Data cleaning

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Introduction

This file documents the data cleaning for the Representation Project

Data cleaning - Cumulative

Read in the data.

```
tbl<-read_rds("../Data/cumulative_2006_2017.Rds")
```

Take a look at the data

```
head(tbl)
```

```
## # A tibble: 6 x 70
##    year case_id weight weight_cumulati~ state st    cd     dist dist_up
##   <int>   <int>  <dbl>            <dbl> <chr> <chr> <S3:> <int>   <int>
## 1  2006  439219  1.85             1.35  Nort~ NC    NC-10    10      10
## 2  2006  439224  0.968            0.704 Ohio  OH    OH-3      3       3
## 3  2006  439228  1.59             1.16  New ~ NJ    NJ-1      1       1
## 4  2006  439237  1.40             1.02  Illi~ IL    IL-9      9       9
## 5  2006  439238  0.903            0.656 New ~ NY    NY-22    22      22
## 6  2006  439242  0.839            0.610 Texas TX    TX-11    11      11
## # ... with 61 more variables: cong <int>, cong_up <int>, zipcode <chr>,
## #   county_fips <chr>, tookpost <int>, weight_post <dbl>,
## #   starttime <dttm>, pid3 <int>, pid7 <int>, pid3_leaner <int>,
## #   ideo5 <fct>, gender <int>, birthyr <int>, age <int>, race <int>,
## #   hispanic <int>, educ <int>, faminc <fct>, economy_retro <int>,
## #   approval_pres <int>, approval_rep <fct>, approval_sen1 <fct>,
## #   approval_sen2 <fct>, approval_gov <int>, intent_pres_08 <fct>,
## #   intent_pres_12 <fct>, intent_pres_16 <fct>, voted_pres_08 <fct>,
## #   voted_pres_12 <fct>, voted_pres_16 <fct>, vv_regstatus <fct>,
## #   vv_party_gen <fct>, vv_party_prm <fct>, vv_turnout_gvm <fct>,
## #   vv_turnout_pvm <fct>, intent_rep <fct>, intent_sen <fct>,
## #   intent_gov <fct>, voted_rep <fct>, voted_sen <fct>, voted_gov <fct>,
## #   intent_rep_chosen <chr>, intent_rep_fec <chr>,
## #   intent_sen_chosen <chr>, intent_sen_fec <chr>,
## #   intent_gov_chosen <chr>, intent_gov_fec <chr>, voted_rep_chosen <chr>,
## #   voted_rep_fec <chr>, voted_sen_chosen <chr>, voted_sen_fec <chr>,
## #   voted_gov_chosen <chr>, voted_gov_fec <chr>, rep_current <chr>,
## #   rep_icpsr <int>, sen1_current <chr>, sen1_icpsr <int>,
## #   sen2_current <chr>, sen2_icpsr <int>, gov_current <chr>, gov_fec <chr>
```

Another way to look at the data, where we can clearly see all variable names and types.

```
tbl %>% glimpse()
```

```
## Observations: 392,755
## Variables: 70
## $ year              <int> 2006, 2006, 2006, 2006, 2006, 2006, 2006, 20...
```

```
## $ case_id           <int> 439219, 439224, 439228, 439237, 439238, 4392...
## $ weight            <dbl> 1.8516757, 0.9683084, 1.5934412, 1.3985290, ...
## $ weight_cumulative <dbl> 1.3460123, 0.7038787, 1.1582975, 1.0166128, ...
## $ state             <chr> "North Carolina", "Ohio", "New Jersey", "Ill...
## $ st                <chr> "NC", "OH", "NJ", "IL", "NY", "TX", "MN", "N...
## $ cd                <S3: glue> "NC-10", "OH-3", "NJ-1", "IL-9", "NY-22...
## $ dist              <int> 10, 3, 1, 9, 22, 11, 3, 2, 24, 2, 9, 5, 1, 1...
## $ dist_up           <int> 10, 3, 1, 9, 22, 11, 3, 2, 24, 2, 9, 5, 1, 1...
## $ cong              <int> 109, 109, 109, 109, 109, 109, 109, 109, 109,...
## $ cong_up           <int> 110, 110, 110, 110, 110, 110, 110, 110, 110,...
## $ zipcode           <chr> "28645", "45409", "08030", "60613", "12783",...
## $ county_fips       <chr> "37027", "39113", "34007", "17031", "36105",...
## $ tookpost          <int> 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 0,...
## $ weight_post       <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
## $ starttime         <dttm> 2006-10-07 00:02:34, 2006-10-07 00:02:53, 2...
## $ pid3              <int> 1, 4, 1, 1, 1, 3, 2, 1, 1, 1, 2, 2, 3, 3, 2,...
## $ pid7              <int> 1, 3, 1, 1, 1, 3, 7, 1, 1, 1, 7, 6, 5, 5, 6,...
## $ pid3_leaner       <int> 1, 1, 1, 1, 1, 1, 2, 1, 1, 1, 2, 2, 2, 2, 2,...
## $ ideo5             <fct> Liberal, Moderate, Liberal, Liberal, Liberal...
## $ gender            <int> 2, 1, 2, 2, 1, 2, 1, 2, 2, 1, 1, 2, 1, 2, 1,...
## $ birthyr           <int> 1974, 1957, 1952, 1972, 1986, 1979, 1959, 19...
## $ age               <int> 32, 49, 54, 34, 20, 27, 47, 20, 77, 19, 53, ...
## $ race              <int> 1, 1, 1, 2, 1, 1, 1, 1, 1, 2, 1, 1, 1, 1, 1,...
## $ hispanic          <int> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
## $ educ              <int> 2, 6, 2, 5, 3, 3, 4, 3, 3, 3, 3, 2, 4, 2, 2,...
## $ faminc            <fct> 10k - 20k, 150k+, 30k - 40k, Less than 10k, ...
## $ economy_retro     <int> 4, 5, 5, 3, 3, 3, 1, 4, 5, 3, 1, 4, 1, 1, 5,...
## $ approval_pres     <int> 4, 4, 4, 4, 4, 4, 1, 4, 4, 3, 2, 4, 2, 1, 4,...
## $ approval_rep      <fct> Strongly Disapprove, Disapprove / Somewhat D...
## $ approval_sen1     <fct> Disapprove / Somewhat Disapprove, Strongly D...
## $ approval_sen2     <fct> Strongly Disapprove, Disapprove / Somewhat D...
## $ approval_gov      <int> 2, 3, 1, 2, 3, 5, 2, 2, 4, 2, 2, 3, 3, 1, 2,...
## $ intent_pres_08    <fct> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
## $ intent_pres_12    <fct> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
## $ intent_pres_16    <fct> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
## $ voted_pres_08     <fct> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
## $ voted_pres_12     <fct> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
## $ voted_pres_16     <fct> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
## $ vv_regstatus      <fct> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
## $ vv_party_gen      <fct> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
## $ vv_party_prm      <fct> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
## $ vv_turnout_gvm    <fct> Voted, Voted, No Record Of Voting, Voted, No...
## $ vv_turnout_pvm    <fct> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
## $ intent_rep        <fct> [Democrat / Candidate 1], [Democrat / Candid...
## $ intent_sen        <fct> NA, [Democrat / Candidate 1], [Democrat / Ca...
## $ intent_gov        <fct> NA, [Democrat / Candidate 1], NA, [Democrat ...
## $ voted_rep         <fct> [Democrat / Candidate 1], [Democrat / Candid...
## $ voted_sen         <fct> NA, [Democrat / Candidate 1], [Democrat / Ca...
## $ voted_gov         <fct> NA, [Democrat / Candidate 1], NA, [Democrat ...
## $ intent_rep_chosen <chr> "Richard C. Carsner (D)", "Stephanie Studeba...
## $ intent_rep_fec    <chr> "H6NC10141", "H6OH03142", "HONJ01066", "H8IL...
## $ intent_sen_chosen <chr> NA, "Sherrod C. Brown (D)", "Robert Menendez...
## $ intent_sen_fec    <chr> NA, "S6OH00163", "S6NJ00289", NA, NA, NA, "S...
## $ intent_gov_chosen <chr> NA, "Ted Strickland (D)", NA, "Rod Blagojevi...
```

```
## $ intent_gov_fec    <chr> NA, "OH19691", NA, "IL7", "NY19490", NA, "MN...
## $ voted_rep_chosen  <chr> "Richard C. Carsner (D)", "Stephanie Studeba...
## $ voted_rep_fec     <chr> "H6NC10141", "H6OH03142", "HONJ01066", "H8IL...
## $ voted_sen_chosen  <chr> NA, "Sherrod C. Brown (D)", "Robert Menendez...
## $ voted_sen_fec     <chr> NA, "S6OH00163", "S6NJ00289", NA, "SONY00188...
## $ voted_gov_chosen  <chr> NA, "Ted Strickland (D)", NA, "Rod Blagojevi...
## $ voted_gov_fec     <chr> NA, "OH19691", NA, "IL7", "NY19490", NA, "MN...
## $ rep_current       <chr> "Patrick T. McHenry (R)", "Michael R. Turner...
## $ rep_icpsr         <int> 20522, 20342, 29132, 29911, 29380, 20531, 29...
## $ sen1_current      <chr> "Elizabeth Dole (R)", "Mike DeWine (R)", "Ro...
## $ sen1_icpsr        <int> 40303, 15020, 29373, 15021, 14858, 49306, 40...
## $ sen2_current      <chr> "Richard Burr (R)", "George V. Voinovich (R)...
## $ sen2_icpsr        <int> 29548, 49903, 14914, 40502, 40105, 40305, 40...
## $ gov_current       <chr> "Michael Easley (D)", "Bob Taft (R)", "Jon C...
## $ gov_fec           <chr> "NC5998", NA, "NJ6395", "IL7", NA, "TX3156",...
```

