions
1.5
1.0
0.5
0.0
2016
2018
2020
Year
League
MLB
NASCAR
NBA
NFL
NHL
WNBA

```r
totals <- bind_rows(
  mutate(total_2016, year = 2016),
  mutate(total_2018, year = 2018),
  mutate(total_2020, year = 2020)
)

totals <- totals %>%
    mutate(popular_rep = as.numeric(popular_rep),
           popular_dem = as.numeric(popular_dem),
           popular_other = as.numeric(popular_other),
           total_dems = ifelse(is.na(popular_dem),
                               house_dem + senate_dem,
                               house_dem + senate_dem + popular_dem),
           total_reps = ifelse(is.na(popular_rep),
                               house_rep + senate_rep,
                               house_rep + senate_rep + popular_rep),
           total_other = ifelse(is.na(popular_other),
                                house_other + senate_other,
                                house_other + senate_other + popular_other),
           year = as.factor(year))
```

A tibble: 3 × 18

year <fctr>	house_dem <dbl>	house_rep <dbl>	house_other <dbl>	senate_dem <dbl>	senate_rep <dbl>	senate_other <dbl>	electoral_rep <dbl>
2016	62315293	63422020	5915145	51653808	41324322	4283315	304
2018	61296952	50960112	2820406	51806633	34239753	4426836	*NA*
2020	77472470	72638235	4270178	46771388	48556925	2950211	232

3 rows | 1-8 of 18 columns

```r
```{r}
houseofreps_2018 <- read_csv("federalelections2018/houseofreps18.csv")
houseofreps_2018 <- houseofreps_2018 %>%
    select(State, GENERAL_ELECTION_DEMOCRATIC, GENERAL_ELECTION_REPUBLICAN, GENERAL_ELECTION_OTHER) %>%
    mutate(house_democratic = GENERAL_ELECTION_DEMOCRATIC,
           house_republican = GENERAL_ELECTION_REPUBLICAN,
           house_other = GENERAL_ELECTION_OTHER) %>%
    filter(rowSums(is.na(.)) < ncol(houseofreps_2018) - 1)

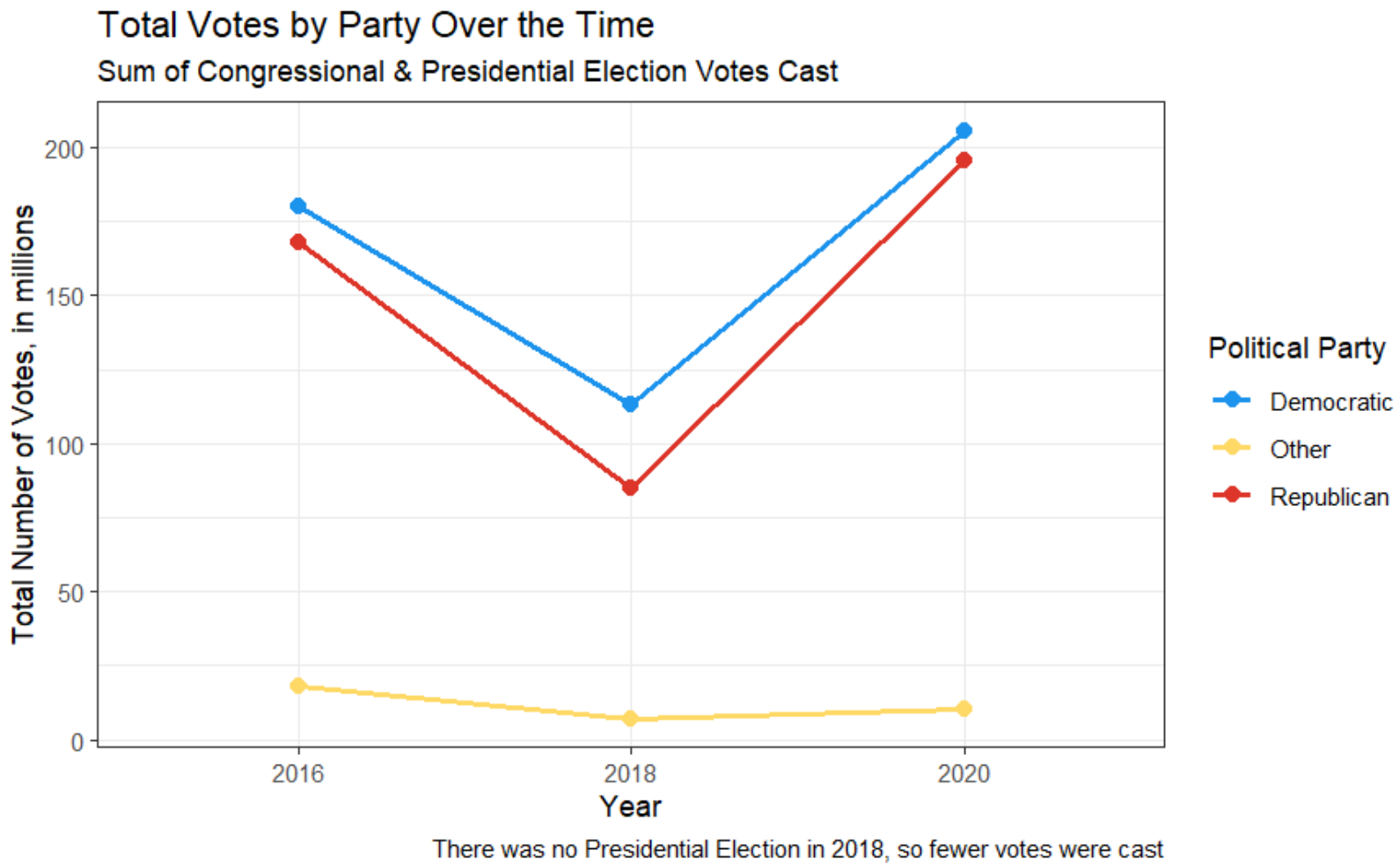
senate_2018 <- read_csv("federalelections2018/senate18.csv")
senate_2018 <- senate_2018 %>%
    select(State, GENERAL_ELECTION_DEMOCRATIC, GENERAL_ELECTION_REPUBLICAN, GENERAL_ELECTION_OTHER) %>%
    mutate(senate_democratic = GENERAL_ELECTION_DEMOCRATIC,
           senate_republican = GENERAL_ELECTION_REPUBLICAN,
           senate_other = GENERAL_ELECTION_OTHER) %>%
    filter(rowSums(is.na(.)) < ncol(senate_2018) - 1)


