Explore data using visualization

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```
library(tidyverse)
```

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

load packages

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

policy labels

```
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

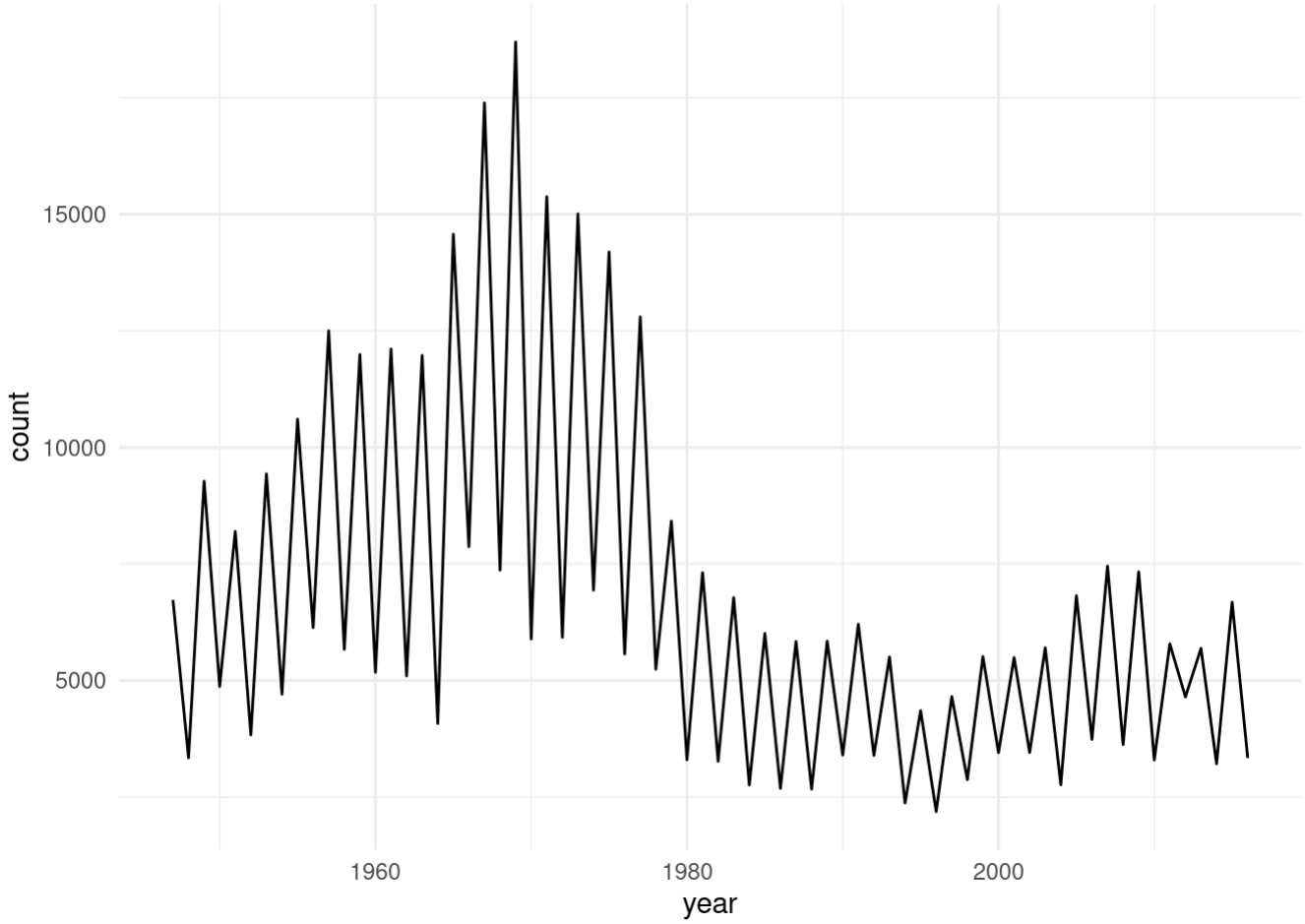
```
processed_data <- data %>%
mutate(policy_labels = factor(x = policy,
levels = policy_codes,
labels = policy_labels))
```

```
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…
```