Select variables (from Kuriwaki Guide)

```
tbl %>%
  select(year, case_id, pid3)
```

```
## # A tibble: 392,755 x 3
##     year case_id  pid3
##    <int>   <int> <int>
##  1  2006  439219     1
##  2  2006  439224     4
##  3  2006  439228     1
##  4  2006  439237     1
##  5  2006  439238     1
##  6  2006  439242     3
##  7  2006  439251     2
##  8  2006  439254     1
##  9  2006  439255     1
## 10  2006  439263     1
## # ... with 392,745 more rows
```

Display frequencies of validated turnout General Election over time - shows only first few rows in console

```
tbl %>%
  group_by(year) %>%
  count(vv_turnout_gvm)
```

```
## # A tibble: 21 x 3
## # Groups:   year [12]
##     year vv_turnout_gvm          n
##    <int> <fct>               <int>
##  1  2006 Voted               15575
##  2  2006 No Record Of Voting 20489
##  3  2006 No Voter File         357
##  4  2007 <NA>                 9999
##  5  2008 Voted               22235
##  6  2008 No Record Of Voting 10520
##  7  2008 No Voter File          45
##  8  2009 <NA>                13800
##  9  2010 Voted               33854
## 10  2010 No Record Of Voting 20215
```

```
## # ... with 11 more rows
```

Display frequencies of validated turnout General Election over time - shows all rows in console in `kable` format to print in a clean formatted table.

```
tbl %>%
  group_by(year) %>%
  count(vv_turnout_gvm) %>%
  kable()
```

year	vv_turnout_gvm	n
2006	Voted	15575
2006	No Record Of Voting	20489
2006	No Voter File	357
2007	NA	9999
2008	Voted	22235
2008	No Record Of Voting	10520
2008	No Voter File	45
2009	NA	13800
2010	Voted	33854
2010	No Record Of Voting	20215
2010	No Voter File	1331
2011	NA	20150
2012	Voted	36402
2012	No Record Of Voting	18133
2013	NA	16400
2014	Voted	25309
2014	No Record Of Voting	30891
2015	NA	14250
2016	Voted	35829
2016	No Record Of Voting	28771
2017	NA	18200

Recode of vv_turnout_gvm to dichotomous

```
tbl <- tbl %>%
  mutate(vv_turnout_gvm_binary = as.numeric(vv_turnout_gvm == "Voted"))
```

Display frequencies of recoded Validated turnout General Election over time

```
tbl %>%
  group_by(year) %>%
  count(vv_turnout_gvm_binary)
```

```
## # A tibble: 18 x 3
## # Groups:   year [12]
##     year vv_turnout_gvm_binary     n
##    <int>                 <dbl> <int>
##  1  2006                     0 20846
##  2  2006                     1 15575
##  3  2007                    NA  9999
##  4  2008                     0 10565
##  5  2008                     1 22235
##  6  2009                    NA 13800
##  7  2010                     0 21546
```

```
##  8  2010                    1 33854
##  9  2011                   NA 20150
## 10  2012                    0 18133
## 11  2012                    1 36402
## 12  2013                   NA 16400
## 13  2014                    0 30891
## 14  2014                    1 25309
## 15  2015                   NA 14250
## 16  2016                    0 28771
## 17  2016                    1 35829
## 18  2017                   NA 18200
```

Display table, frequencies of recoded Validated turnout General Election over time

```
tbl %>%
  group_by(year) %>%
  count(vv_turnout_gvm_binary) %>%
  kable(align = c("l", "c", "c"))
```

year	vv_turnout_gvm_binary	n
2006	0	20846
2006	1	15575
2007	NA	9999
2008	0	10565
2008	1	22235
2009	NA	13800
2010	0	21546
2010	1	33854
2011	NA	20150
2012	0	18133
2012	1	36402
2013	NA	16400
2014	0	30891
2014	1	25309
2015	NA	14250
2016	0	28771
2016	1	35829
2017	NA	18200

Descriptive Statistics

Year:

```
tbl %>%
  count(year)
```

```
## # A tibble: 12 x 2
##     year     n
##    <int> <int>
##  1  2006 36421
##  2  2007  9999
##  3  2008 32800
##  4  2009 13800
##  5  2010 55400
##  6  2011 20150
```

```
##  7  2012 54535
##  8  2013 16400
##  9  2014 56200
## 10  2015 14250
## 11  2016 64600
## 12  2017 18200
```

tookpost - "Whether or not the respondent took the post-election wave of the survey (in even years)"

```
tbl %>%
  group_by(year) %>%
  count(tookpost) %>%
  filter(!is.na(tookpost)) %>%
  mutate(percent = round((n / sum(n)) * 100, 2))
```

```
## # A tibble: 12 x 4
## # Groups:   year [6]
##     year tookpost     n percent
##    <int>    <int> <int>   <dbl>
##  1  2006        0  7664    21.0
##  2  2006        1 28757    79.0
##  3  2008        0  5779    17.6
##  4  2008        1 27021    82.4
##  5  2010        0  8716    15.7
##  6  2010        1 46684    84.3
##  7  2012        0  9700    17.8
##  8  2012        1 44835    82.2
##  9  2014        0  7312    13.0
## 10  2014        1 48888    87.0
## 11  2016        0 11701    18.1
## 12  2016        1 52899    81.9
```

Weight - year-specific for all years, see Kuriwaki p.7 for notes

```
tbl %>%
  group_by(year) %>%
  summarize(mean = mean(weight, na.rm = TRUE),
            sd   = sd(weight, na.rm = TRUE),
            min  = min(weight),
            max  = max(weight)
  )
```

```
## # A tibble: 12 x 5
##     year  mean    sd       min   max
##    <int> <dbl> <dbl>     <dbl> <dbl>
##  1  2006 1.000 0.530 0.331      2.92
##  2  2007 1.000 0.959 0.379      3.41
##  3  2008 1.    0.775 0.299      6.49
##  4  2009 1.000 0.675 0.115      5.03
##  5  2010 1.000 1.26  0          7.03
##  6  2011 1     1.09  0.0863     7.00
##  7  2012 1     1.17  0.0000100 15.0
##  8  2013 1     1.02  0.000100  12.0
##  9  2014 1     1.17  0.000100  15.0
## 10  2015 1.000 0.946 0.000112  10.0
## 11  2016 1     0.979 0.000100  15.0
```

```
## 12  2017 1     1.07  0.000100  10.0
```

Weight - cumulative. Includes simple adjustment of multiplying a constant within year to make years comparable.

```
tbl %>%
  group_by(year) %>%
  summarize(mean = mean(weight_cumulative, na.rm = TRUE),
            sd   = sd(weight_cumulative, na.rm = TRUE),
            min  = min(weight_cumulative),
            max  = max(weight_cumulative)
  )
```

```
## # A tibble: 12 x 5
##     year  mean    sd        min   max
##    <int> <dbl> <dbl>      <dbl> <dbl>
##  1  2006 0.727 0.385 0.241       2.12
##  2  2007 2.65  2.54  1.00        9.03
##  3  2008 0.807 0.626 0.241       5.24
##  4  2009 1.92  1.29  0.220       9.65
##  5  2010 0.478 0.600 0           3.36
##  6  2011 1.31  1.44  0.113       9.20
##  7  2012 0.485 0.570 0.00000485  7.28
##  8  2013 1.61  1.64  0.000162   19.4
##  9  2014 0.471 0.550 0.0000472   7.07
## 10  2015 1.86  1.76  0.000208   18.6
## 11  2016 0.410 0.401 0.0000410   6.15
## 12  2017 1.45  1.56  0.000145   14.5
```