all_2018 <- senate_2018 %>%
    left_join(houseofreps_2018, by = "State") %>%
    select(State, house_democratic, house_republican, house_other,
           senate_democratic, senate_republican, senate_other) %>%
    replace_na(list(house_other = 0, senate_democratic = 0, senate_republican = 0, senate_other = 0)) %>%
    mutate(house_result = ifelse(house_democratic > house_republican & house_democratic > house_other,
                                 "D",
                                 ifelse(house_republican > house_democratic & house_republican > house_other,
                                        "R",
                                        "Other")),
           senate_result = ifelse(senate_democratic > senate_republican & senate_democratic > senate_other,
                                  "D",
                                  ifelse(senate_republican > senate_democratic & senate_republican > senate_other,
                                         "R",
                                         "Other")))
```

Data Wrangling

- Started with multiple csv files for each election year
- Filtered, mutated, joined 8 csv files into one dataframe

- Then some exploratory data analysis/visualizations
```


Total Votes by Party Over the Time
Sum of Congressional & Presidential Election Votes Cast
Total Number of Votes, in millions
200
150
100
50
0
2016
2018
2020
Year
There was no Presidential Election in 2018, so fewer votes were cast
Political Party
Democratic
Other
Republican

Data Wrangling cont'd

- Categorize Political Party into 4 main parties

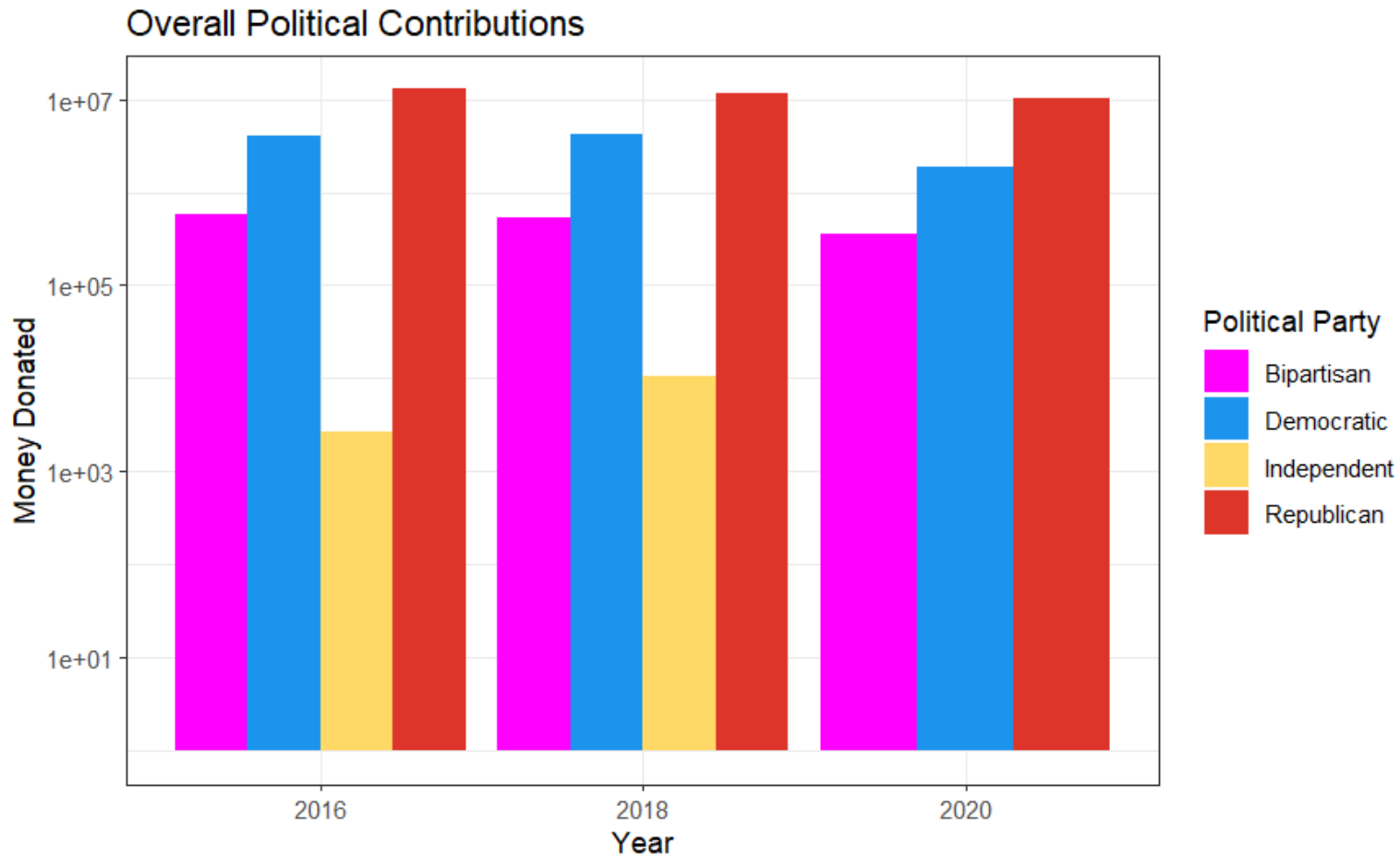
- Noticed large variation between smaller parties and the main two, so did a logarithmic translation on y-axis to make graphic more clear