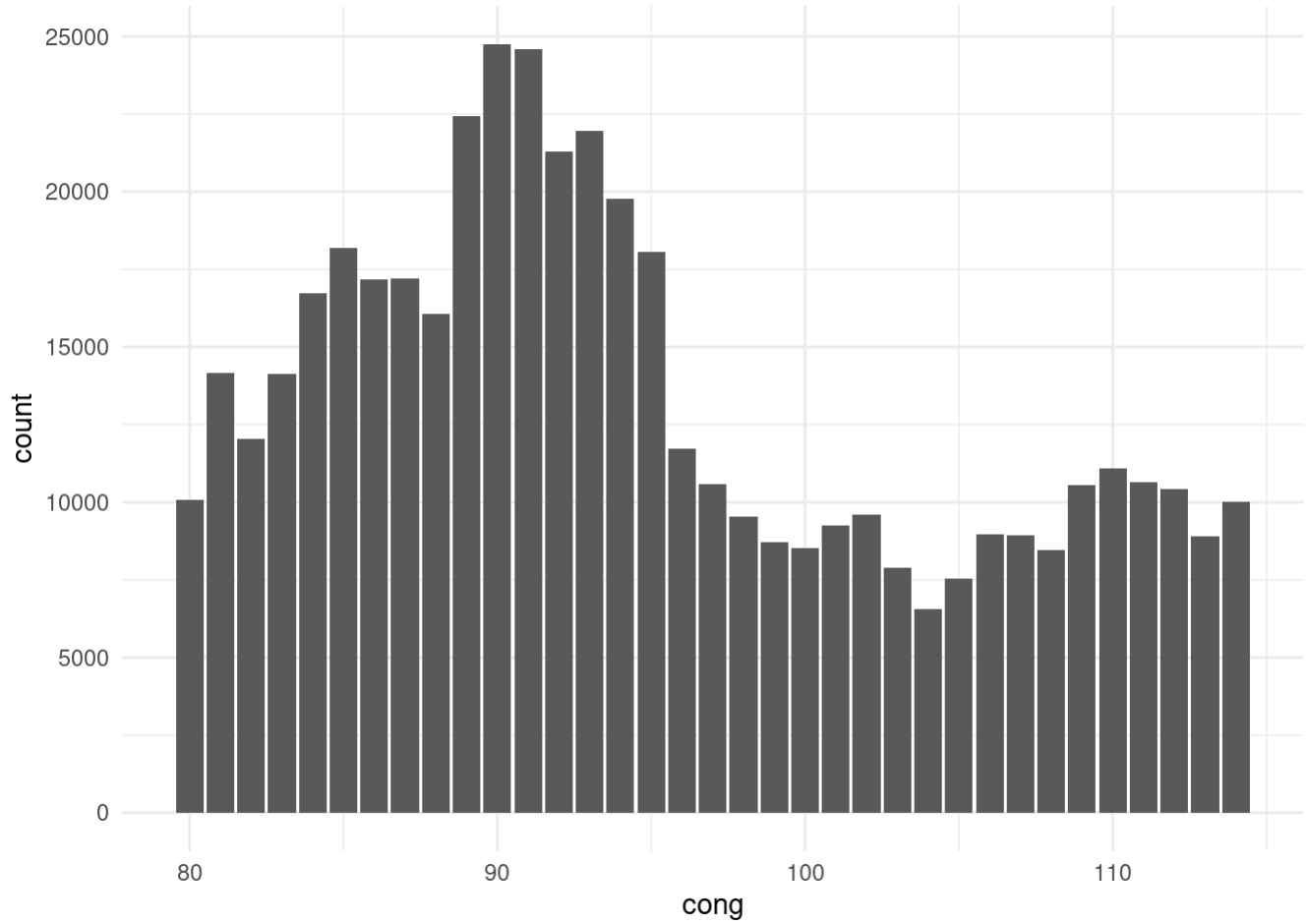
No. of bills by year

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



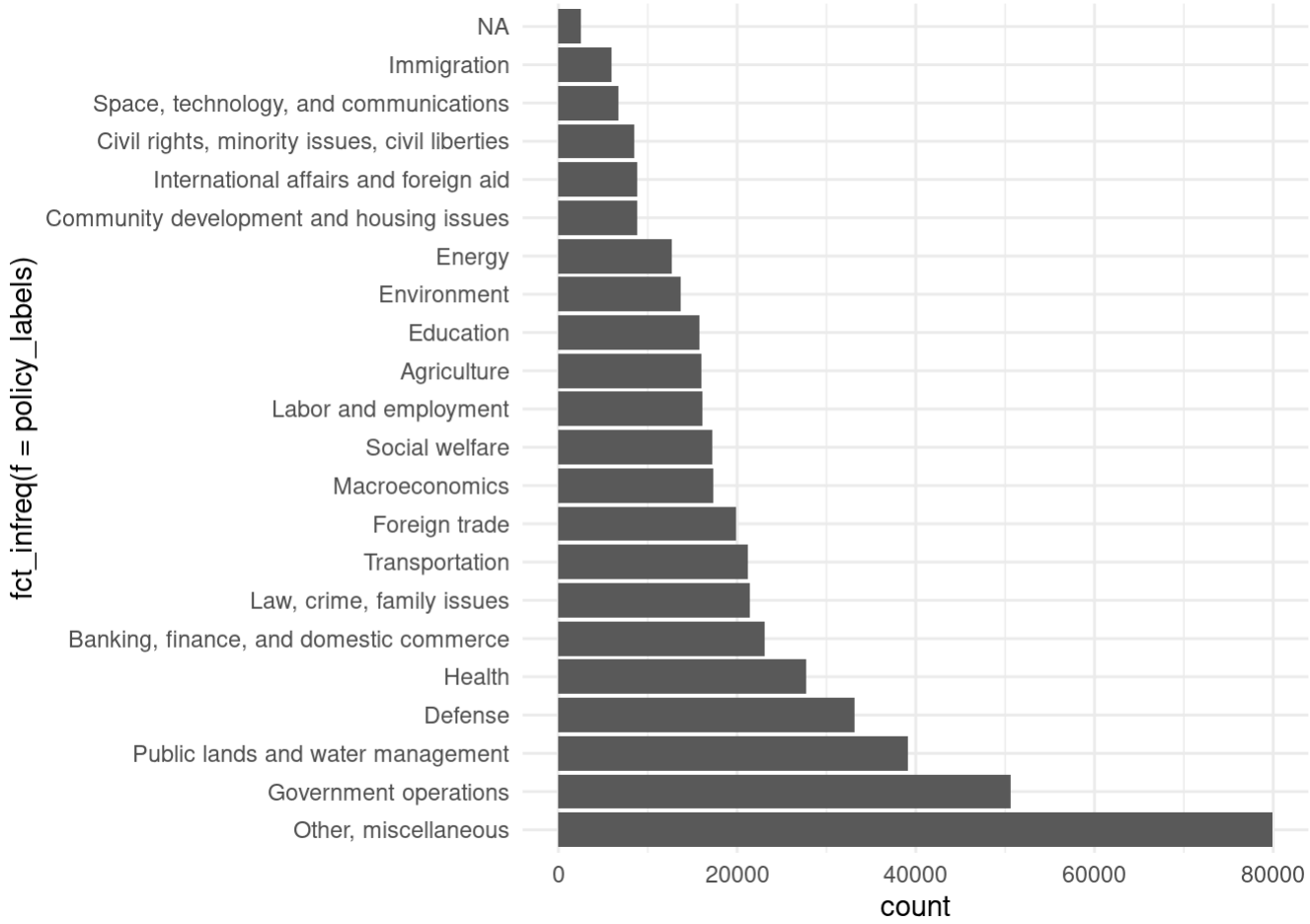
No. of bills by Congressional term

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