Geographic variables *state - imputed from input zipcode* st - same data as "State", Var name = 2-letter State abbreviation

```
tbl %>%
  count(state, st)
```

```
## # A tibble: 51 x 3
##    state                st        n
##    <chr>                <chr> <int>
##  1 Alabama              AL     5106
##  2 Alaska               AK      881
##  3 Arizona              AZ     9928
##  4 Arkansas             AR     3703
##  5 California           CA    37821
##  6 Colorado             CO     6824
##  7 Connecticut          CT     4622
##  8 Delaware             DE     1455
##  9 District of Columbia DC      878
## 10 Florida              FL    28879
## # ... with 41 more rows
```

Geographic variables *cd: Congressional district in current Congress

```
tbl %>%
  count(st, cd)
```

```
## # A tibble: 448 x 3
##    st    cd             n
##    <chr> <S3: glue> <int>
```

```
##  1 AK    AK-1         881
##  2 AL    AL-1         723
##  3 AL    AL-2         754
##  4 AL    AL-3         692
##  5 AL    AL-4         628
##  6 AL    AL-5         828
##  7 AL    AL-6         765
##  8 AL    AL-7         716
##  9 AR    AR-1         836
## 10 AR    AR-2         962
## # ... with 438 more rows
```

Gender

```
tbl %>%
  count(gender)
```

```
## # A tibble: 2 x 2
##   gender      n
##    <int>  <int>
## 1      1 184273
## 2      2 208482
```

Age

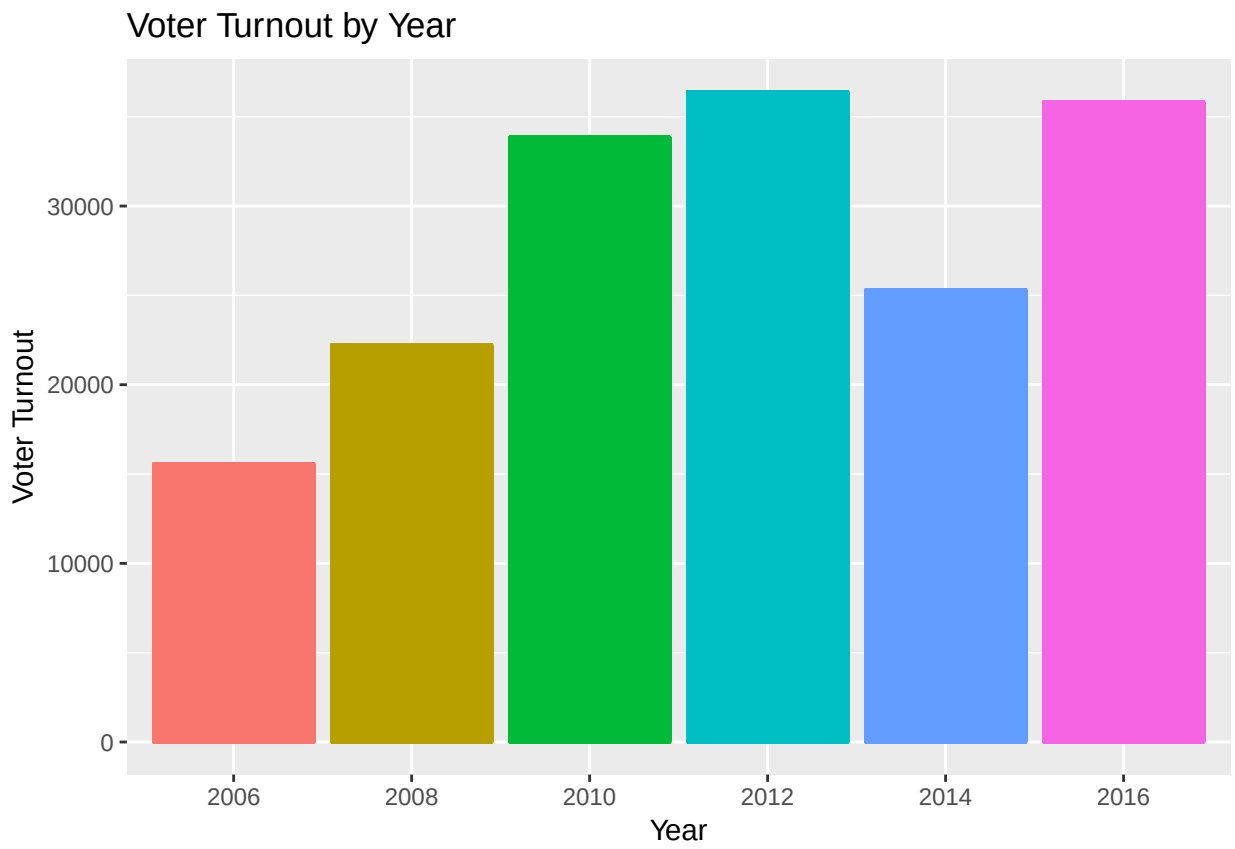
```
tbl %>%
  summarize(mean = mean(age),
            sd   = sd(age),
            min  = min(age),
            max  = max(age)
  ) %>%
  mutate(variable = "age") %>%
  select(variable, everything())
```

```
## # A tibble: 1 x 5
##   variable  mean    sd   min   max
##   <chr>    <dbl> <dbl> <dbl> <dbl>
## 1 age       49.8  16.2    18   109
```

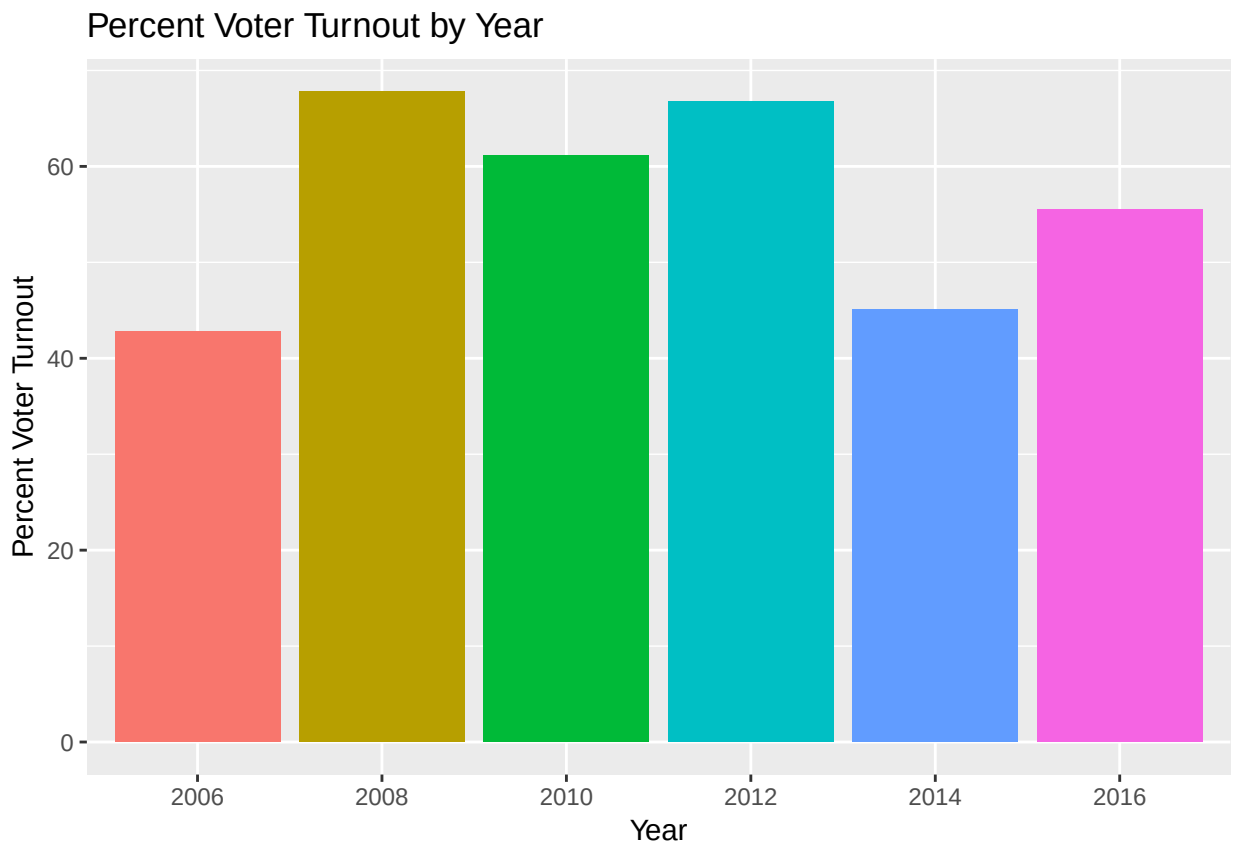
Figures

Plot turnout dichotomous by year via bar charts:

```
# counts
tbl %>%
  filter(year %% 2 != 1) %>%        # filter to even years
  mutate(year = as.character(year)) %>%
  ggplot(aes(x = year, y = vv_turnout_gvm_binary, colour = year)) +
  geom_bar(stat = "identity") +
  labs(x = "Year", y = "Voter Turnout", title = "Voter Turnout by Year") +
  theme(legend.position = "none")
```