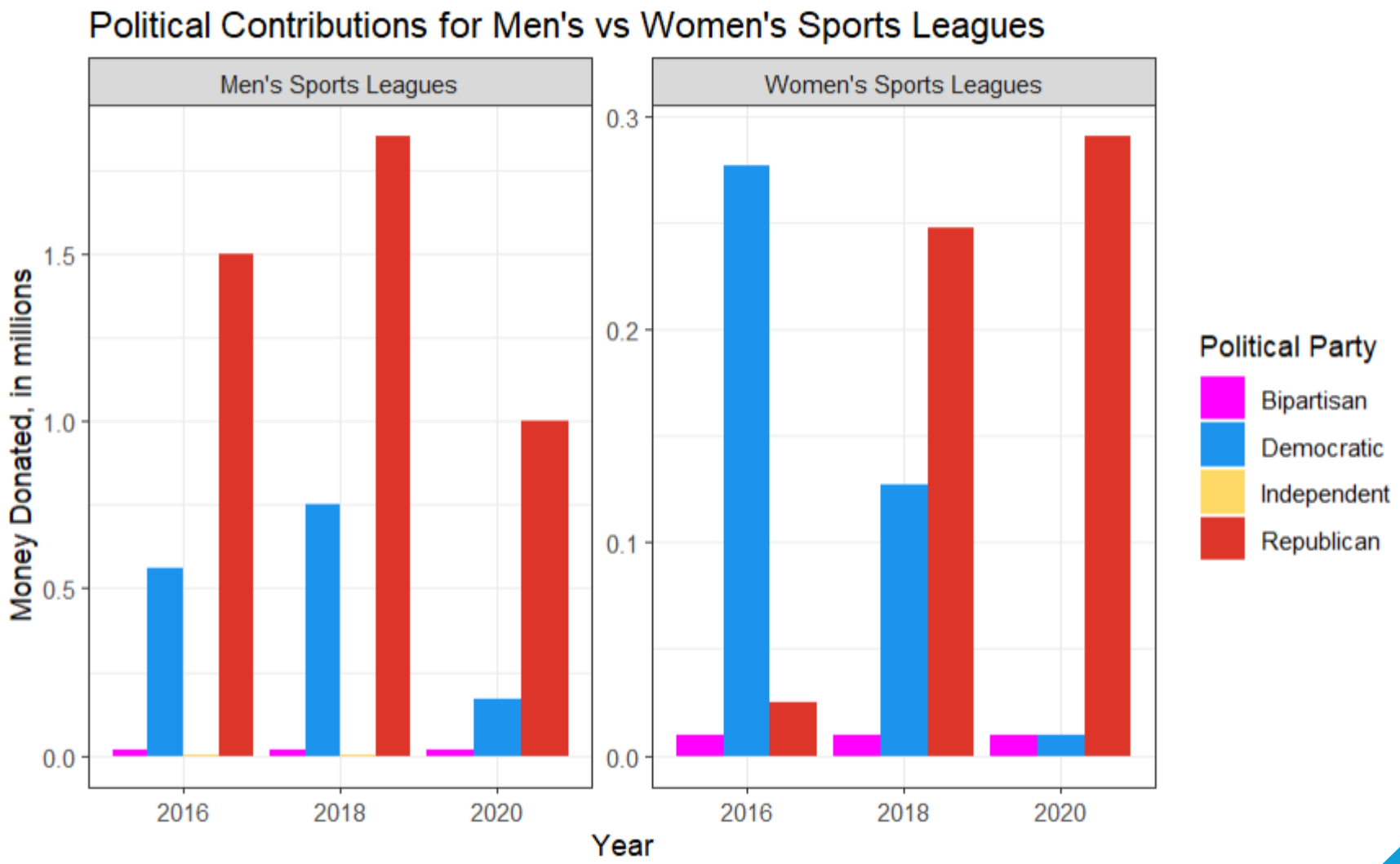
```
cat <- data %>%
    filter(Party != "N/A") %>%
    mutate(Party_Cat = ifelse(Party == "Democrat", "Democratic",
                              ifelse(Party == "Bipartisan", "Bipartisan",
                                     ifelse(Party == "Bipartisan, but mostly Republican", "Republican",
                                            ifelse(Party == "Independent", "Independent",
                                                   ifelse(Party == "Bipartisan, but mostly Democratic",
                                                          "Democratic",
                                                          ifelse(Party == "Republican", "Republican",
                                                                 "N/A")))))))

cat2 <- cat %>%
    group_by(Year, Party_Cat) %>%
    summarize(money = sum(money)) %>%
    mutate(money_mil = money / 1000000,
           money_mil_log = log10(money_mil))

party_colors <- c("Bipartisan" = "#FF00FF",
                  "Democratic" = "#1c93ed",
                  "Independent" = "#ffd966",
                  "Republican" = "#dd3529")

ggplot(cat2, aes(x = Year, y = money + 1, fill = Party_Cat)) +
    geom_bar(stat = "identity", position = "dodge") +
    scale_fill_manual(values = party_colors) +
    scale_y_continuous(trans = "log10") +
    theme_bw() +
    labs(y = "Money Donated",
         fill = "Political Party",
         title = "Overall Political Contributions")
```


