# maps analysis

```
bill_coverage = read.csv("~/Downloads/Bill collection data - State coverage.csv")
bill_tag = read.csv("~/Downloads/Bill collection data - Policy Tags.csv")
bill_Yujie = read.csv(("~/Downloads/Bill collection data - Yujie Gong.csv"))
bill_lacombe = read.csv("~/Downloads/Bill collection data - Scott LaCombe.csv")
bill_margot = read.csv("~/Downloads/Bill collection data - Margot Audero.csv")
bill_angelica = read.csv("~/Downloads/Bill collection data - Angelica Brito.csv")
bill_jaden = read.csv("~/Downloads/Bill collection data - Jaden Gerard.csv")
bill_josey = read.csv("~/Downloads/Bill collection data - Josey Gerrard.csv")
bill_perla = read.csv("~/Downloads/Bill collection data - Perla Ingabire.csv")
bill_olivia = read.csv("~/Downloads/Bill collection data - Olivia Smith.csv")
bill_avery = read.csv("~/Downloads/Bill collection data - Avery Spicka.csv")
bill_bridget = read.csv("~/Downloads/Bill collection data - Bridget Provost.csv")
bill_molley = read.csv("~/Downloads/Bill collection data - Molly Zelloe.csv")
```

## selecting the columns

```
selected_Yujie <- bill_Yujie[, 1:14]
selected_lacombe <- bill_lacombe[, 1:14]
selected_margot <- bill_margot[, 1:14]
selected_angelica <-bill_angelica[, 1:14]
selected_jaden <- bill_jaden[, 1:14]
selected_josey <- bill_josey[, 1:14]
selected_perla<-bill_perla[, 1:14]
selected_olivia<-bill_olivia[, 1:14]
selected_avery <- bill_avery[, 1:14]
selected_bridget <- bill_bridget[, 1:14]
selected_molley <- bill_molley[, 1:14]
```

```r
combined_dataset <- rbind(selected_Yujie, selected_lacombe,selected_margot, selected_angel
```

```r
library(dplyr)
```

```
Attaching package: 'dplyr'

The following objects are masked from 'package:stats':

    filter, lag

The following objects are masked from 'package:base':

    intersect, setdiff, setequal, union
```

```r
combined_dataset_2023 <- combined_dataset |>
  filter(year == 2023)
```

```r
number_of_policy_data<- combined_dataset_2023|>
  group_by(state)|>
  summarise(number_of_policies = n())
```

```r
library(ggplot2)
library(sf)
```

```
Linking to GEOS 3.11.0, GDAL 3.5.3, PROJ 9.1.0; sf_use_s2() is TRUE
```

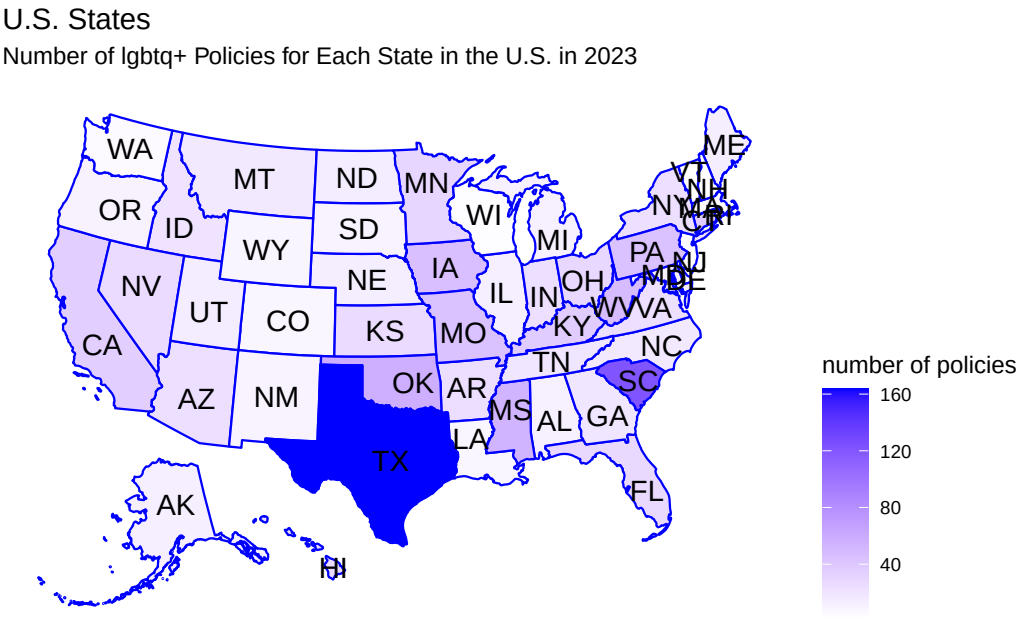
```r
library(usmap)
```

```r
us_map <- plot_usmap(regions = "states") +
  labs(
    title = "U.S. States",
    subtitle = "Number of Policies for Each State in the U.S."
  ) +
  theme(panel.background = element_blank())
```

## number of policy for each state

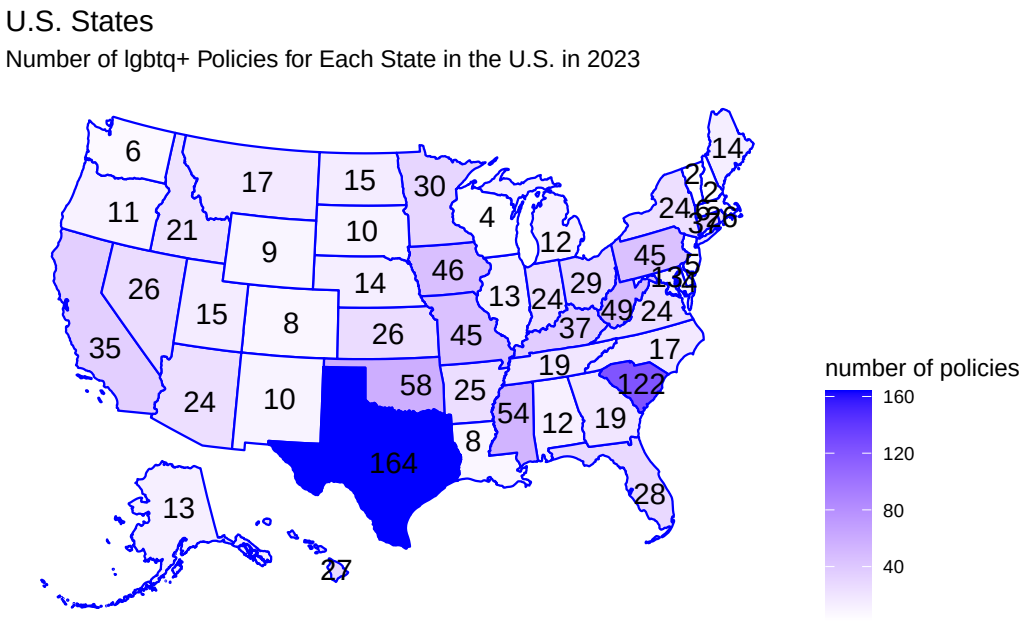
```
centroid_labels <- usmapdata::centroid_labels("states")
state_labels <- merge(number_of_policy_data, centroid_labels, by.x = "state", by.y = "abbr
```

```
plot_usmap(data = number_of_policy_data, values = "number_of_policies", color = "blue") +
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ Policies for Each State in the
  theme(legend.position = "right")+
  geom_text(data = state_labels, aes(
    x = x, y = y,
    label = state,
  ), color = "black")
```




```
plot_usmap(data = number_of_policy_data, values = "number_of_policies", color = "blue") +
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ Policies for Each State in the
  theme(legend.position = "right")+
  geom_text(data = state_labels, aes(
    x = x, y = y,
    label = number_of_policies,
```

```
  ), color = "black")
```