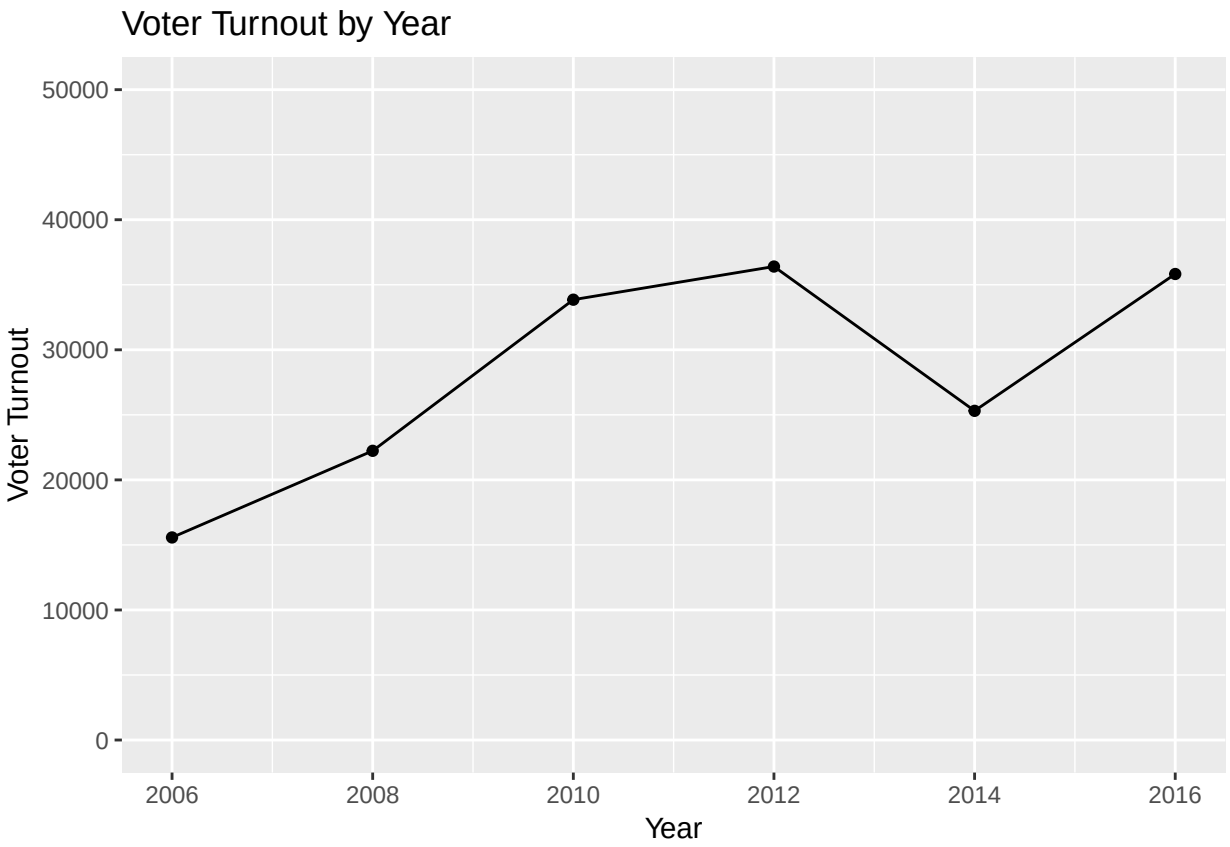



```
# percent
tbl %>%
  filter(year %% 2 != 1) %>%        # filter to even years
  mutate(year = as.character(year)) %>%
  group_by(year) %>%
  summarize(percent = mean(vv_turnout_gvm_binary, na.omit = TRUE) * 100) %>%
  ggplot(aes(x = year, y = percent, fill = year)) +
  geom_bar(stat = "identity") +
  labs(x = "Year", y = "Percent Voter Turnout", title = "Percent Voter Turnout by Year") +
  theme(legend.position = "none")
```

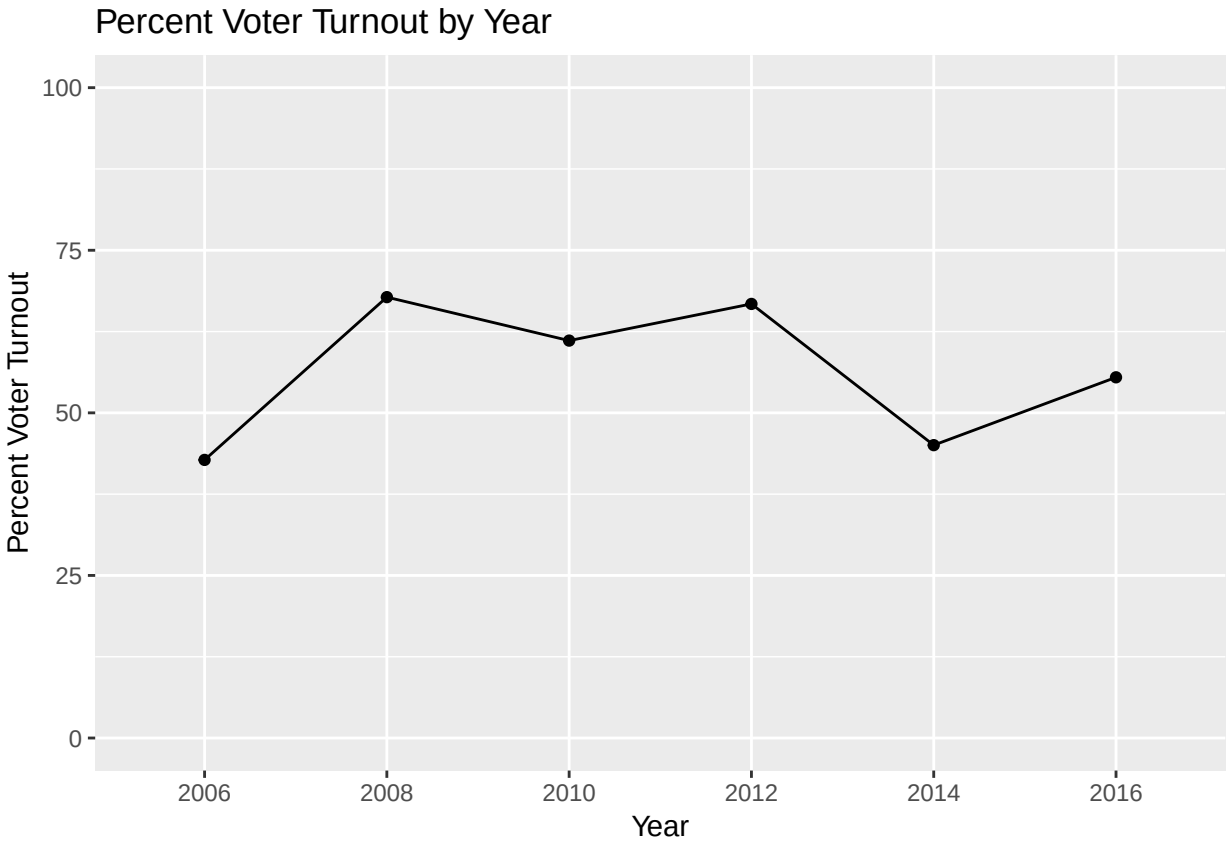


Plot turnout dichotomous by year via line plots:

```
# counts
tbl %>%
  group_by(year) %>%
  count(vv_turnout_gvm_binary) %>%
  filter(vv_turnout_gvm_binary == 1) %>%
  ggplot(aes(x = year, y = n)) +
  geom_line() +
  geom_point() +
  ylim(0, 50000) +
  labs(x = "Year", y = "Voter Turnout", title = "Voter Turnout by Year")
```




```
# percents
tbl %>%
  filter(year %% 2 != 1) %>%        # filter to even years
  mutate(year = as.character(year)) %>%
  group_by(year) %>%
  summarize(percent = mean(vv_turnout_gvm_binary, na.omit = TRUE) * 100) %>%
  ungroup() %>%
  ggplot(aes(x = year, y = percent, group = 1)) +
  geom_point() +
  geom_line() +
  ylim(0, 100) +
  labs(x = "Year", y = "Percent Voter Turnout", title = "Percent Voter Turnout by Year")
```