Overall Political Contributions
Money Donated
1e+07
1e+05
1e+03
1e+01
2016
2018
2020
Year
Political Party
Bipartisan
Democratic
Independent
Republican


Political Contributions for Men's vs Women's Sports Leagues
Men's Sports Leagues
Women's Sports Leagues
Money Donated, in millions
0.0
0.5
1.0
1.5
0.0
0.1
0.2
0.3
2016
2018
2020
Year
Political Party
Bipartisan
Democratic
Independent
Republican

Data Wrangling cont'd

- Searched for donations to the main 3 presidential candidates since 2016 to examine monetary support in that manner

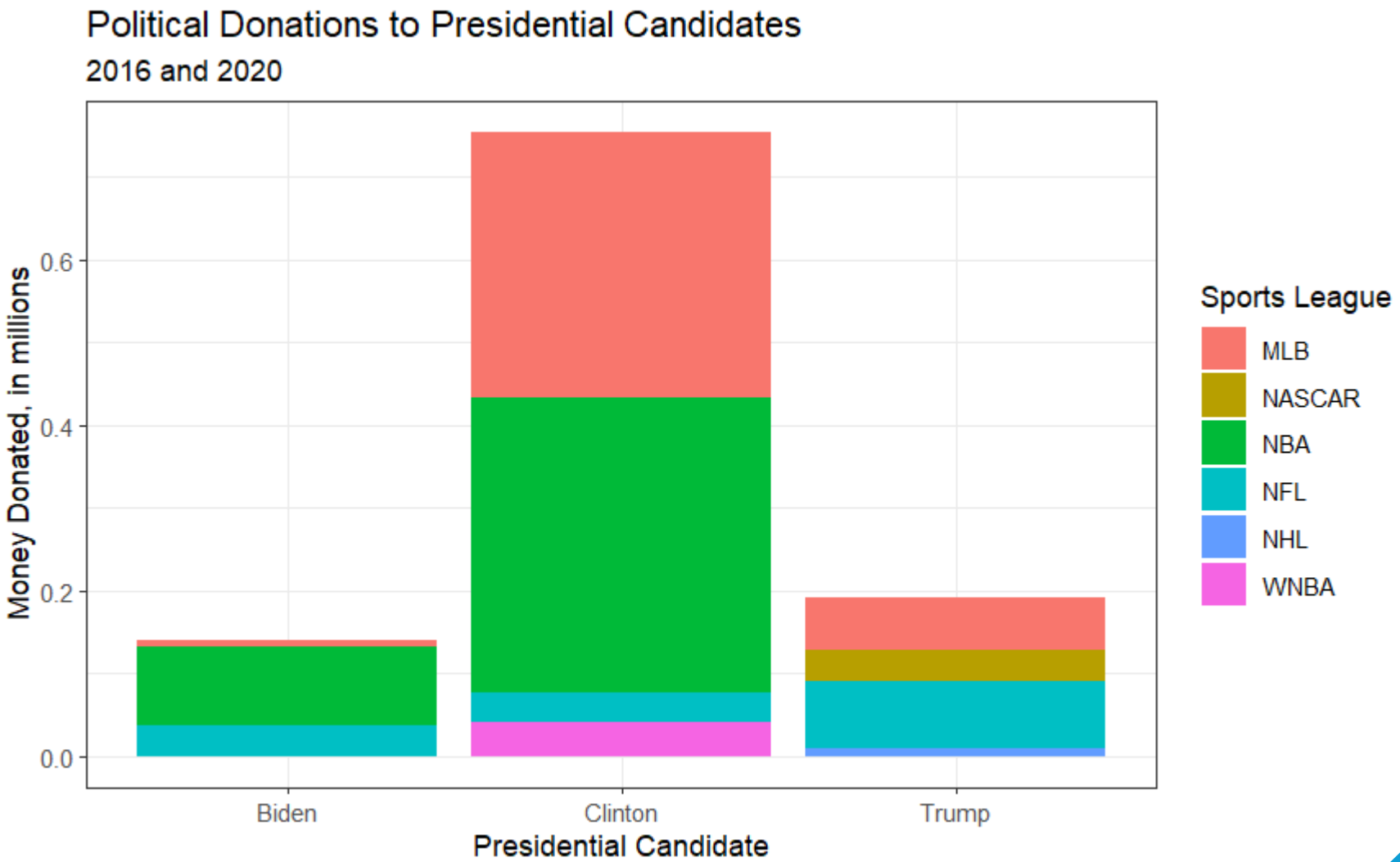
```
biden <- cat %>%
    filter(grepl("Biden", Recipient))

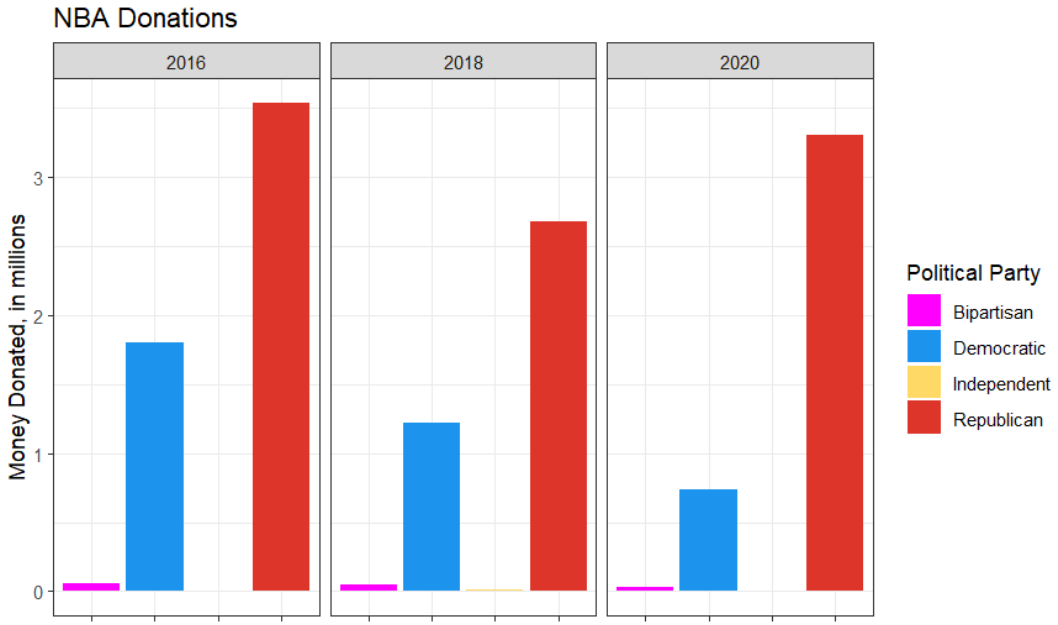
trump <- cat %>%
    filter(grepl("Trump", Recipient))

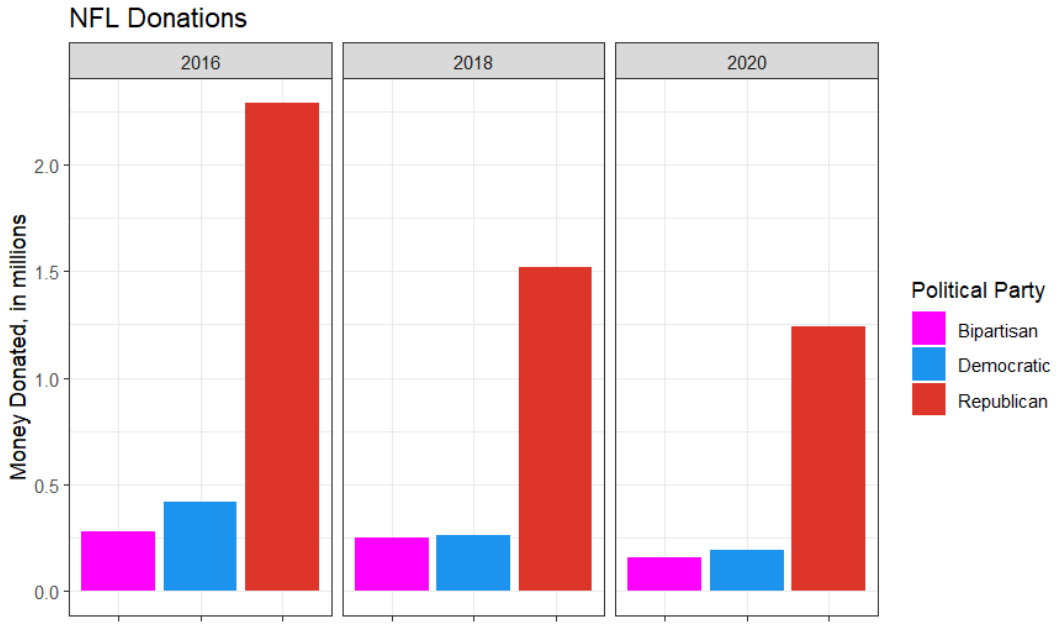
clinton <- cat %>%
    filter(grepl("Hillary", Recipient))

pres <- cat %>%
    filter((Recipient %in% biden$Recipient) |
               (Recipient %in% trump$Recipient) |
               (Recipient %in% clinton$Recipient)) %>%
    mutate(Recipient = ifelse(Recipient %in% biden$Recipient, "Biden",
                              ifelse(Recipient %in% trump$Recipient, "Trump",
                                     "Clinton")),
           League_Primary = str_extract(League, "^[^,]+"))

ggplot(pres, aes(x = Recipient, y = money_mil, fill = League_Primary)) +
    geom_bar(stat = "identity") +
    theme_bw() +
    labs(x = "Presidential Candidate",
         y = "Money Donated, in millions",
         title = "Political Donations to Presidential Candidates",
         subtitle = "2016 and 2020",
         fill = "Sports League")
```