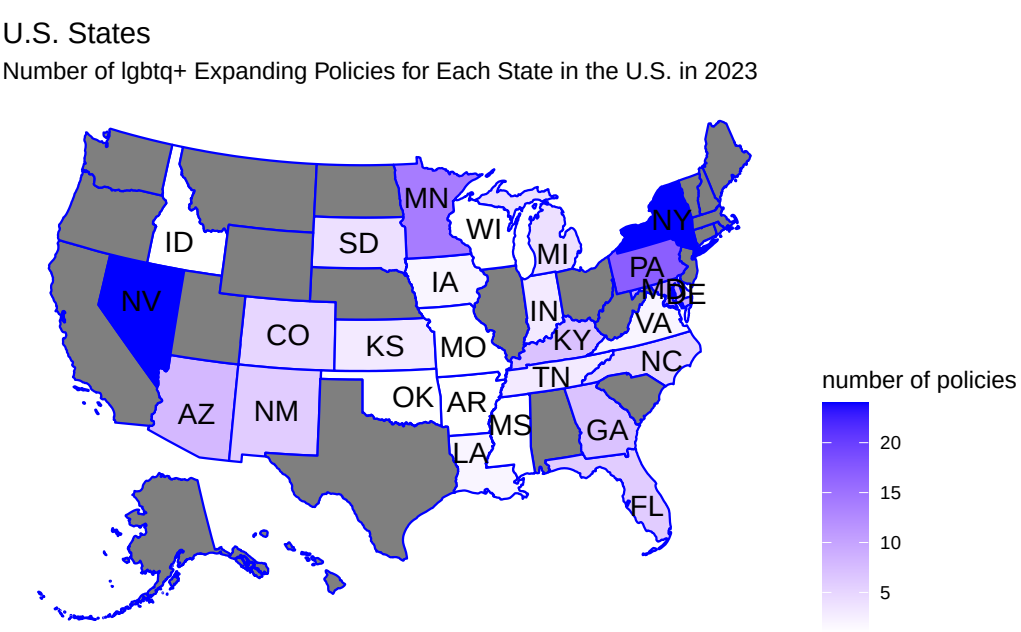

## number of expanding policy

```
dataset_2023_expanding <- combined_dataset_2023|>
  filter(direction == "expanding")|>
  group_by(state)|>
  summarise(number_of_policies = n())
```

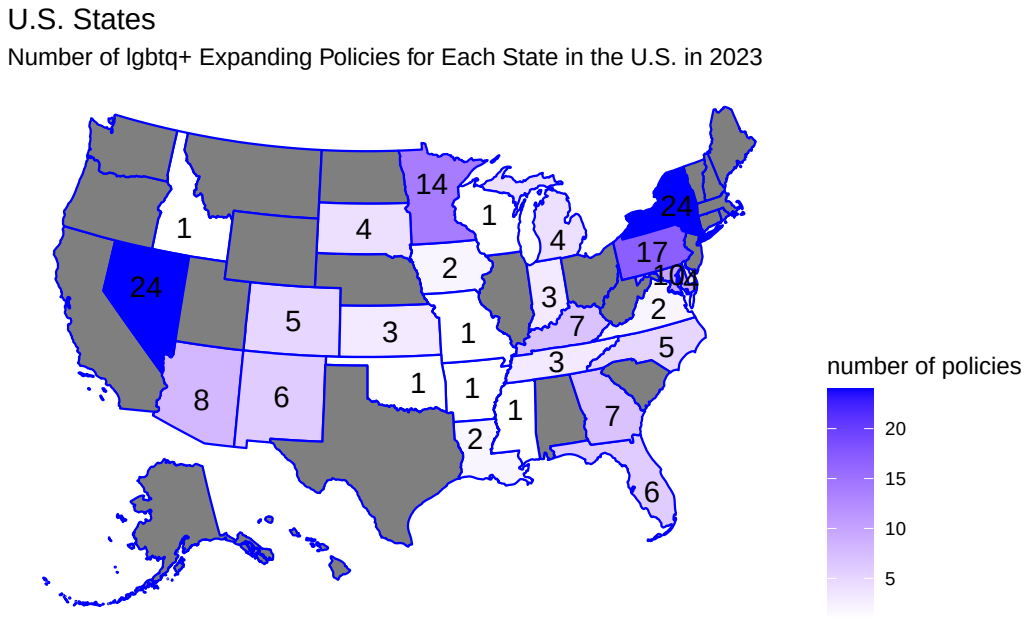
```
us_map <- plot_usmap(regions = "states") +
  labs(
    title = "U.S. States",
    subtitle = "Number of Policies for Each State in the U.S."
  ) +
  theme(panel.background = element_blank())
```

```
state_expanding_labels <- merge(dataset_2023_expanding, centroid_labels, by.x = "state", b
```

```
plot_usmap(data = dataset_2023_expanding, values = "number_of_policies", color = "blue") +
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ Expanding Policies for Each Sta
  theme(legend.position = "right")+
  geom_text(data = state_expanding_labels, aes(
    x = x, y = y,
    label = state,
  ), color = "black")
```




```
plot_usmap(data = dataset_2023_expanding, values = "number_of_policies", color = "blue") +
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ Expanding Policies for Each Sta
  theme(legend.position = "right")+
  geom_text(data = state_expanding_labels, aes(
    x = x, y = y,
    label = number_of_policies,
  ), color = "black")
```




## number of restrciting policy

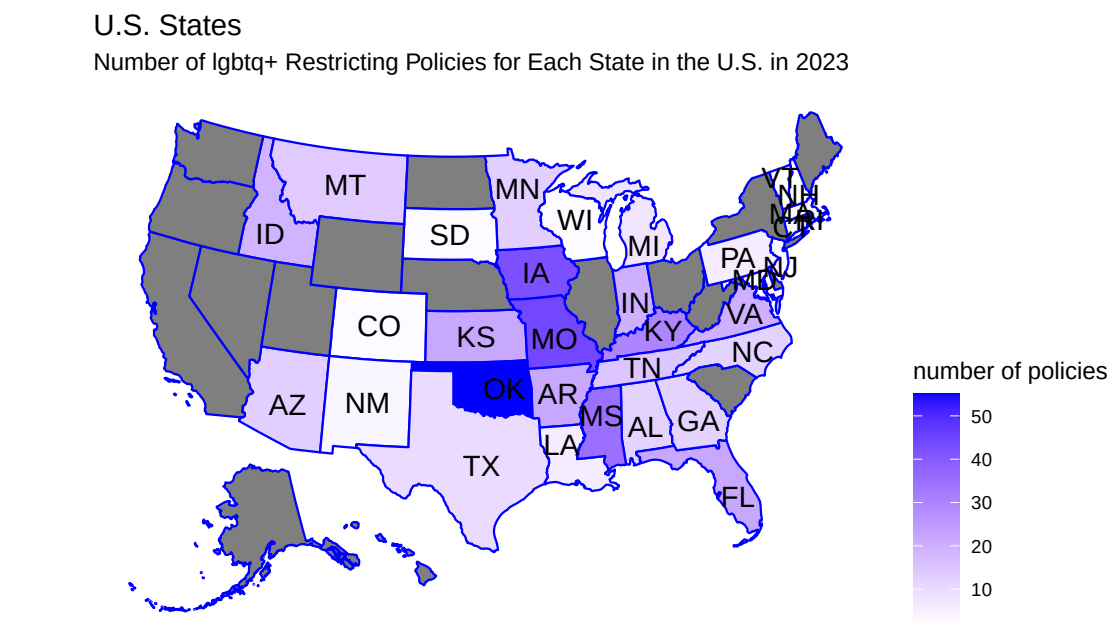
```
dataset_2023_restricting <- combined_dataset_2023|>
  filter(direction == "restricting")|>
  group_by(state)|>
  summarise(number_of_policies = n())
```

```
us_map <- plot_usmap(regions = "states") +
  labs(
    title = "U.S. States",
    subtitle = "Number of Policies for Each State in the U.S."
  ) +
  theme(panel.background = element_blank())
```