Data cleaning - 2012, replicating Perspectives findings with focus on Independents

JO dropbox link to Nov 2018 work on this topic in stata: CCES 2012_Russ Sage: https://www.dropbox.com/sh/fc7cn2fmaxocsyu/AADt5fFQ9jFXUQgcW65pVYvRa?dl=0

Read in 2012 cleaned data for Perspectives paper.

```
tbl2012 <- read_dta("../Data/CCES_foranalysis.dta")
```

Examine the variables we are interested in.

```
tbl2012 %>%
  select(healthcarerepeal1_House1,
         ryanbudget_House1,
         koreafreetrade_House1,
         simpsonbowles_House1,
         keystonepipeline_House1,
         dontaskdonttell_House1) %>%
  glimpse()
```

```
## Observations: 54,535
## Variables: 6
## $ healthcarerepeal1_House1 <chr> "For", "For", "For", "For", "For", "F...
## $ ryanbudget_House1        <chr> "For", "For", "For", "For", "For", "F...
## $ koreafreetrade_House1    <chr> "For", "For", "For", "For", "For", "F...
## $ simpsonbowles_House1     <chr> "For", "For", "For", "For", "For", "F...
## $ keystonepipeline_House1  <chr> "For", "For", "For", "For", "For", "F...
```

```
## $ dontaskdonttell_House1   <chr> "Yea", "Yea", "Yea", "Yea", "Yea", "Y...
```

Some descriptive statistics.

```
tbl2012_vars <- tbl2012 %>%
  select(healthcarerepeal1_House1,
         ryanbudget_House1,
         koreafreetrade_House1,
         simpsonbowles_House1,
         keystonepipeline_House1,
         dontaskdonttell_House1) %>%
  colnames()

tbl2012_vars %>%
  map(~ tbl2012 %>%
        count(!!sym(.x)) %>%
        mutate(percent = round((n / sum(n)) * 100, 2)))
```

```
## [[1]]
## # A tibble: 4 x 3
##   healthcarerepeal1_House1     n percent
##   <chr>                    <int>   <dbl>
## 1 ""                         109     0.2
## 2 Against                  21699    39.8
## 3 Did Not Vote               216     0.4
## 4 For                      32511    59.6
##
## [[2]]
## # A tibble: 4 x 3
##   ryanbudget_House1     n percent
##   <chr>             <int>   <dbl>
## 1 ""                  439    0.8
## 2 Against           22282   40.9
## 3 Did Not Vote        557    1.02
## 4 For               31257   57.3
##
## [[3]]
## # A tibble: 4 x 3
##   koreafreetrade_House1     n percent
##   <chr>                 <int>   <dbl>
## 1 ""                      428    0.78
## 2 Against               17447   32.0
## 3 Did Not Vote            520    0.95
## 4 For                   36140   66.3
##
## [[4]]
## # A tibble: 5 x 3
##   simpsonbowles_House1     n percent
##   <chr>                <int>   <dbl>
## 1 ""                     679    1.25
## 2 Against              47854   87.8
## 3 Did Not Vote           965    1.77
## 4 For                   4774    8.75
## 5 Present                263    0.48
##
```

```
## [[5]]
## # A tibble: 4 x 3
##   keystonepipeline_House1     n percent
##   <chr>                   <int>   <dbl>
## 1 ""                        679    1.25
## 2 Against                 15051   27.6
## 3 Did Not Vote             1380    2.53
## 4 For                     37425   68.6
##
## [[6]]
## # A tibble: 7 x 3
##   dontaskdonttell_House1     n percent
##   <chr>                  <int>   <dbl>
## 1 ""                       109    0.2
## 2 .                        368    0.67
## 3 Announced Against        269    0.49
## 4 Announced For            145    0.27
## 5 Did not vote             926    1.7
## 6 Nay                    21403   39.2
## 7 Yea                    31315   57.4
```

```
# counts of healthcare repeal votes in the House grouped by state district and party
tbl2012 %>%
  group_by(st_dist, party_House1) %>%
  count(healthcarerepeal1_House1)
```

```
## # A tibble: 436 x 4
## # Groups:   st_dist, party_House1 [436]
##    st_dist party_House1 healthcarerepeal1_House1     n
##    <chr>   <chr>        <chr>                    <int>
##  1 AK1     Republican   For                        128
##  2 AL1     Republican   For                        108
##  3 AL2     Republican   For                        126
##  4 AL3     Republican   For                        106
##  5 AL4     Republican   For                         85
##  6 AL5     Republican   For                        112
##  7 AL6     Republican   For                        113
##  8 AL7     Democratic   Against                     99
##  9 AR1     Republican   For                         97
## 10 AR2     Republican   For                        141
## # ... with 426 more rows
```

These are pretty messy, let's recode them.

```
tbl2012 <- tbl2012 %>%
  mutate_at(tbl2012_vars, list(~ na_if(., y = ""))) %>%
  mutate(
    healthcarerepeal1_House1 = case_when(
      healthcarerepeal1_House1 == "For"     ~ "For",
      healthcarerepeal1_House1 == "Against" ~ "Against",
      TRUE ~ NA_character_
    ),
    ryanbudget_House1 = case_when(
      ryanbudget_House1 == "For"     ~ "For",
      ryanbudget_House1 == "Against" ~ "Against",
      TRUE ~ NA_character_
```

```
    ),
    koreafreetrade_House1 = case_when(
      koreafreetrade_House1 == "For"     ~ "For",
      koreafreetrade_House1 == "Against" ~ "Against",
      TRUE ~ NA_character_
    ),
    simpsonbowles_House1 = case_when(
      simpsonbowles_House1 == "For"     ~ "For",
      simpsonbowles_House1 == "Against" ~ "Against",
      TRUE ~ NA_character_
    ),
    keystonepipeline_House1 = case_when(
      keystonepipeline_House1 == "For"     ~ "For",
      keystonepipeline_House1 == "Against" ~ "Against",
      TRUE ~ NA_character_
    ),
    dontaskdonttell_House1 = case_when(
      dontaskdonttell_House1 == "Announced For"     ~ "For",
      dontaskdonttell_House1 == "Announced Against" ~ "Against",
      dontaskdonttell_House1 == "Yea"     ~ "For",
      dontaskdonttell_House1 == "Nay" ~ "Against",
      TRUE ~ NA_character_
    )
  )

# check recodes
tbl2012_vars %>%
  map(~ tbl2012 %>%
        count(!!sym(.x)) %>%
        mutate(percent = round((n / sum(n)) * 100, 2)))
```

```
## [[1]]
## # A tibble: 3 x 3
##   healthcarerepeal1_House1     n percent
##   <chr>                    <int>   <dbl>
## 1 Against                  21699    39.8
## 2 For                      32511    59.6
## 3 <NA>                       325     0.6
##
## [[2]]
## # A tibble: 3 x 3
##   ryanbudget_House1     n percent
##   <chr>             <int>   <dbl>
## 1 Against           22282   40.9
## 2 For               31257   57.3
## 3 <NA>                996    1.83
##
## [[3]]
## # A tibble: 3 x 3
##   koreafreetrade_House1     n percent
##   <chr>                 <int>   <dbl>
## 1 Against               17447   32.0
## 2 For                   36140   66.3
## 3 <NA>                    948    1.74
```

```
##
## [[4]]
## # A tibble: 3 x 3
##   simpsonbowles_House1     n percent
##   <chr>                <int>   <dbl>
## 1 Against              47854   87.8
## 2 For                   4774    8.75
## 3 <NA>                  1907    3.5
##
## [[5]]
## # A tibble: 3 x 3
##   keystonepipeline_House1     n percent
##   <chr>                   <int>   <dbl>
## 1 Against                 15051   27.6
## 2 For                     37425   68.6
## 3 <NA>                     2059    3.78
##
## [[6]]
## # A tibble: 3 x 3
##   dontaskdonttell_House1     n percent
##   <chr>                  <int>   <dbl>
## 1 Against                21672   39.7
## 2 For                    31460   57.7
## 3 <NA>                    1403    2.57
```