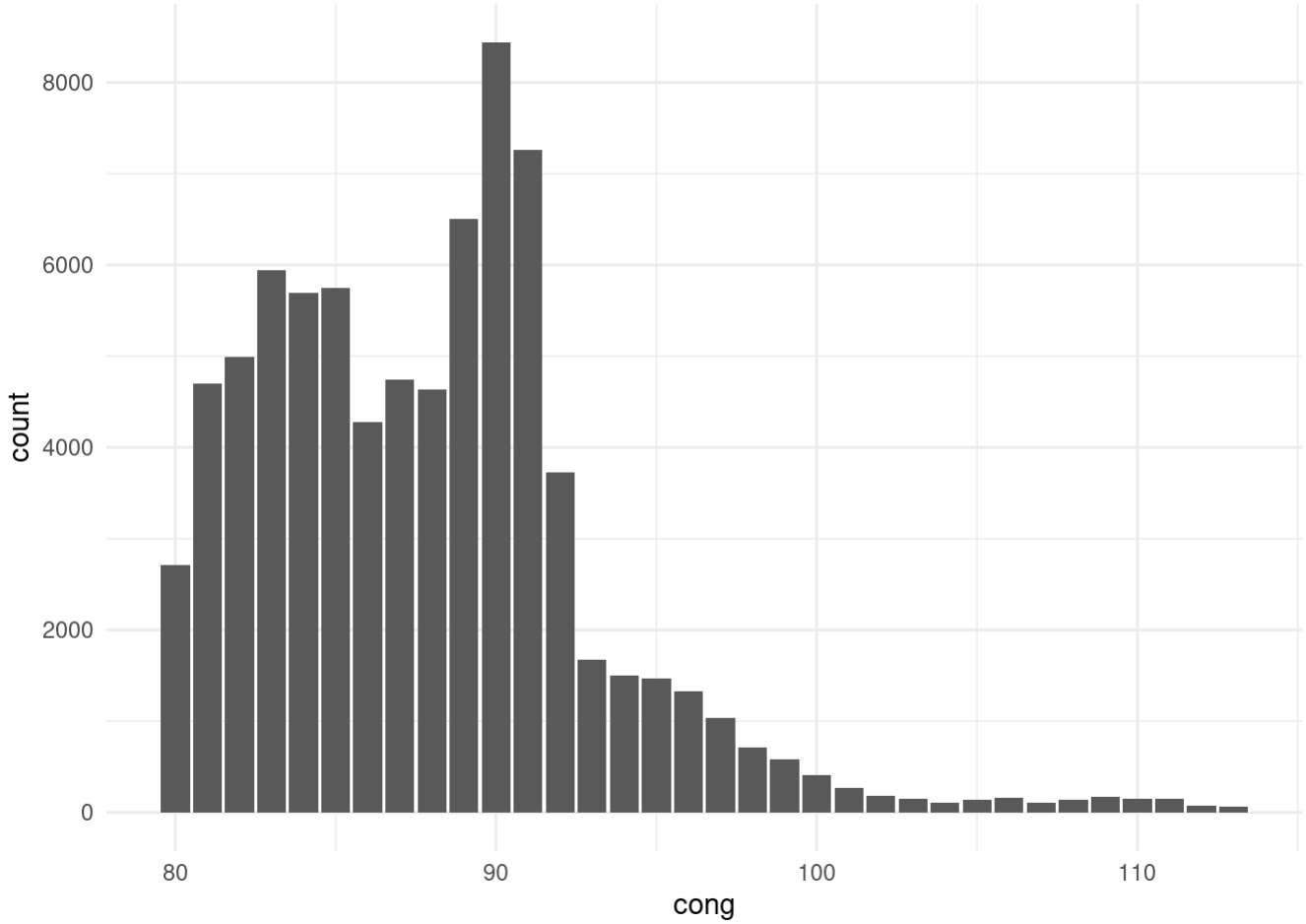
No. of bills by policy area

```
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
ts, minority issues, civi
Health
Agriculture
Labor and employment
Education
Environment
Energy
Immigration
Transportation
aw, crime, family issue
Social welfare
development and hou
inance, and domestic
Defense
echnology, and commu
Foreign trade
ational affairs and forei
Government operations
ands and water manag
n
cong
3000
2000
1000
0
80
90
100
110