Explore data using visualization

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Load packages

```
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.2 --
## v ggplot2 3.3.6      v purrr   0.3.4
## v tibble  3.1.8      v dplyr   1.0.10
## v tidyr   1.2.1      v stringr 1.4.1
## v readr   2.1.2      v forcats 0.5.2
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
theme_set(theme_minimal())
```

Set Policy labels and codes

```
policy_codes <- c(1:10, 12:21, 99)
```

```
policy_labels <- c(
"Macroeconomics", "Civil rights, minority issues, civil liberties",
"Health", "Agriculture", "Labor and employment", "Education", "Environment",
"Energy", "Immigration", "Transportation", "Law, crime, family issues",
"Social welfare", "Community development and housing issues",
"Banking, finance, and domestic commerce", "Defense",
"Space, technology, and communications", "Foreign trade",
"International affairs and foreign aid", "Government operations",
"Public lands and water management", "Other, miscellaneous"
)
```

Import data

```
data <- file.path("~","manning/data/csv","legislation.csv") %>%
read_csv(show_col_types = FALSE)
```

Looking at the columns

```
spec(data)
```

```
## cols(
##   id = col_double(),
##   year = col_double(),
##   cong = col_double(),
##   bill_type = col_character(),
##   bill_no = col_double(),
##   description = col_character(),
##   policy = col_double()
## )
```

Text labels for policy topic

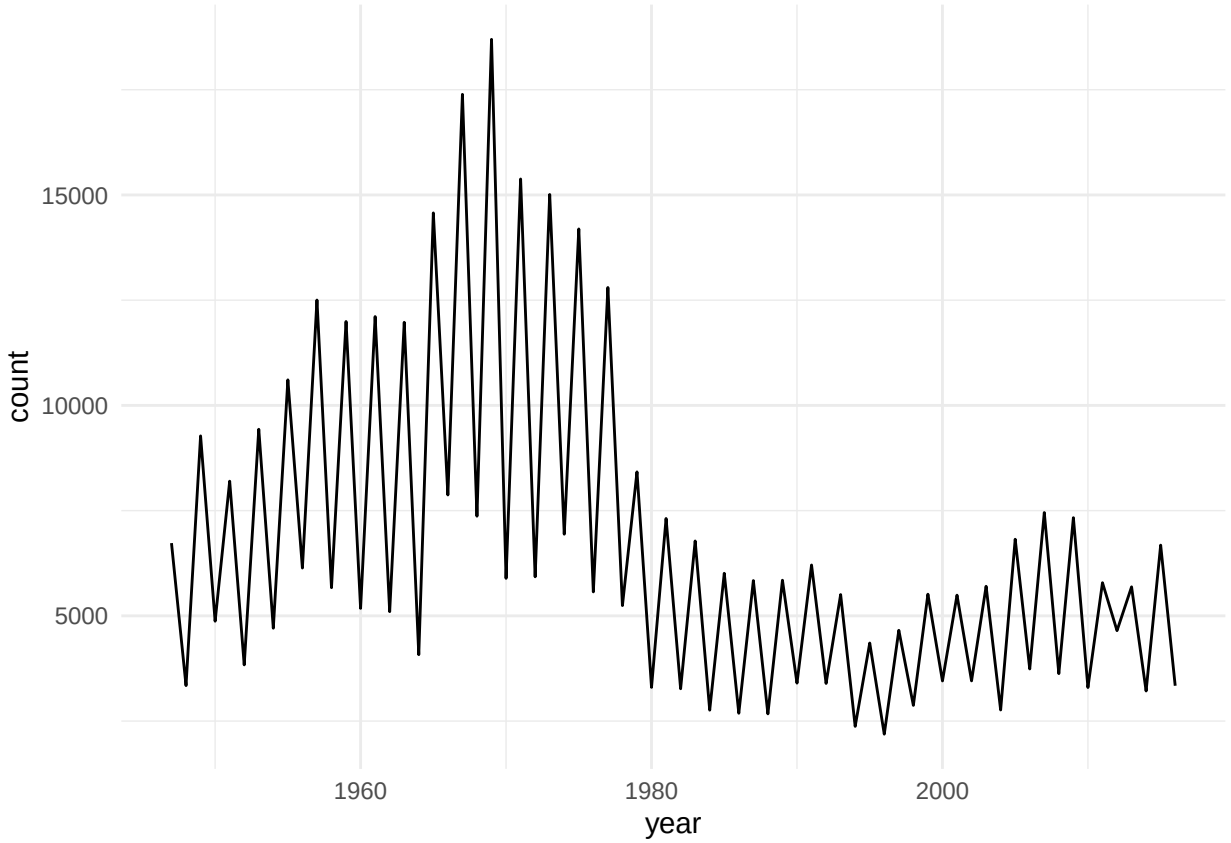
```
processed_data <- data %>%
mutate(policy_labels = factor(x = policy,
levels = policy_codes,
labels = policy_labels))
```

```
glimpse(processed_data)
```

```
## Rows: 466,449
## Columns: 8
## $ id            <dbl> 38183, 38184, 38185, 38186, 38187, 38188, 38189, 38190, ~
## $ year          <dbl> 1947, 1947, 1947, 1947, 1947, 1947, 1947, 1947, 1947, 19~
## $ cong          <dbl> 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, ~
## $ bill_type     <chr> "HR", "HR", "HR", "HR", "HR", "HR", "HR", "HR", "HR", "H~
## $ bill_no       <dbl> 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 1~
## $ description   <chr> "To reduce individual income tax payments", "To amend th~
## $ policy        <dbl> 1, 16, 16, 12, 16, 16, 2, 5, 21, 21, 16, 5, 10, 16, 1, 1~
## $ policy_labels <fct> "Macroeconomics", "Defense", "Defense", "Law, crime, fam~
```