Data cleaning - Panel 2010-2012-2014

Link to prior panel data analyses in stata: CCES panel 2010-2012-2014: https://www.dropbox.com/sh/gj4vfv9xzvdgkwd/AABpmEqKQBT6EQDVCFvqeV7Ka?dl=0

Read in the data.

```
tbl_panel <- haven::read_dta("../Data/CCES_Panel_Full3waves_VV_V4.dta", encoding = "latin1")
```

I. Create joined data file Senate: join on state (2-letter postal abbreviation) In stata: Reshaped into wide format to join In R, relevant commands: spread, gather, mutate_at

Link for CCES 2014 supplemental data: https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/D1N0GO

Link for CCES 2012 supplemental data https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/NI3BDE

Link for CCES 2010 supplemental data: https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/KC9EQR

Recode of relevant respondent measures CC10_330A = Roll Call - American Recovery and Reinvestment Act [According to PanelGuide downloaded 1Feb2019 - https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/TOE8I1]

```
tbl_panel %>%
  count(CC10_330A)
```

```
## # A tibble: 3 x 2
##   CC10_330A     n
##   <dbl+lbl> <int>
## 1  1         4616
## 2  2         4775
```

```
## 3 NA          109
```

View 1st 5 Lines only in dataframe of all columns (vars)

```
head(tbl_panel)
```

```
## # A tibble: 6 x 1,631
##   caseid weight CC10_301_1 CC10_301_2 CC10_301_3 CC10_301_4 CC10_301_5
##    <dbl>  <dbl> <dbl+lbl>  <dbl+lbl>  <dbl+lbl>  <dbl+lbl>  <dbl+lbl>
## 1  25233  0.538 1          1          1          1          2
## 2  38716  3.47  1          2          1          1          2
## 3   7796  0.602 2          1          1          1          2
## 4  78113  0.264 1          1          1          1          2
## 5  63800  0.197 1          1          1          2          2
## 6  15002  0.204 1          1          1          1          2
## # ... with 1,624 more variables: CC10_301b <dbl+lbl>, CC10_301c <dbl+lbl>,
## #   CC10_302 <dbl+lbl>, CC10_304 <dbl+lbl>, CC10_305 <dbl+lbl>,
## #   CC10_308a <dbl+lbl>, CC10_308b <dbl+lbl>, CC10_308c <dbl+lbl>,
## #   CC10_308d <dbl+lbl>, CC10_308e <dbl+lbl>, CC10_309a <dbl+lbl>,
## #   CC10_309b <dbl+lbl>, CC10_309c <dbl+lbl>, CC10_309d <dbl+lbl>,
## #   CC10_310a <dbl+lbl>, CC10_310b <dbl+lbl>, CC10_310c <dbl+lbl>,
## #   CC10_310d <dbl+lbl>, CC10_315a <dbl+lbl>, CC10_315b <dbl+lbl>,
## #   CC10_315c <dbl+lbl>, CC10_316 <dbl+lbl>, CC10_317 <dbl+lbl>,
## #   CC10_317_t <chr>, CC10_320 <dbl+lbl>, CC10_321 <dbl+lbl>,
## #   CC10_322_1 <dbl+lbl>, CC10_322_2 <dbl+lbl>, CC10_322_3 <dbl+lbl>,
## #   CC10_322_4 <dbl+lbl>, CC10_322_7 <dbl+lbl>, CC10_322_8 <dbl+lbl>,
## #   CC10_324 <dbl+lbl>, CC10_325 <dbl+lbl>, CC10_326 <dbl+lbl>,
## #   CC10_327 <dbl+lbl>, CC10_328 <dbl+lbl>, CC10_329 <dbl+lbl>,
## #   CC10_330A <dbl+lbl>, CC10_330B <dbl+lbl>, CC10_330C <dbl+lbl>,
## #   CC10_330D <dbl+lbl>, CC10_330E <dbl+lbl>, CC10_330F <dbl+lbl>,
## #   CC10_330G <dbl+lbl>, CC10_330H <dbl+lbl>, CC10_330I <dbl+lbl>,
## #   CC10_330J <dbl+lbl>, CC10_334E <dbl+lbl>, CC10_334Hb <dbl+lbl>,
## #   CC10_334Ib <dbl+lbl>, CC10_335a1 <dbl+lbl>, CC10_335a2 <dbl+lbl>,
## #   CC10_335b1 <dbl+lbl>, CC10_335b2 <dbl+lbl>, CC10_335c1 <dbl+lbl>,
## #   CC10_335c2 <dbl+lbl>, CC10_341A <dbl+lbl>, CC10_341B <dbl+lbl>,
## #   CC10_341C <dbl+lbl>, CC10_341F <dbl+lbl>, CC10_341G <dbl+lbl>,
## #   CC10_341H <dbl+lbl>, CC10_341I <dbl+lbl>, CC10_341J <dbl+lbl>,
## #   CC10_341K <dbl+lbl>, CC10_341L <dbl+lbl>, CC10_341M <dbl+lbl>,
## #   CC10_341R <dbl+lbl>, CC10_350 <dbl+lbl>, CC10_351 <dbl+lbl>,
## #   CC10_352a <dbl+lbl>, CC10_352b <dbl+lbl>, CC10_354 <dbl+lbl>,
## #   CC10_355 <dbl+lbl>, CC10_355_t <chr>, CC10_355a <dbl+lbl>,
## #   CC10_355a_t <chr>, CC10_355b <dbl+lbl>, CC10_355b_t <chr>,
## #   CC10_356 <dbl+lbl>, CC10_356_t <chr>, CC10_356a <dbl+lbl>,
## #   CC10_356a_t <chr>, CC10_390 <dbl+lbl>, CC10_390_t <chr>,
## #   CC10_390a <dbl+lbl>, CC10_390a_t <chr>, CC10_401 <dbl+lbl>,
## #   CC10_402a <dbl+lbl>, CC10_402a_t <chr>, CC10_402b <dbl+lbl>,
## #   CC10_402b_t <chr>, CC10_403 <dbl+lbl>, CC10_405 <dbl+lbl>,
## #   CC10_406a <dbl+lbl>, CC10_406b_1 <dbl+lbl>, CC10_406b_2 <dbl+lbl>,
## #   CC10_406b_3 <dbl+lbl>, CC10_406c <dbl+lbl>, ...
```

NOTE: Discrepanices between pdf "guide" and data: (1) "Guide" says roll call votes 2010 should all have preface CC10_332 - but in data all have preface CC10_330. (2) Data says CC10_330H = Stem cell & CC10_330I = Foreign Intelligence Surveillance Act // Guide swaps them.

Recode CC10_330A as factor. This converts the labeled numeric column in to a factor with strings as the values.

```
tbl_panel <- tbl_panel %>%
    mutate(CC10_330A_fac = as_factor(CC10_330A))

# check successful mutate
tbl_panel %>%
  count(CC10_330A, CC10_330A_fac)
```

```
## # A tibble: 3 x 3
##   CC10_330A CC10_330A_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Support        4616
## 2  2        Oppose         4775
## 3 NA        <NA>            109
```

Count all 2010 vars noted in pdf guide to verify they're in dataset (p.49 of guide) CC12_330B

```
CC10_330_vars <- tbl_panel %>%
  select(CC10_330B, CC10_330C, CC10_330D, CC10_330E,
         CC10_330F, CC10_330G, CC10_330H, CC10_330I, CC10_330J) %>%
  colnames()

CC10_330_vars %>%
  map(~ tbl_panel %>% count(!!sym(.x)))
```

```
## [[1]]
## # A tibble: 3 x 2
##   CC10_330B     n
##   <dbl+lbl> <int>
## 1  1         6376
## 2  2         3055
## 3 NA           69
##
## [[2]]
## # A tibble: 3 x 2
##   CC10_330C     n
##   <dbl+lbl> <int>
## 1  1         4952
## 2  2         4386
## 3 NA          162
##
## [[3]]
## # A tibble: 3 x 2
##   CC10_330D     n
##   <dbl+lbl> <int>
## 1  1         4664
## 2  2         4764
## 3 NA           72
##
## [[4]]
## # A tibble: 3 x 2
##   CC10_330E     n
##   <dbl+lbl> <int>
## 1  1         4798
## 2  2         4447
## 3 NA          255
```

```
##
## [[5]]
## # A tibble: 3 x 2
##   CC10_330F     n
##   <dbl+lbl> <int>
## 1  1         6365
## 2  2         3009
## 3 NA          126
##
## [[6]]
## # A tibble: 3 x 2
##   CC10_330G     n
##   <dbl+lbl> <int>
## 1  1         5651
## 2  2         3725
## 3 NA          124
##
## [[7]]
## # A tibble: 3 x 2
##   CC10_330H     n
##   <dbl+lbl> <int>
## 1  1         6191
## 2  2         3199
## 3 NA          110
##
## [[8]]
## # A tibble: 3 x 2
##   CC10_330I     n
##   <dbl+lbl> <int>
## 1  1         1100
## 2  2          328
## 3 NA         8072
##
## [[9]]
## # A tibble: 3 x 2
##   CC10_330J     n
##   <dbl+lbl> <int>
## 1  1          385
## 2  2         1070
## 3 NA         8045
```