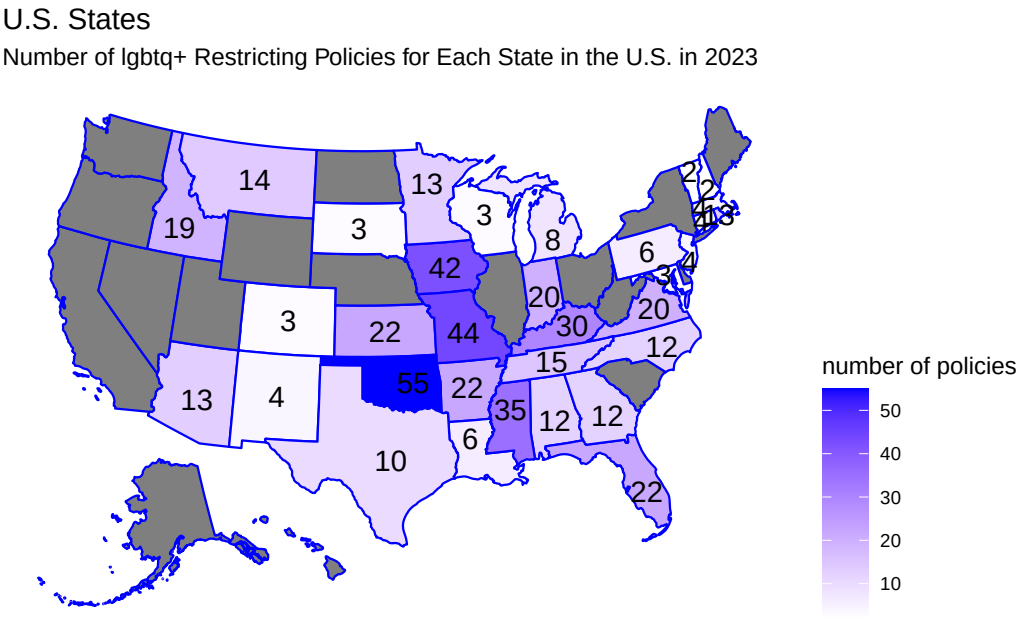
```
state_restricting_labels <- merge(dataset_2023_restricting, centroid_labels, by.x = "state
```

```
plot_usmap(data = dataset_2023_restricting, values = "number_of_policies", color = "blue")
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ Restricting Policies for Each S
  theme(legend.position = "right")+
```

```
  geom_text(data = state_restricting_labels, aes(
    x = x, y = y,
    label = state,
  ), color = "black")
```




```
plot_usmap(data = dataset_2023_restricting, values = "number_of_policies", color = "blue")
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ Restricting Policies for Each S
  theme(legend.position = "right")+
  geom_text(data = state_restricting_labels, aes(
    x = x, y = y,
    label = number_of_policies,
  ), color = "black")
```




## for each policy

```
dataset_2023_categories <- combined_dataset_2023|>
  filter(policy != "" & policy != "-99")|>
  group_by(policy, state)|>
  summarise(number_of_policies = n())
```

```
`summarise()` has grouped output by 'policy'. You can override using the
`.groups` argument.
```

```
dataset_2023_categories
```

```
# A tibble: 677 x 3
# Groups:   policy [148]
   policy                      state number_of_policies
   <chr>                       <chr>              <int>
 1 ??                          "OH"                   1
 2 Lgbt_descrim_protect        "MN"                   1
 3 Religious_lib               "ND "                  1
 4 adoption_protection         "CA"                   1
```

```
 5 adoption_regulations_expansive "MN"                  1
 6 anti_bullying                  "WA"                  1
 7 anti_bullying_protections      "AZ"                  1
 8 anti_bullying_protections      "CO"                  1
 9 anti_bullying_protections      "MD"                  1
10 anti_bullying_protections      "RI"                  1
# ... with 667 more rows
```

## party and policy

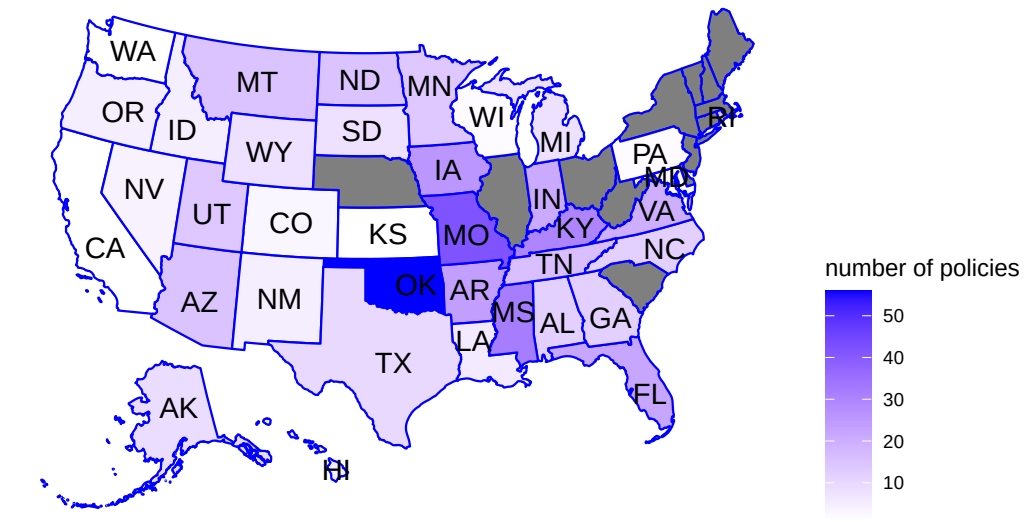
## GOP

```
dataset_2023_GOP <- combined_dataset_2023|>
  filter(party == "GOP")|>
  group_by(state)|>
  summarise(number_of_policies = n())
```