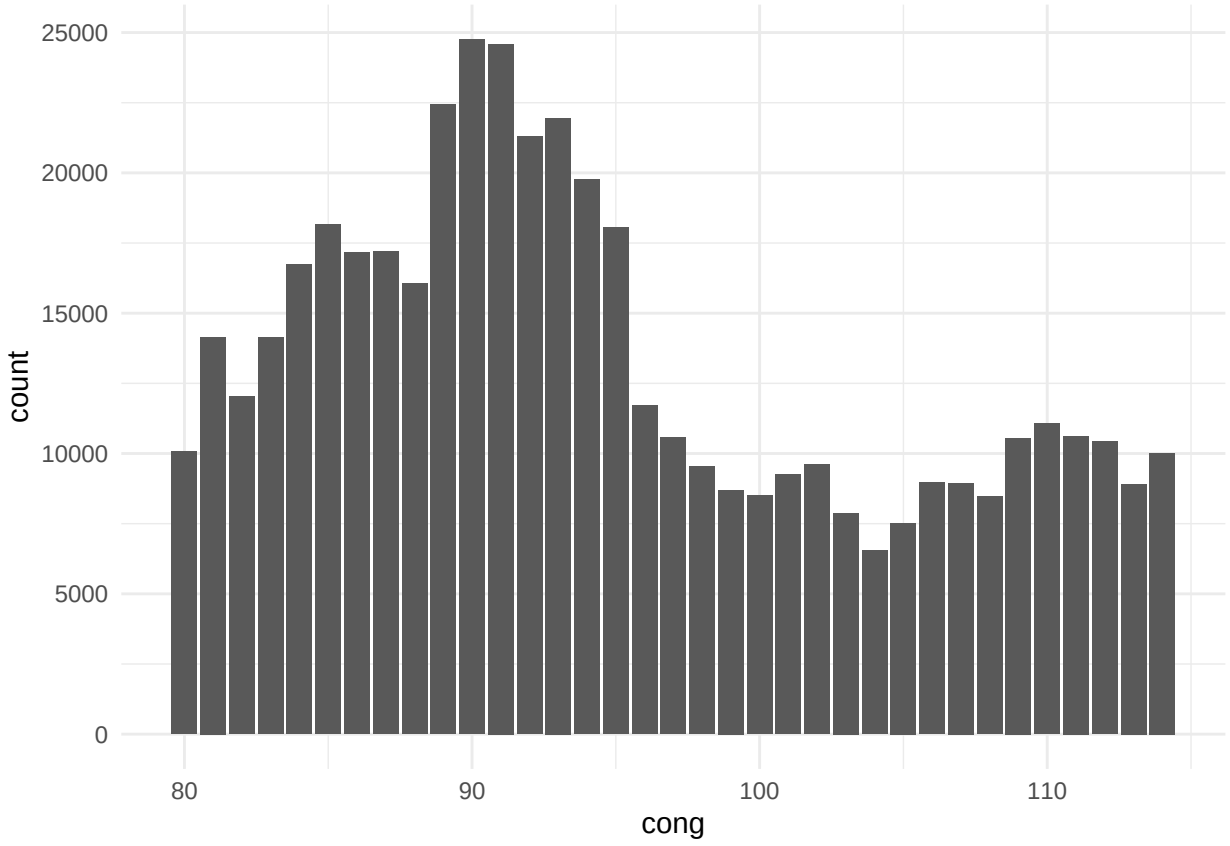
No. of bills by year

```
ggplot(processed_data,aes(x=year)) + geom_line(stat = "count")
```