Recode all remaining 2010 vars as factor

```
tbl_panel <- tbl_panel %>%
  mutate_at(vars(CC10_330B, CC10_330C, CC10_330D, CC10_330E,
                 CC10_330F, CC10_330G, CC10_330H, CC10_330I, CC10_330J),
            funs(fac = as_factor(.)))
```

Confirm that mutate performed correctly

```
fac_vars <- CC10_330_vars %>%
  paste0("_fac")

map2(CC10_330_vars, fac_vars, ~ tbl_panel %>% count(!!sym(.x), !!sym(.y)))
```

```
## [[1]]
```

```
## # A tibble: 3 x 3
##   CC10_330B CC10_330B_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Support        6376
## 2  2        Oppose         3055
## 3 NA        <NA>             69
##
## [[2]]
## # A tibble: 3 x 3
##   CC10_330C CC10_330C_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Support        4952
## 2  2        Oppose         4386
## 3 NA        <NA>            162
##
## [[3]]
## # A tibble: 3 x 3
##   CC10_330D CC10_330D_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Support        4664
## 2  2        Oppose         4764
## 3 NA        <NA>             72
##
## [[4]]
## # A tibble: 3 x 3
##   CC10_330E CC10_330E_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Support        4798
## 2  2        Oppose         4447
## 3 NA        <NA>            255
##
## [[5]]
## # A tibble: 3 x 3
##   CC10_330F CC10_330F_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Support        6365
## 2  2        Oppose         3009
## 3 NA        <NA>            126
##
## [[6]]
## # A tibble: 3 x 3
##   CC10_330G CC10_330G_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Support        5651
## 2  2        Oppose         3725
## 3 NA        <NA>            124
##
## [[7]]
## # A tibble: 3 x 3
##   CC10_330H CC10_330H_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Support        6191
## 2  2        Oppose         3199
## 3 NA        <NA>            110
```

```
##
## [[8]]
## # A tibble: 3 x 3
##   CC10_330I CC10_330I_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Support        1100
## 2  2        Oppose          328
## 3 NA        <NA>           8072
##
## [[9]]
## # A tibble: 3 x 3
##   CC10_330J CC10_330J_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Support         385
## 2  2        Oppose         1070
## 3 NA        <NA>           8045
```

JO checking 2012 roll call opinion votes

Guide includes var "House Supported Roll Call - Repeal Affordable Care Act" JA insight re: whether this is already merged House votes?

```
tbl_panel %>% count(CC12_333_a_1)
```

```
## # A tibble: 3 x 2
##   CC12_333_a_1     n
##   <dbl+lbl>    <int>
## 1  1            4397
## 2  2            5014
## 3 NA              89
```

Count all 2012 vars noted in pdf guide to verify they're in dataset (p. 143 of guide)

```
CC12_vars <- tbl_panel %>%
  select(CC12_330A, CC12_330B, CC12_330C, CC12_330D, CC12_330E,
         CC12_330F, CC12_330G, CC12_330H, CC12_332A, CC12_332B,
         CC12_332C, CC12_332D, CC12_332E, CC12_332F) %>%
  colnames()

CC12_vars %>%
  map(~ tbl_panel %>% count(!!sym(.x)))
```

```
## [[1]]
## # A tibble: 3 x 2
##   CC12_330A     n
##   <dbl+lbl> <int>
## 1  1         4633
## 2  2         4806
## 3 NA           61
##
## [[2]]
## # A tibble: 3 x 2
##   CC12_330B     n
##   <dbl+lbl> <int>
## 1  1         6705
## 2  2         2733
## 3 NA           62
```

```
##
## [[3]]
## # A tibble: 3 x 2
##   CC12_330C     n
##   <dbl+lbl> <int>
## 1  1         5025
## 2  2         4346
## 3 NA          129
##
## [[4]]
## # A tibble: 3 x 2
##   CC12_330D     n
##   <dbl+lbl> <int>
## 1  1         4828
## 2  2         4602
## 3 NA           70
##
## [[5]]
## # A tibble: 3 x 2
##   CC12_330E     n
##   <dbl+lbl> <int>
## 1  1         4272
## 2  2         4898
## 3 NA          330
##
## [[6]]
## # A tibble: 3 x 2
##   CC12_330F     n
##   <dbl+lbl> <int>
## 1  1         6417
## 2  2         2910
## 3 NA          173
##
## [[7]]
## # A tibble: 3 x 2
##   CC12_330G     n
##   <dbl+lbl> <int>
## 1  1         5962
## 2  2         3434
## 3 NA          104
##
## [[8]]
## # A tibble: 3 x 2
##   CC12_330H     n
##   <dbl+lbl> <int>
## 1  1         6227
## 2  2         3144
## 3 NA          129
##
## [[9]]
## # A tibble: 3 x 2
##   CC12_332A     n
##   <dbl+lbl> <int>
## 1  1         2436
```

```
## 2  2         6919
## 3 NA          145
##
## [[10]]
## # A tibble: 3 x 2
##   CC12_332B     n
##   <dbl+lbl> <int>
## 1  1         3975
## 2  2         5363
## 3 NA          162
##
## [[11]]
## # A tibble: 3 x 2
##   CC12_332C     n
##   <dbl+lbl> <int>
## 1  1         6077
## 2  2         3188
## 3 NA          235
##
## [[12]]
## # A tibble: 3 x 2
##   CC12_332D     n
##   <dbl+lbl> <int>
## 1  1         3073
## 2  2         6188
## 3 NA          239
##
## [[13]]
## # A tibble: 3 x 2
##   CC12_332E     n
##   <dbl+lbl> <int>
## 1  1         4269
## 2  2         5119
## 3 NA          112
##
## [[14]]
## # A tibble: 3 x 2
##   CC12_332F     n
##   <dbl+lbl> <int>
## 1  1         4967
## 2  2         4223
## 3 NA          310
```

JO note: the final 2 vars in the list in the guidebook don't appear in the data: CC12_332G = Repeal ACA CC12_332H = Keystone

Recode all 2012 roll call votes as factors

```
tbl_panel <- tbl_panel %>%
  mutate_at(vars(CC12_330A, CC12_330B, CC12_330C, CC12_330D, CC12_330E,
                 CC12_330F, CC12_330G, CC12_330H, CC12_332A, CC12_332B,
                 CC12_332C, CC12_332D, CC12_332E, CC12_332F),
            funs(fac = as_factor(.)))

# Confirm that mutate performed correctly
```

```r
CC12_fac_vars <- CC12_vars %>%
  paste0("_fac")

map2(CC12_vars, CC12_fac_vars, ~ tbl_panel %>% count(!!sym(.x), !!sym(.y)))
```

```
## [[1]]
## # A tibble: 3 x 3
##   CC12_330A CC12_330A_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            4633
## 2  2        No             4806
## 3 NA        <NA>             61
##
## [[2]]
## # A tibble: 3 x 3
##   CC12_330B CC12_330B_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            6705
## 2  2        No             2733
## 3 NA        <NA>             62
##
## [[3]]
## # A tibble: 3 x 3
##   CC12_330C CC12_330C_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            5025
## 2  2        No             4346
## 3 NA        <NA>            129
##
## [[4]]
## # A tibble: 3 x 3
##   CC12_330D CC12_330D_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            4828
## 2  2        No             4602
## 3 NA        <NA>             70
##
## [[5]]
## # A tibble: 3 x 3
##   CC12_330E CC12_330E_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            4272
## 2  2        No             4898
## 3 NA        <NA>            330
##
## [[6]]
## # A tibble: 3 x 3
##   CC12_330F CC12_330F_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            6417
## 2  2        No             2910
## 3 NA        <NA>            173
##
## [[7]]
```

```
## # A tibble: 3 x 3
##   CC12_330G CC12_330G_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            5962
## 2  2        No             3434
## 3 NA        <NA>            104
##
## [[8]]
## # A tibble: 3 x 3
##   CC12_330H CC12_330H_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            6227
## 2  2        No             3144
## 3 NA        <NA>            129
##
## [[9]]
## # A tibble: 3 x 3
##   CC12_332A CC12_332A_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            2436
## 2  2        No             6919
## 3 NA        <NA>            145
##
## [[10]]
## # A tibble: 3 x 3
##   CC12_332B CC12_332B_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            3975
## 2  2        No             5363
## 3 NA        <NA>            162
##
## [[11]]
## # A tibble: 3 x 3
##   CC12_332C CC12_332C_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            6077
## 2  2        No             3188
## 3 NA        <NA>            235
##
## [[12]]
## # A tibble: 3 x 3
##   CC12_332D CC12_332D_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            3073
## 2  2        No             6188
## 3 NA        <NA>            239
##
## [[13]]
## # A tibble: 3 x 3
##   CC12_332E CC12_332E_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            4269
## 2  2        No             5119
## 3 NA        <NA>            112
```

```
##
## [[14]]
## # A tibble: 3 x 3
##   CC12_332F CC12_332F_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            4967
## 2  2        No             4223
## 3 NA        <NA>            310
```