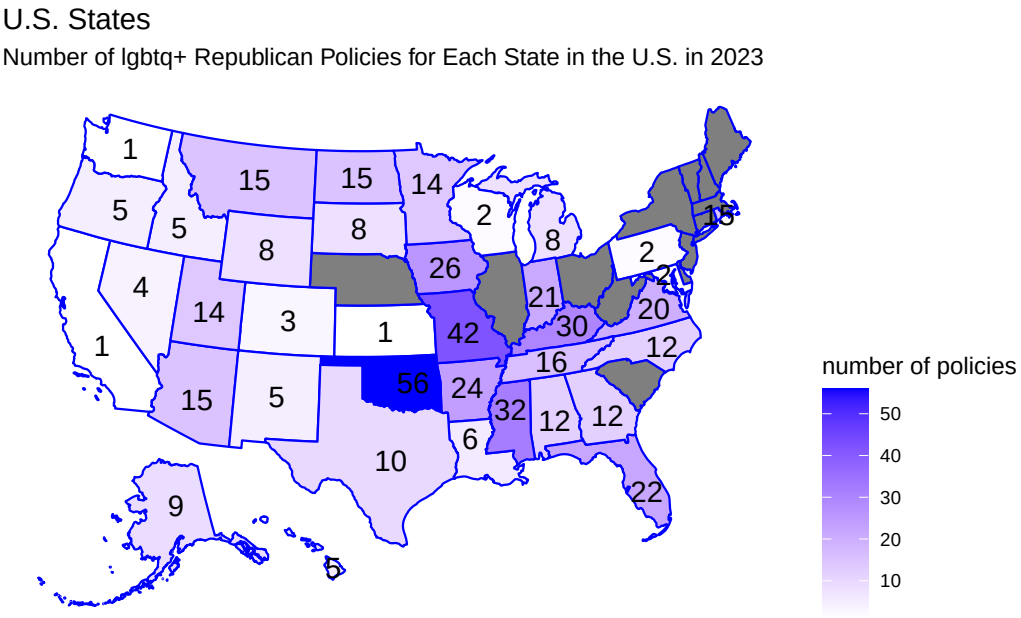
```
us_map <- plot_usmap(regions = "states") +
  labs(
    title = "U.S. States",
    subtitle = "Number of Policies for Each State in the U.S."
  ) +
  theme(panel.background = element_blank())
```

```
state_GOP_labels <- merge(dataset_2023_GOP, centroid_labels, by.x = "state", by.y = "abbr"
```

```
plot_usmap(data = dataset_2023_GOP, values = "number_of_policies", color = "blue") +
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ Republican Policies for Each St
  theme(legend.position = "right")+
  geom_text(data =state_GOP_labels , aes(
    x = x, y = y,
    label = state,
  ), color = "black")
```




```
plot_usmap(data =dataset_2023_GOP, values = "number_of_policies", color = "blue") +
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ Republican Policies for Each St
  theme(legend.position = "right")+
  geom_text(data = state_GOP_labels, aes(
    x = x, y = y,
    label = number_of_policies,
  ), color = "black")
```




## DEM

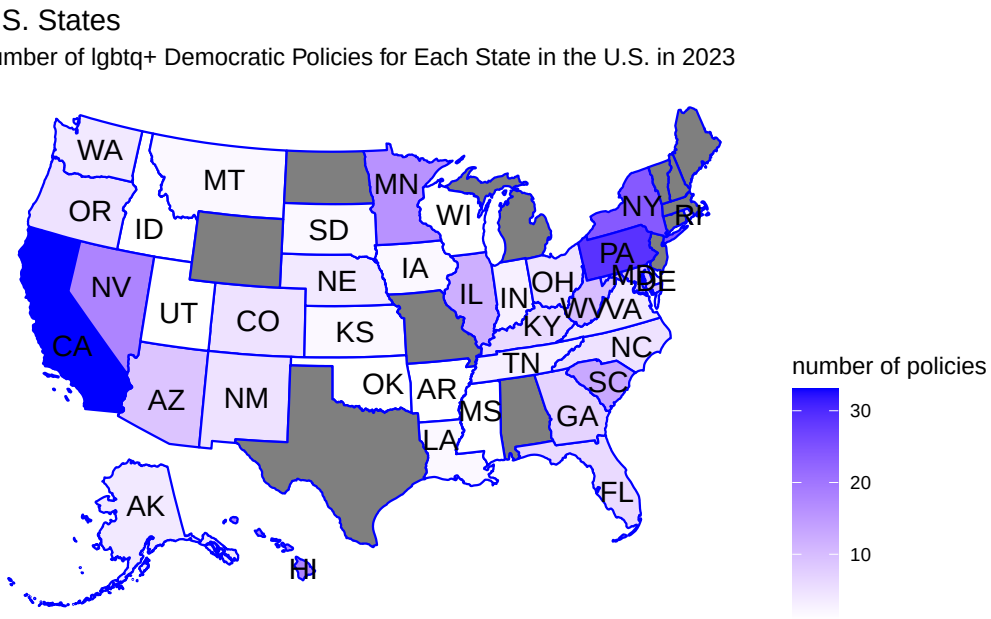
```
dataset_2023_DEM<- combined_dataset_2023|>
  filter(party == "DEM")|>
  group_by(state)|>
  summarise(number_of_policies = n())
```

```
us_map <- plot_usmap(regions = "states") +
  labs(
    title = "U.S. States",
    subtitle = "Number of Policies for Each State in the U.S."
  ) +
  theme(panel.background = element_blank())
```

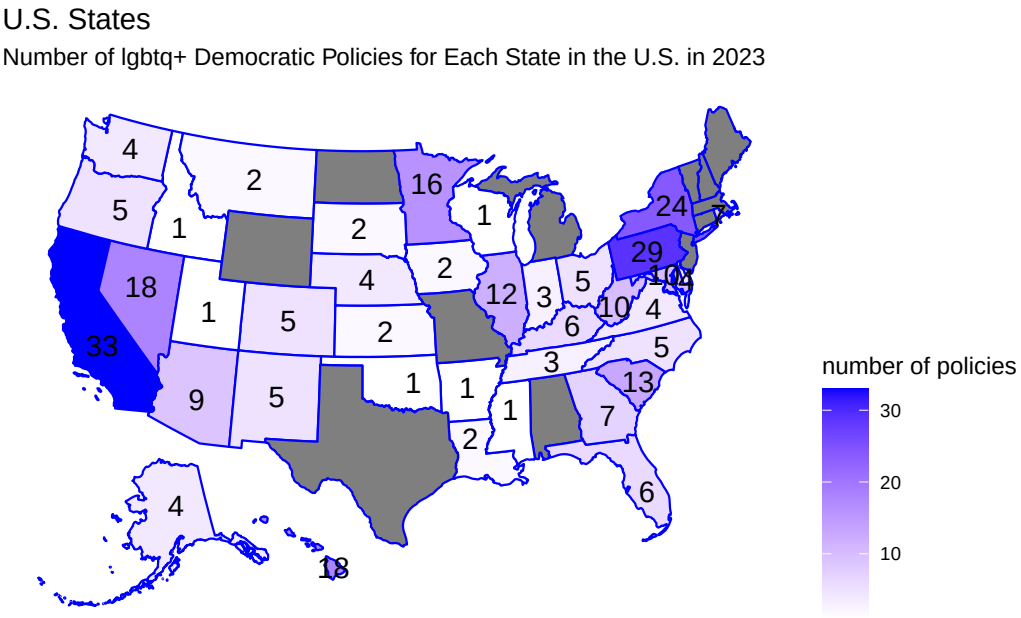
```
state_DEM_labels <- merge(dataset_2023_DEM, centroid_labels, by.x = "state", by.y = "abbr"
```

```
plot_usmap(data = dataset_2023_DEM, values = "number_of_policies", color = "blue") +
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ Democratic Policies for Each St
  theme(legend.position = "right")+
```

```
  geom_text(data =state_DEM_labels , aes(
    x = x, y = y,
    label = state,
  ), color = "black")
```




```
plot_usmap(data =dataset_2023_DEM, values = "number_of_policies", color = "blue") +
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ Democratic Policies for Each St
  theme(legend.position = "right")+
  geom_text(data = state_DEM_labels, aes(
    x = x, y = y,
    label = number_of_policies,
  ), color = "black")
```