Political Donations to Presidential Candidates
2016 and 2020
Money Donated, in millions
0.6
0.4
0.2
0.0
Biden
Clinton
Trump
Presidential Candidate
Sports League
MLB
NASCAR
NBA
NFL
NHL
WNBA






```
## NFL Donations (Colin Kaepernick ~ 2016)
cat %>%
    filter(grepl("NFL", League)) %>%
    ggplot(aes(x = Party_Cat, y = money_mil, fill = Party_Cat)) +
    geom_bar(stat = "identity") +
    theme_bw() +
    scale_fill_manual(values = party_colors, name = "Political Party") +
    facet_wrap(~ Year, nrow = 1, labeller = labeller(custom_labels)) +
    theme(axis.text.x = element_blank()) +
    labs(x = "",
         y = "Money Donated, in millions",
         title = "NFL Donations")
```

- Look at specific events, within sports and in the outside world

```r
cor(x = money_votes2$money, y = as.numeric((money_votes2$Year)))
```

```
[1] -0.02747791
```

```r
cor(x = money_votes2$money, y = as.numeric(factor(money_votes2$Party_Cat)))
```

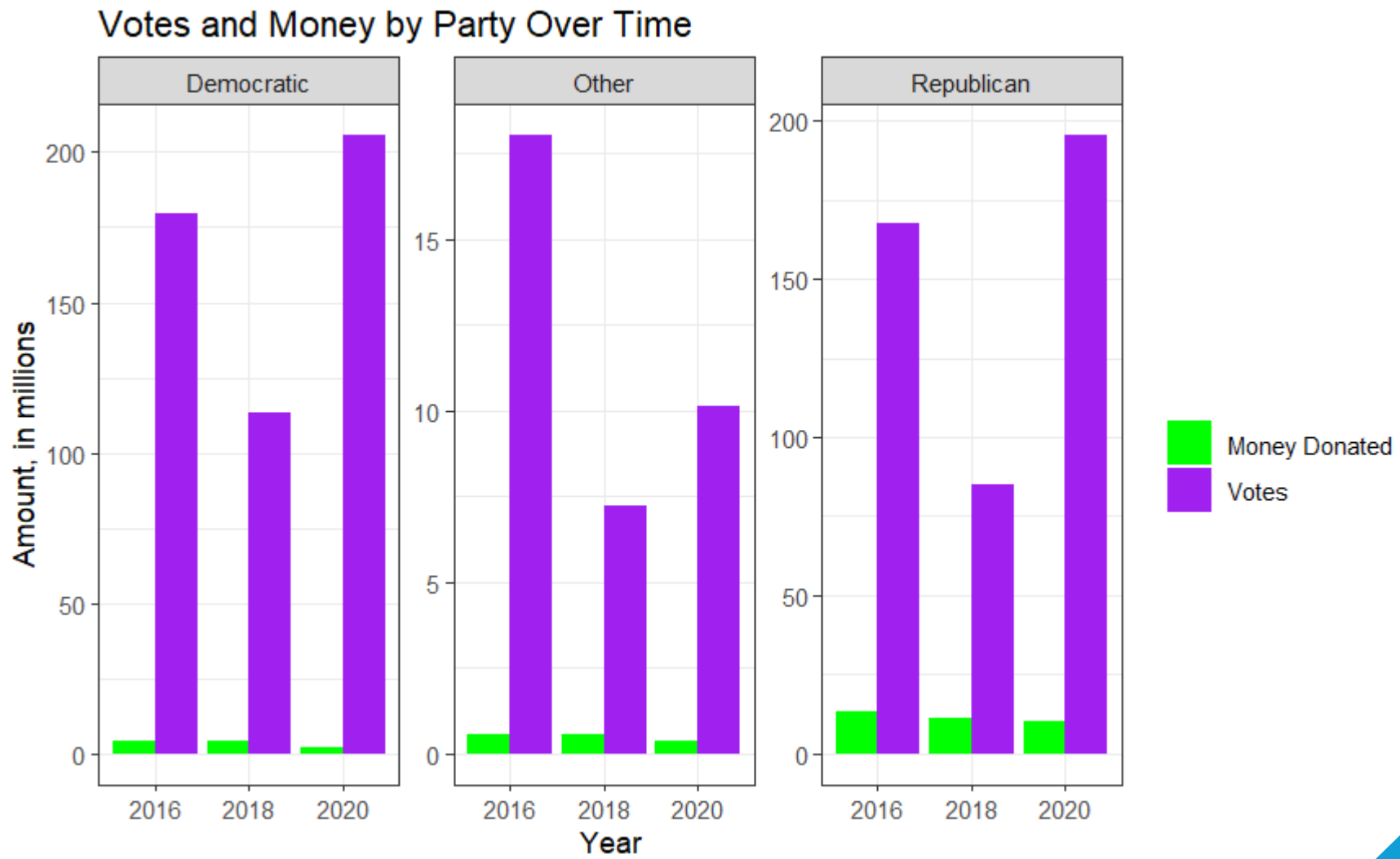
```
[1] 0.6345923
```

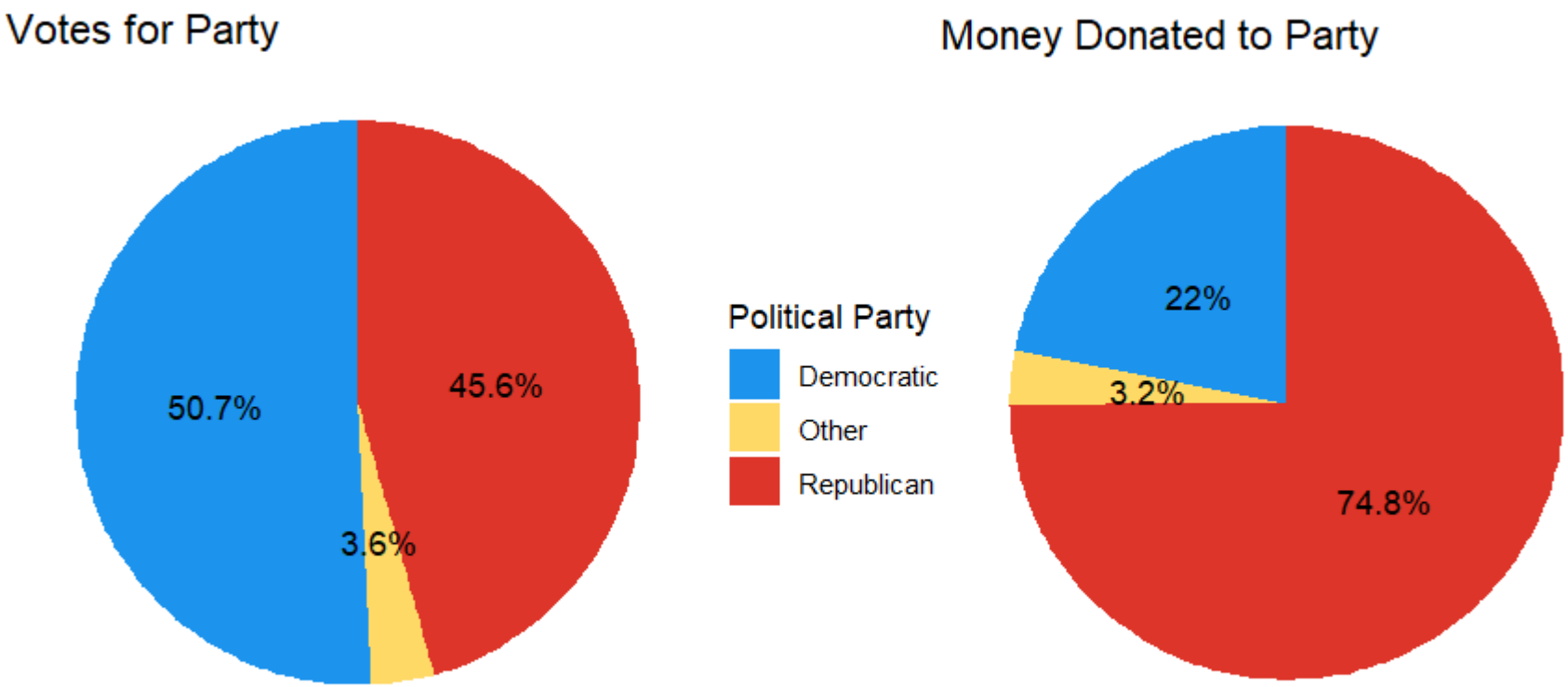
```r
cor(x = money_votes2$money, y = money_votes2$votes)
```

```
[1] 0.6073561
```