Count all 2014 vars noted in pdf guide to verify they're in dataset (p. 269ff of guide)

```
CC14_vars <- tbl_panel %>%
  select(CC14_330A, CC14_330B, CC14_330C, CC14_330D, CC14_330E,
         CC14_330F, CC14_330G, CC14_330H, CC14_332A, CC14_332B,
         CC14_332C, CC14_332D, CC14_332E, CC14_332F) %>%
  colnames()

CC14_vars %>%
  map(~ tbl_panel %>% count(!!sym(.x)))
```

```
## [[1]]
## # A tibble: 3 x 2
##   CC14_330A     n
##   <dbl+lbl> <int>
## 1  1         4816
## 2  2         4577
## 3 NA          107
##
## [[2]]
## # A tibble: 3 x 2
##   CC14_330B     n
##   <dbl+lbl> <int>
## 1  1         6451
## 2  2         2939
## 3 NA          110
##
## [[3]]
## # A tibble: 3 x 2
##   CC14_330C     n
##   <dbl+lbl> <int>
## 1  1         5068
## 2  2         4281
## 3 NA          151
##
## [[4]]
## # A tibble: 3 x 2
##   CC14_330D     n
##   <dbl+lbl> <int>
## 1  1         4732
## 2  2         4703
## 3 NA           65
##
## [[5]]
## # A tibble: 3 x 2
##   CC14_330E     n
```

```
##   <dbl+lbl> <int>
## 1  1         4304
## 2  2         4836
## 3 NA          360
##
## [[6]]
## # A tibble: 3 x 2
##   CC14_330F     n
##   <dbl+lbl> <int>
## 1  1         6734
## 2  2         2572
## 3 NA          194
##
## [[7]]
## # A tibble: 3 x 2
##   CC14_330G     n
##   <dbl+lbl> <int>
## 1  1         5940
## 2  2         3463
## 3 NA           97
##
## [[8]]
## # A tibble: 3 x 2
##   CC14_330H     n
##   <dbl+lbl> <int>
## 1  1         6540
## 2  2         2857
## 3 NA          103
##
## [[9]]
## # A tibble: 3 x 2
##   CC14_332A     n
##   <dbl+lbl> <int>
## 1  1         1792
## 2  2         7587
## 3 NA          121
##
## [[10]]
## # A tibble: 3 x 2
##   CC14_332B     n
##   <dbl+lbl> <int>
## 1  1         3094
## 2  2         6271
## 3 NA          135
##
## [[11]]
## # A tibble: 3 x 2
##   CC14_332C     n
##   <dbl+lbl> <int>
## 1  1         5544
## 2  2         3758
## 3 NA          198
##
## [[12]]
```

```
## # A tibble: 3 x 2
##   CC14_332D     n
##   <dbl+lbl> <int>
## 1  1         2497
## 2  2         6805
## 3 NA          198
##
## [[13]]
## # A tibble: 3 x 2
##   CC14_332E     n
##   <dbl+lbl> <int>
## 1  1         4405
## 2  2         4982
## 3 NA          113
##
## [[14]]
## # A tibble: 3 x 2
##   CC14_332F     n
##   <dbl+lbl> <int>
## 1  1         4972
## 2  2         4233
## 3 NA          295
```

JO finished roll call recoding here - restart next 2 chunks to adapt to CC14 Recode all 2012 roll call votes as factors

```
tbl_panel <- tbl_panel %>%
  mutate_at(vars(CC14_330A, CC14_330B, CC14_330C, CC14_330D, CC14_330E,
                 CC14_330F, CC14_330G, CC14_330H, CC14_332A, CC14_332B,
                 CC14_332C, CC14_332D, CC14_332E, CC14_332F),
            funs(fac = as_factor(.)))

# Confirm that mutate performed correctly
CC14_fac_vars <- CC14_vars %>%
  paste0("_fac")

map2(CC14_vars, CC14_fac_vars, ~ tbl_panel %>% count(!!sym(.x), !!sym(.y)))
```

```
## [[1]]
## # A tibble: 3 x 3
##   CC14_330A CC14_330A_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            4816
## 2  2        No             4577
## 3 NA        <NA>            107
##
## [[2]]
## # A tibble: 3 x 3
##   CC14_330B CC14_330B_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            6451
## 2  2        No             2939
## 3 NA        <NA>            110
##
## [[3]]
```

```
## # A tibble: 3 x 3
##   CC14_330C CC14_330C_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            5068
## 2  2        No             4281
## 3 NA        <NA>            151
##
## [[4]]
## # A tibble: 3 x 3
##   CC14_330D CC14_330D_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            4732
## 2  2        No             4703
## 3 NA        <NA>              65
##
## [[5]]
## # A tibble: 3 x 3
##   CC14_330E CC14_330E_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            4304
## 2  2        No             4836
## 3 NA        <NA>            360
##
## [[6]]
## # A tibble: 3 x 3
##   CC14_330F CC14_330F_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            6734
## 2  2        No             2572
## 3 NA        <NA>            194
##
## [[7]]
## # A tibble: 3 x 3
##   CC14_330G CC14_330G_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            5940
## 2  2        No             3463
## 3 NA        <NA>              97
##
## [[8]]
## # A tibble: 3 x 3
##   CC14_330H CC14_330H_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            6540
## 2  2        No             2857
## 3 NA        <NA>            103
##
## [[9]]
## # A tibble: 3 x 3
##   CC14_332A CC14_332A_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            1792
## 2  2        No             7587
## 3 NA        <NA>            121
```

```
##
## [[10]]
## # A tibble: 3 x 3
##   CC14_332B CC14_332B_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            3094
## 2  2        No             6271
## 3 NA        <NA>            135
##
## [[11]]
## # A tibble: 3 x 3
##   CC14_332C CC14_332C_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            5544
## 2  2        No             3758
## 3 NA        <NA>            198
##
## [[12]]
## # A tibble: 3 x 3
##   CC14_332D CC14_332D_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            2497
## 2  2        No             6805
## 3 NA        <NA>            198
##
## [[13]]
## # A tibble: 3 x 3
##   CC14_332E CC14_332E_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            4405
## 2  2        No             4982
## 3 NA        <NA>            113
##
## [[14]]
## # A tibble: 3 x 3
##   CC14_332F CC14_332F_fac     n
##   <dbl+lbl> <fct>         <int>
## 1  1        Yes            4972
## 2  2        No             4233
## 3 NA        <NA>            295
```

Recode Socio-Dem Data

Next step: recode socio-dem data - code below is a start

```
tbl_panel %>%
  select(gender_10, birthyr_10) %>%
  mutate(gender = as_factor(gender_10),
         age    = 2010 - birthyr_10)
```

```
## # A tibble: 9,500 x 4
##    gender_10 birthyr_10 gender age
##    <dbl+lbl> <dbl+lbl>  <fct>  <dbl+lbl>
##  1 1         1949       Male   61
##  2 2         1986       Female 24
```

```
##  3 2         1952       Female 58
##  4 2         1963       Female 47
##  5 1         1948       Male   62
##  6 1         1951       Male   59
##  7 1         1959       Male   51
##  8 2         1952       Female 58
##  9 2         1939       Female 71
## 10 1         1953       Male   57
## # ... with 9,490 more rows
```

Following vars used in stata: codebook V101 V103 cdid cdid113 countyfips