## GOP and expanding

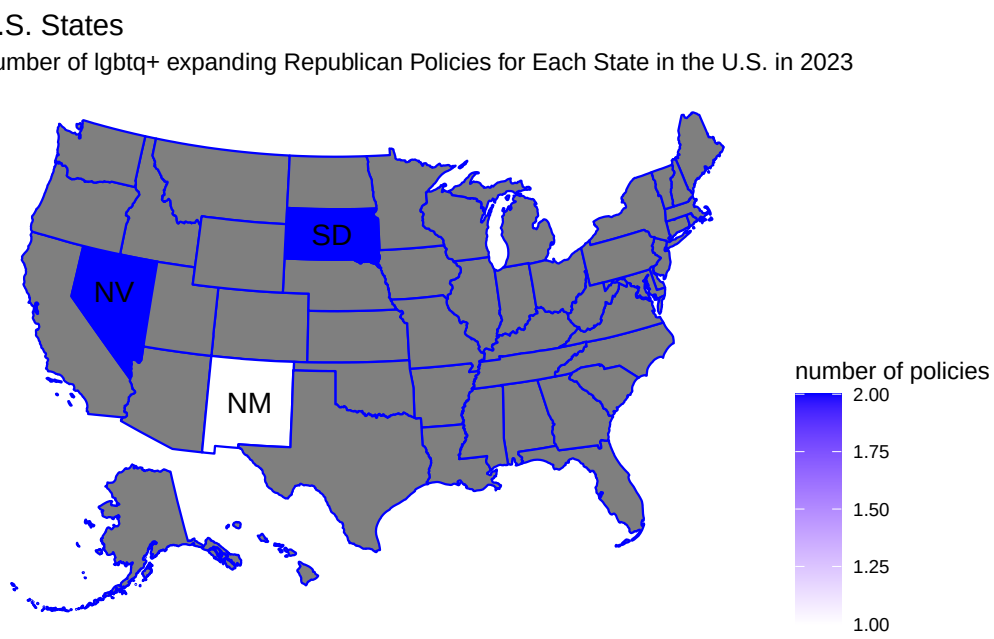
```
dataset_2023_GOP_expanding <- combined_dataset_2023|>
  filter(party == "GOP", direction == "expanding")|>
  group_by(state)|>
  summarise(number_of_policies = n())
```

```
us_map <- plot_usmap(regions = "states") +
  labs(
    title = "U.S. States",
    subtitle = "Number of Policies for Each State in the U.S."
  ) +
  theme(panel.background = element_blank())
```

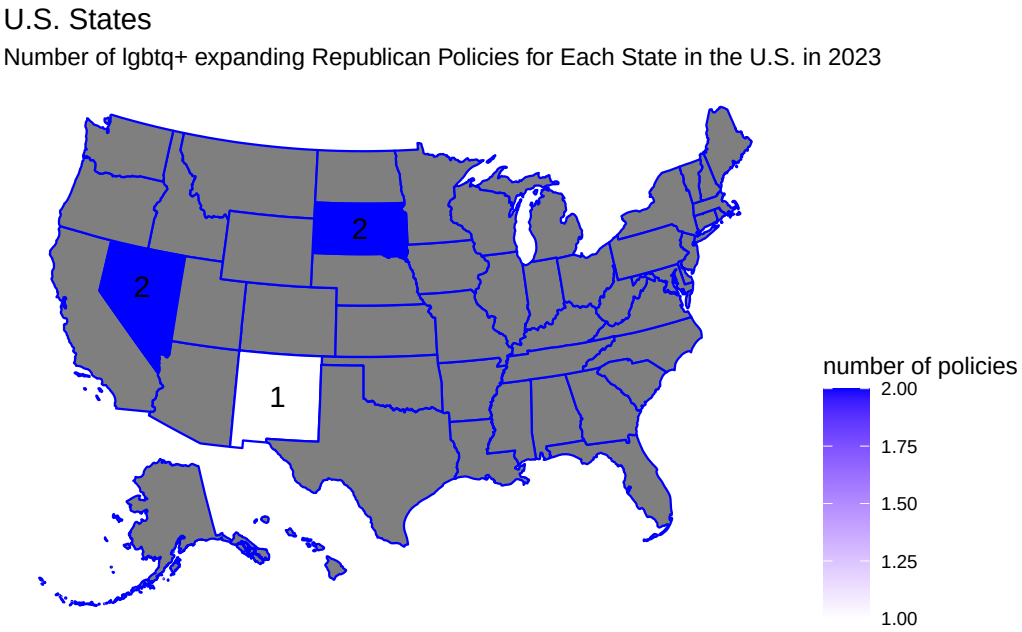
```
state_GOP_expanding_labels <- merge(dataset_2023_GOP_expanding, centroid_labels, by.x = "s
```

```
plot_usmap(data = dataset_2023_GOP_expanding, values = "number_of_policies", color = "blue
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ expanding Republican Policies f
  theme(legend.position = "right")+
```

```
  geom_text(data =state_GOP_expanding_labels , aes(
    x = x, y = y,
    label = state,
  ), color = "black")
```




```
plot_usmap(data =dataset_2023_GOP_expanding, values = "number_of_policies", color = "blue"
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ expanding Republican Policies f
  theme(legend.position = "right")+
  geom_text(data = state_GOP_expanding_labels, aes(
    x = x, y = y,
    label = number_of_policies,
  ), color = "black")
```




## GOP and restricting

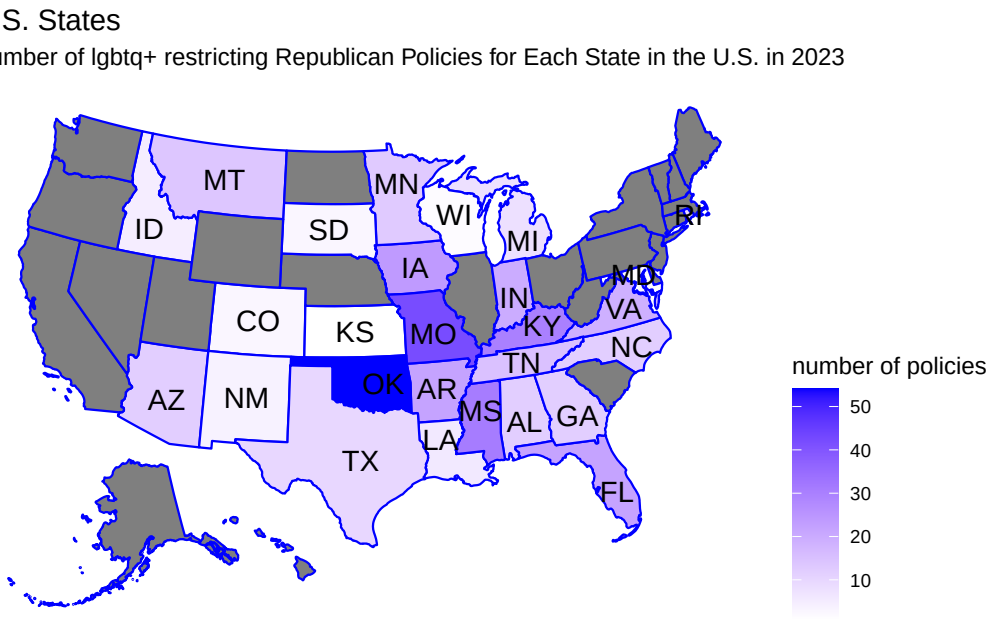
```
dataset_2023_GOP_restricting <- combined_dataset_2023|>
  filter(party == "GOP", direction == "restricting")|>
  group_by(state)|>
  summarise(number_of_policies = n())
```

```
us_map <- plot_usmap(regions = "states") +
  labs(
    title = "U.S. States",
    subtitle = "Number of Policies for Each State in the U.S."
  ) +
  theme(panel.background = element_blank())
```