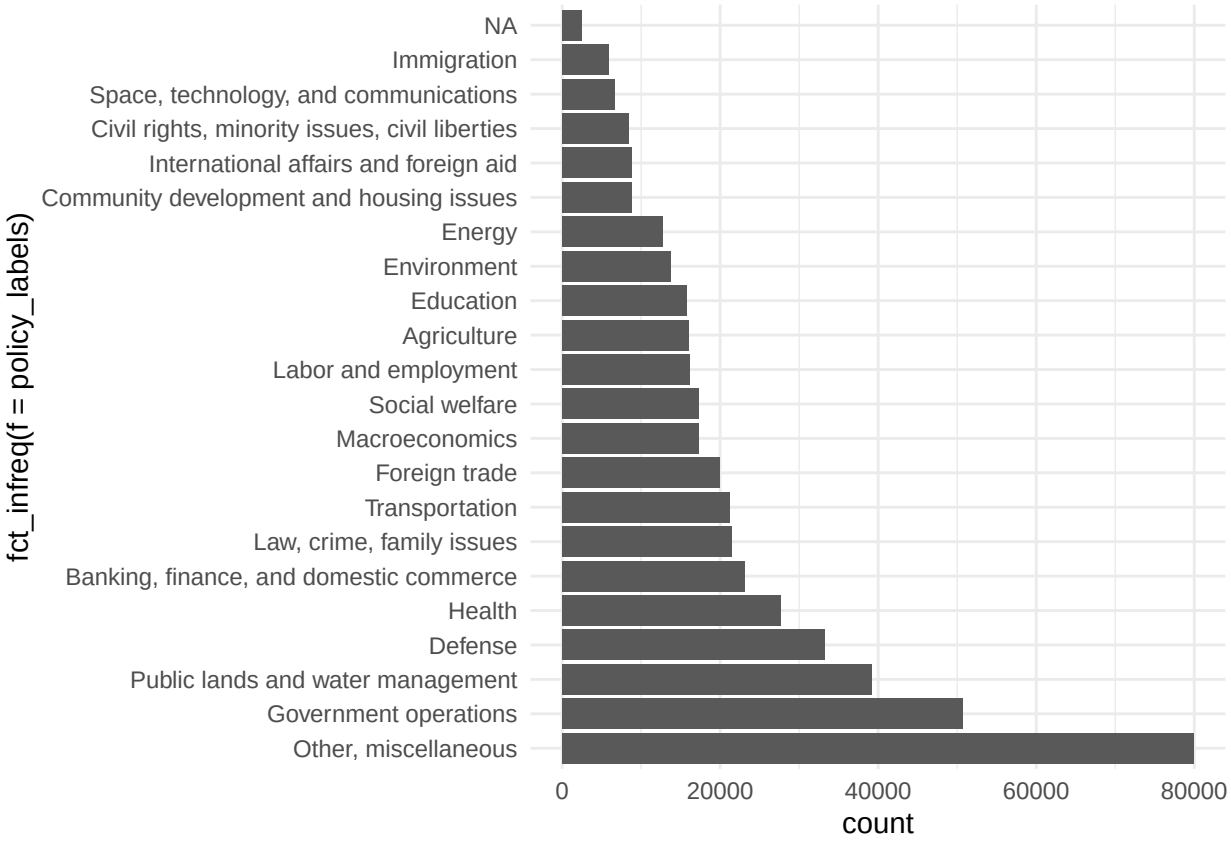
No. of bills by Congressional term

```
ggplot(processed_data,aes(x=cong)) + geom_bar()
```