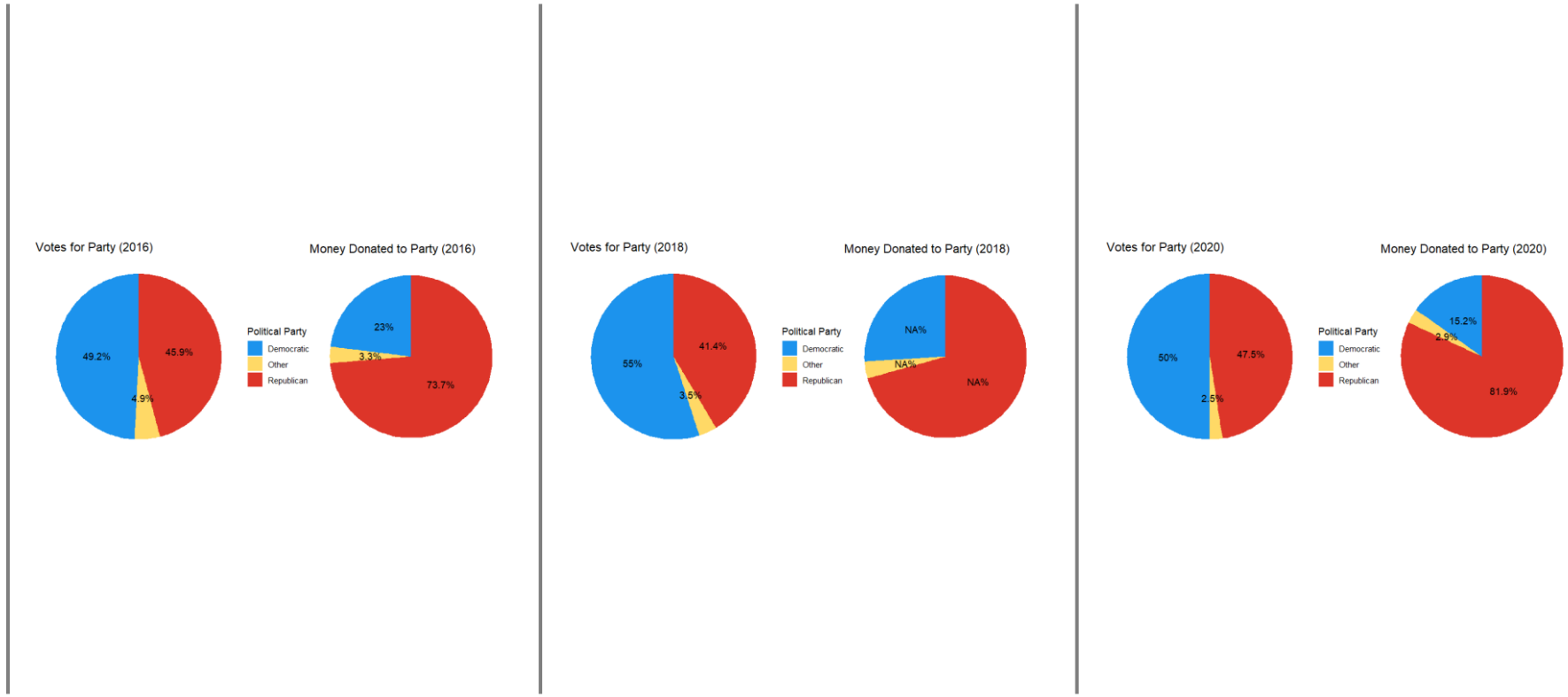
Main Goal

- Look for correlation between donations and votes
- Look for correlation between donations and political party
- Look for correlation between donations and election year


Votes and Money by Party Over Time
Democratic
Other
Republican
Amount, in millions
Year
2016
2018
2020
0
50
100
150
200
5
10
15
Money Donated
Votes

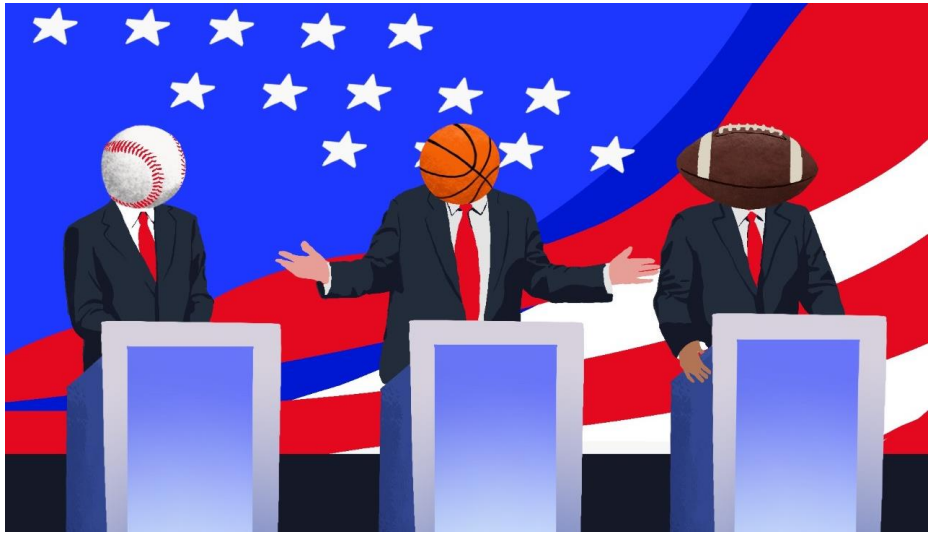

Votes for Party
50.7%
45.6%
3.6%
Political Party
Democratic
Other
Republican
Money Donated to Party
22%
3.2%
74.8%

```r
v_pie20 <- totals %>%
    filter(year == 2020) %>%
    select(total_dems, total_reps, total_other) %>%
    pivot_longer(cols = c(total_dems, total_reps, total_other),
                 names_to = "party", values_to = "votes") %>%
    mutate(perc = (votes / (sum(votes)))*100)

m_pie20 <- money_donated %>%
    filter(Year == 2020) %>%
    select(other_money, dem_money, rep_money) %>%
    pivot_longer(cols = c(dem_money, rep_money, other_money),
                 names_to = "party", values_to = "money")
m_pie20 <- m_pie20 %>%
    filter(!is.na(money)) %>%
    mutate(perc = (money / (sum(money)))*100)

v20 <- ggplot(v_pie20, aes(x = "", y = votes, fill = party)) +
    geom_bar(stat = "identity") +
    geom_text(aes(label = paste0(round(perc, digits = 1), "%")),
              position = position_stack(vjust = 0.5)) +
    coord_polar("y") +
    theme_void() +
    labs(title = "Votes for Party (2020)", fill = "Political Party") +
    scale_fill_manual(values = c("#1c93eq", "#ffd966", "#dd3529"),
                      labels = c("Democratic", "Other", "Republican"))

m20 <- ggplot(m_pie20, aes(x = "", y = money, fill = party)) +
    geom_bar(stat = "identity") +
    geom_text(aes(label = paste0(round(perc, digits = 1), "%")),
              position = position_stack(vjust = 0.5)) +
    coord_polar("y") +
    theme_void() +
    labs(title = "Money Donated to Party (2020)", fill = "Political Party") +
    scale_fill_manual(values = c("#1c93eq", "#ffd966", "#dd3529"),
                      labels = c("Democratic", "Other", "Republican")) +
    theme(legend.position = "none")

gridExtra::grid.arrange(v20, m20, nrow = 1, widths = c(1.35, 1))
```



Ethical Concerns

- Analysis & research is ethical but what is being investigated poses some ethical questions:
  - Politicization of sports
  - Campaign contributions



Possible Improvements

- MORE DATA!!!
  - more years, more sports leagues
- Look at owner net worth
- Deal with multi-league owners better
- More research/data into which Recipients support which Presidents

Main Takeaways

- More donations to Republican-leaning recipients
- Only moderate correlation between money donated and votes
- Nothing super surprising