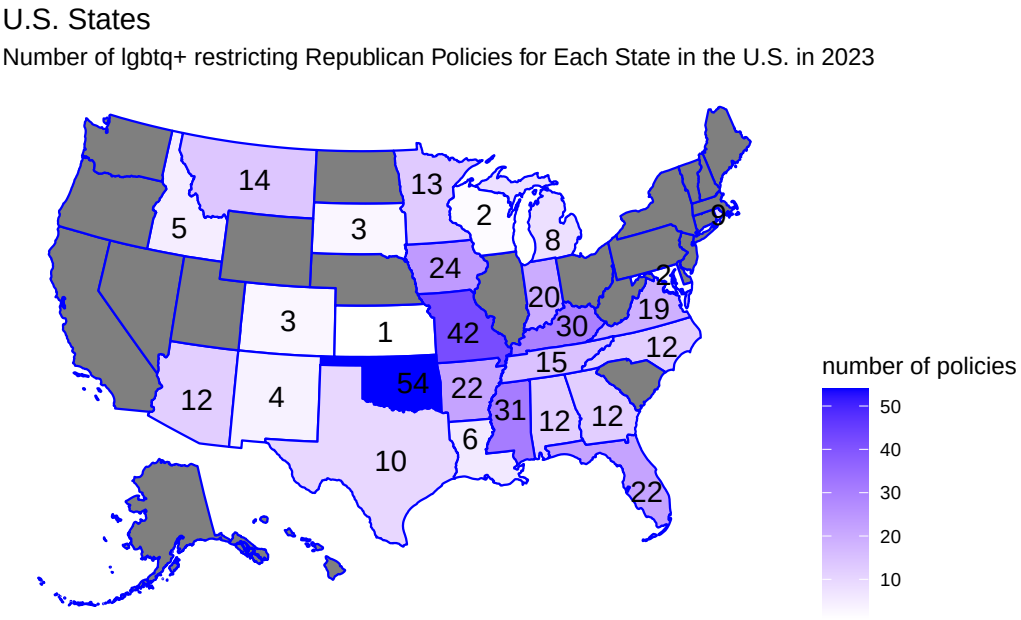
```
state_GOP_restricting_labels <- merge(dataset_2023_GOP_restricting, centroid_labels, by.x
```

```
plot_usmap(data = dataset_2023_GOP_restricting, values = "number_of_policies", color = "bl
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ restricting Republican Policies
  theme(legend.position = "right")+
```

```
  geom_text(data =state_GOP_restricting_labels , aes(
    x = x, y = y,
    label = state,
  ), color = "black")
```




```
plot_usmap(data =dataset_2023_GOP_restricting, values = "number_of_policies", color = "blu
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ restricting Republican Policies
  theme(legend.position = "right")+
  geom_text(data = state_GOP_restricting_labels, aes(
    x = x, y = y,
    label = number_of_policies,
  ), color = "black")
```




## DEM and expanding

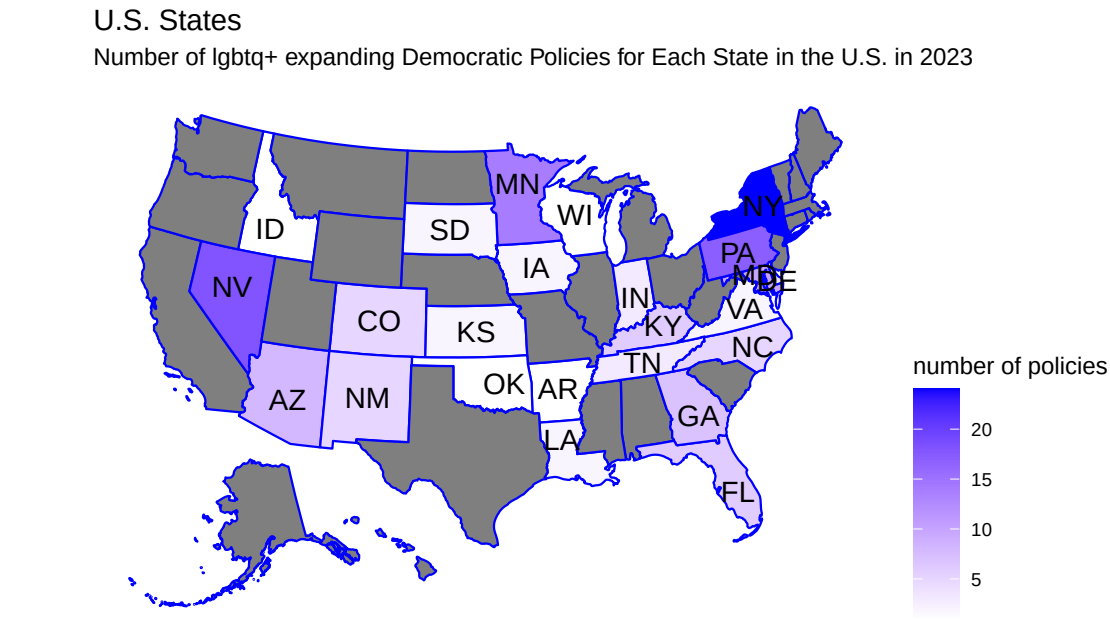
```
dataset_2023_DEM_expanding <- combined_dataset_2023|>
  filter(party == "DEM", direction == "expanding")|>
  group_by(state)|>
  summarise(number_of_policies = n())
```

```
us_map <- plot_usmap(regions = "states") +
  labs(
    title = "U.S. States",
    subtitle = "Number of Policies for Each State in the U.S."
  ) +
  theme(panel.background = element_blank())
```

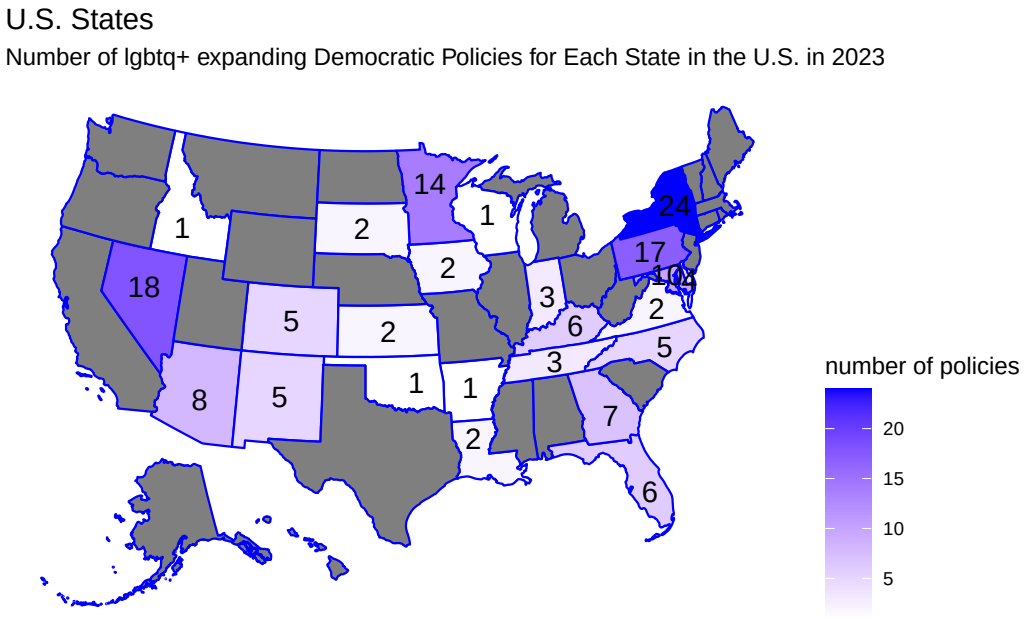
```
state_DEM_expanding_labels <- merge(dataset_2023_DEM_expanding, centroid_labels, by.x = "s
```

```
plot_usmap(data = dataset_2023_DEM_expanding, values = "number_of_policies", color = "blue
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ expanding Democratic Policies f
  theme(legend.position = "right")+
```

```
  geom_text(data =state_DEM_expanding_labels, aes(
    x = x, y = y,
    label = state,
  ), color = "black")
```




```
plot_usmap(data =dataset_2023_DEM_expanding, values = "number_of_policies", color = "blue"
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ expanding Democratic Policies f
  theme(legend.position = "right")+
  geom_text(data = state_DEM_expanding_labels, aes(
    x = x, y = y,
    label = number_of_policies,
  ), color = "black")
```