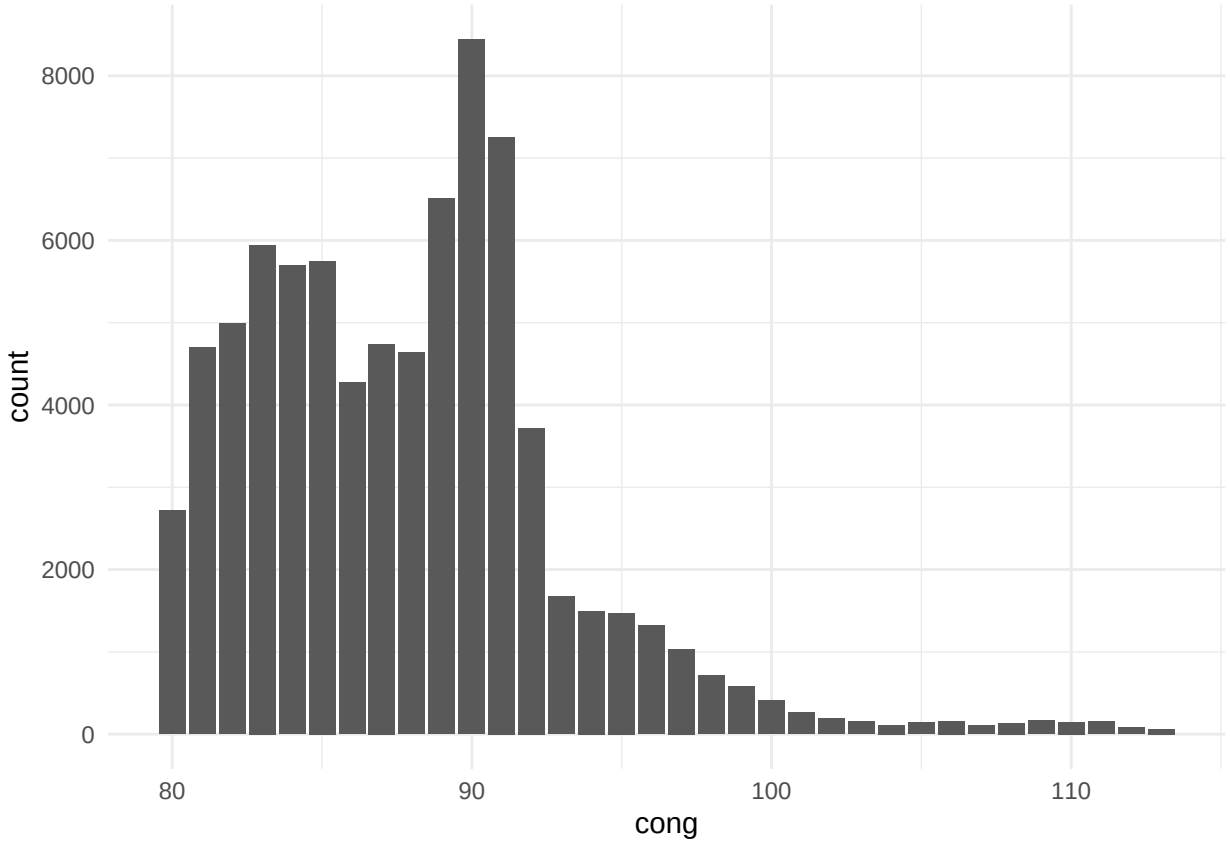
No. of bills by policy area

```
ggplot(processed_data,aes(x=fct_infreq(f = policy_labels))) + geom_bar() + coord_flip()
```