## DEM and restricting

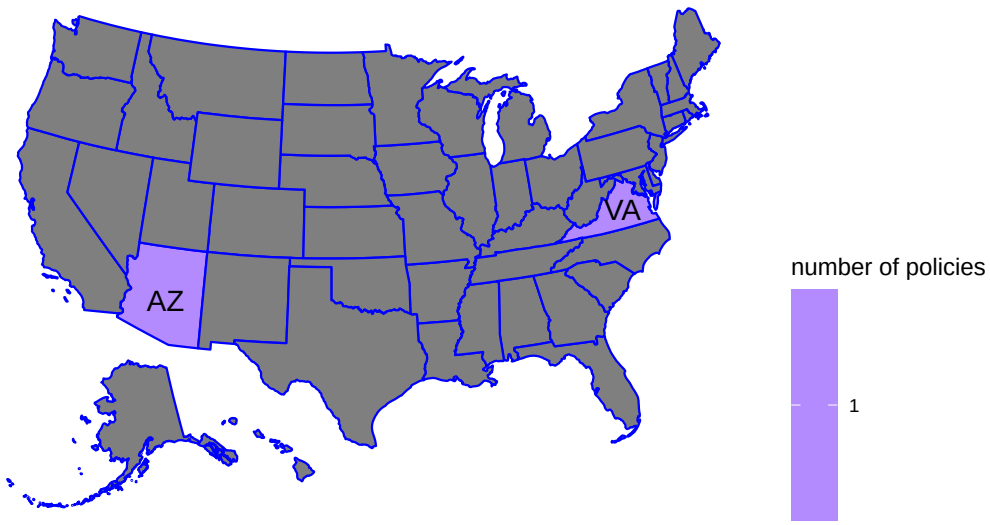
```
dataset_2023_DEM_restricting <- combined_dataset_2023|>
  filter(party == "DEM", direction == "restricting")|>
  group_by(state)|>
  summarise(number_of_policies = n())
```

```
us_map <- plot_usmap(regions = "states") +
  labs(
    title = "U.S. States",
    subtitle = "Number of Policies for Each State in the U.S."
  ) +
  theme(panel.background = element_blank())
```

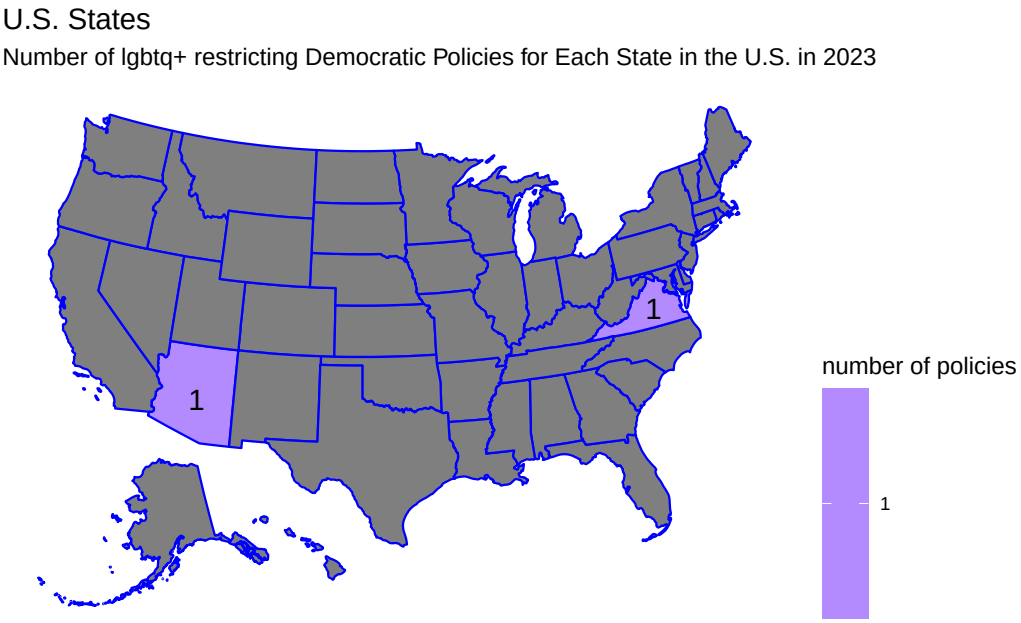
```
state_DEM_restricting_labels <- merge(dataset_2023_DEM_restricting, centroid_labels, by.x
```

```
plot_usmap(data = dataset_2023_DEM_restricting, values = "number_of_policies", color = "bl
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ restricting Democratic Policies
  theme(legend.position = "right")+
```

```
  geom_text(data =state_DEM_restricting_labels, aes(
    x = x, y = y,
    label = state,
  ), color = "black")
```




```
plot_usmap(data =dataset_2023_DEM_restricting, values = "number_of_policies", color = "blu
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ restricting Democratic Policies
  theme(legend.position = "right")+
  geom_text(data = state_DEM_restricting_labels, aes(
    x = x, y = y,
    label = number_of_policies,
  ), color = "black")
```