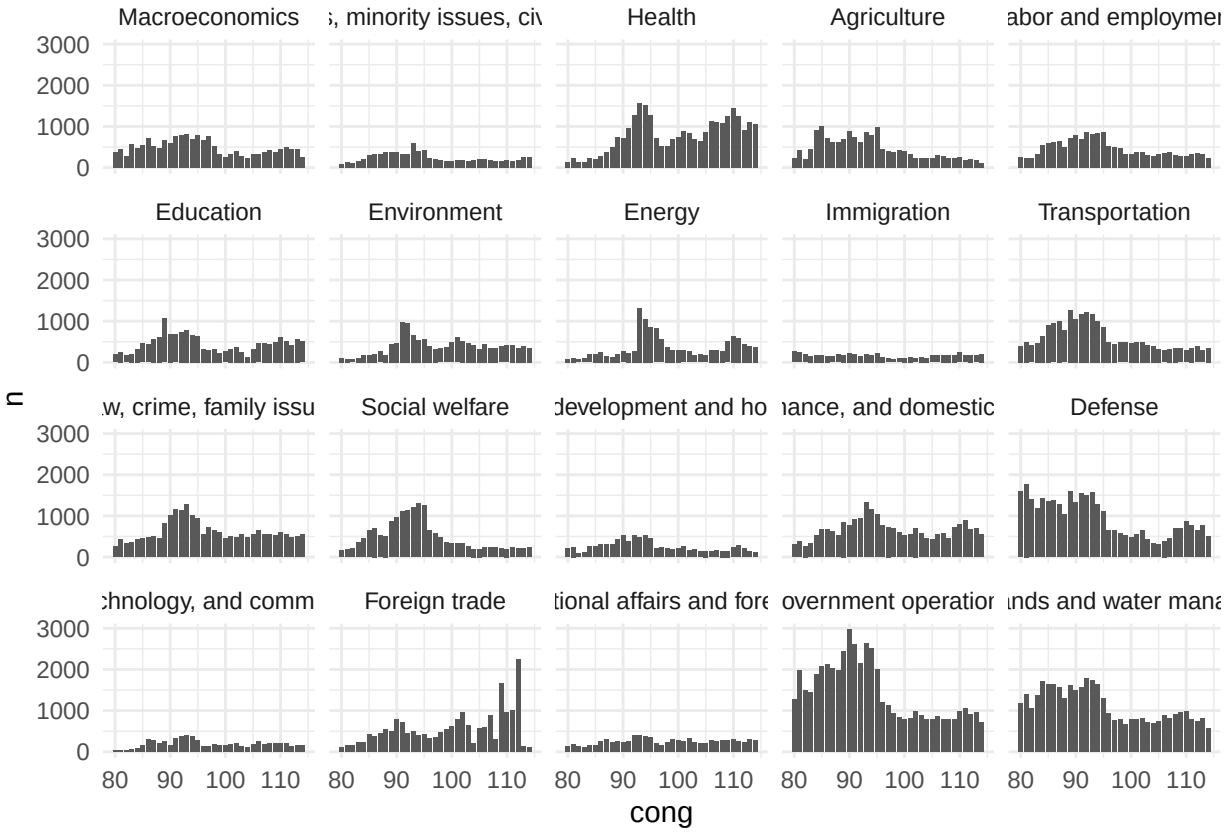
Bills classified as "Other" for each Congressional term

```
processed_data %>%
filter(policy == 99) %>%
ggplot(mapping = aes(x = cong)) +
geom_bar()
```



No. of bills excluding Others for Congressional term and policy area

```
count(x = processed_data, cong, policy, policy_labels) %>%
filter(policy != 99) %>%
ggplot(mapping=aes(x = cong, y = n)) +
geom_col() +
facet_wrap(vars(policy_labels))
```


Macroeconomics
, minority issues, civ
Health
Agriculture
abor and employmer
Education
Environment
Energy
Immigration
Transportation
w, crime, family issu
Social welfare
development and ho
ance, and domestic
Defense
chnology, and comm
Foreign trade
tional affairs and fore
overnment operatior
nds and water mana
n
3000
2000
1000
0
80
90
100
110
cong