## adopted or not

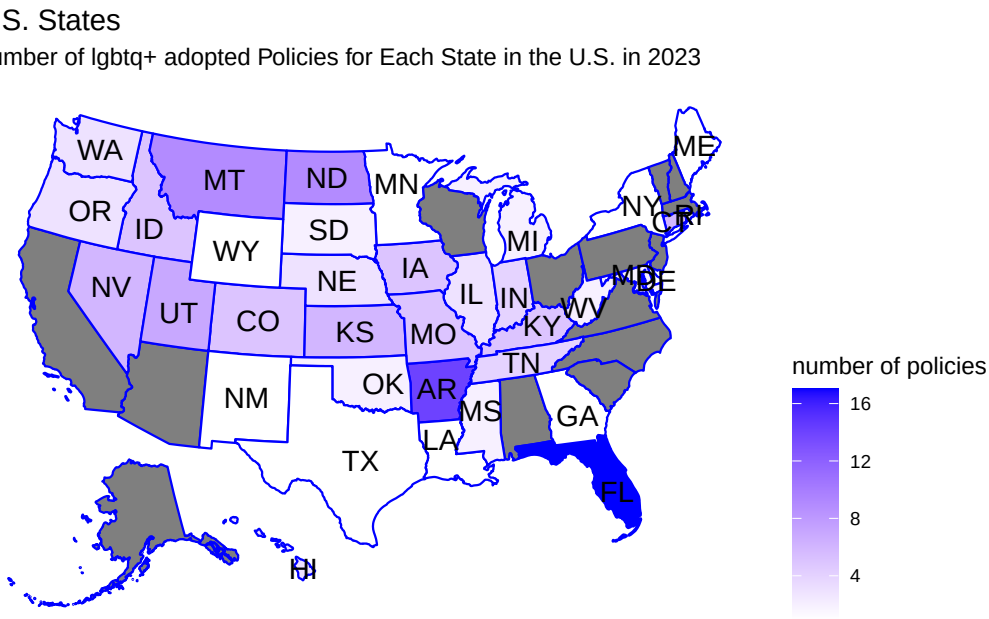
```
dataset_2023_adopted <- combined_dataset_2023|>
  filter(adopted == "1")|>
  group_by(state)|>
  summarise(number_of_policies = n())
```

```
us_map <- plot_usmap(regions = "states") +
  labs(
    title = "U.S. States",
    subtitle = "Number of Policies for Each State in the U.S."
  ) +
  theme(panel.background = element_blank())
```

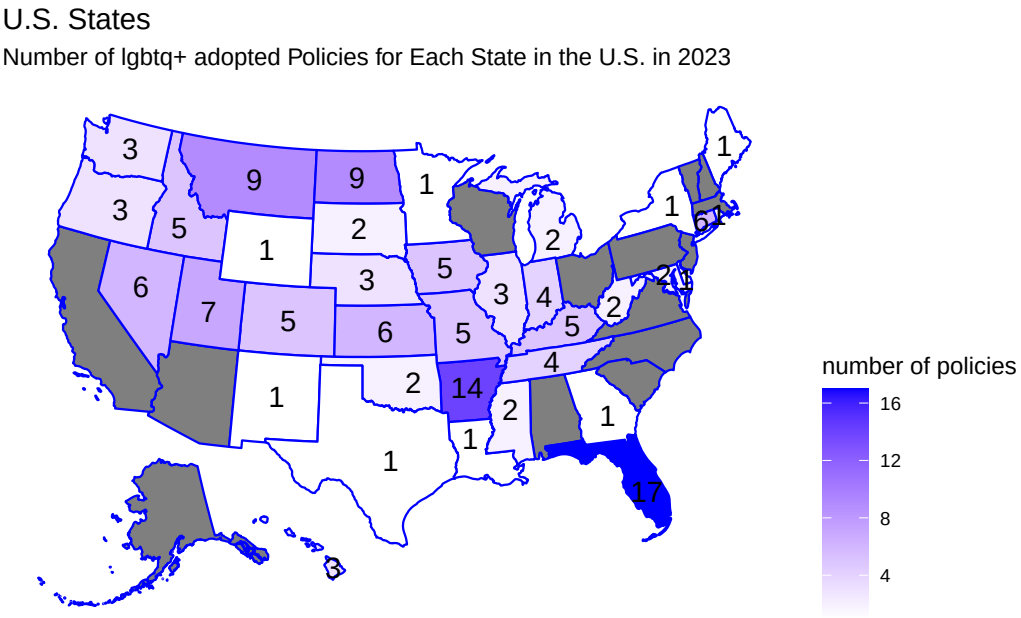
```
state_adopted_labels <- merge(dataset_2023_adopted, centroid_labels, by.x = "state", by.y
```

```
plot_usmap(data = dataset_2023_adopted, values = "number_of_policies", color = "blue") +
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ adopted Policies for Each State
  theme(legend.position = "right")+
```

```
  geom_text(data =state_adopted_labels, aes(
    x = x, y = y,
    label = state,
  ), color = "black")
```




```
plot_usmap(data =dataset_2023_adopted, values = "number_of_policies", color = "blue") +
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ adopted Policies for Each State
  theme(legend.position = "right")+
  geom_text(data = state_adopted_labels, aes(
    x = x, y = y,
    label = number_of_policies,
  ), color = "black")
```




## not adopted

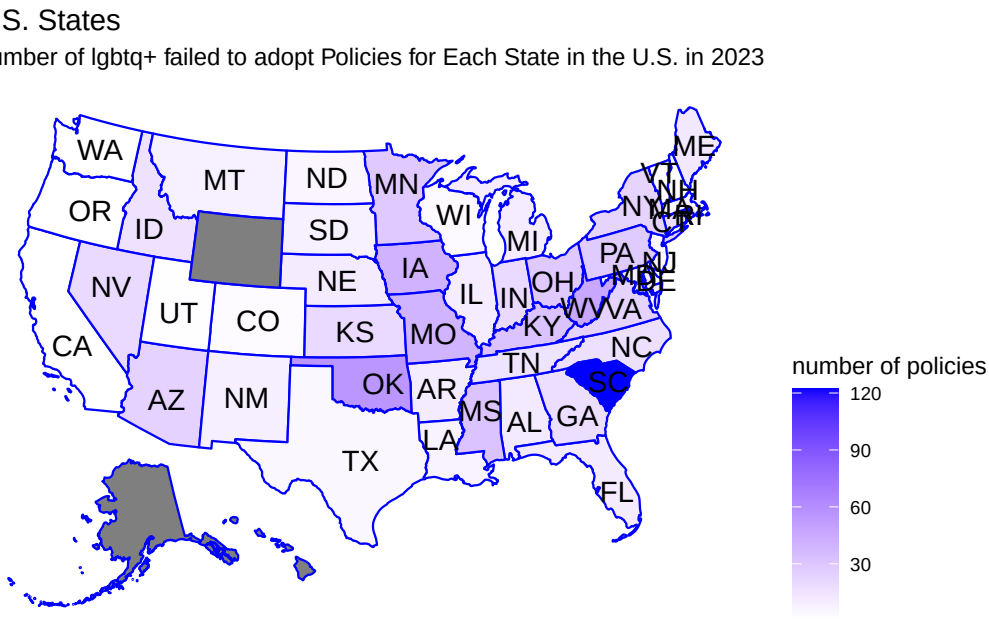
```
dataset_2023_not_adopted <- combined_dataset_2023|>
  filter(adopted == "0")|>
  group_by(state)|>
  summarise(number_of_policies = n())
```

```
us_map <- plot_usmap(regions = "states") +
  labs(
    title = "U.S. States",
    subtitle = "Number of Policies for Each State in the U.S."
  ) +
  theme(panel.background = element_blank())
```

```
state_not_adopted_labels <- merge(dataset_2023_not_adopted, centroid_labels, by.x = "state
```

```
plot_usmap(data = dataset_2023_not_adopted, values = "number_of_policies", color = "blue")
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ failed to adopt Policies for Ea
  theme(legend.position = "right")+
```

```
  geom_text(data =state_not_adopted_labels, aes(
    x = x, y = y,
    label = state,
  ), color = "black")
```




```
plot_usmap(data =dataset_2023_not_adopted, values = "number_of_policies", color = "blue")
  scale_fill_continuous(low = "white", high = "blue", name = "number of policies", label =
  labs(title = "U.S. States", subtitle = "Number of lgbtq+ failed to adopt Policies for Ea
  theme(legend.position = "right")+
  geom_text(data = state_not_adopted_labels, aes(
    x = x, y = y,
    label = number_of_policies,
  ), color = "black")
```

U.S. States

Number of lgbtq+ failed to adopt Policies for Each State in the U.S. in 2023