Assignment 1.2 - Week 1&2 in R

Aarti Ramani

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Load required libraries

```
library(readxl)
library(ggplot2)
library(RColorBrewer)
library(plotly)
```

```
##
## Attaching package: 'plotly'
```

```
## The following object is masked from 'package:ggplot2':
##
##     last_plot
```

```
## The following object is masked from 'package:stats':
##
##     filter
```

```
## The following object is masked from 'package:graphics':
##
##     layout
```

```
library(webshot)
```

Read xls into a dataframe

```
obama_approvals_df <- read_excel(path = "C:/Masters/GitHub/Summer2023/DSC640-Data Presentation & Visualization/We
ek1&2/Data/obama-approval-ratings.xls")
nrow(obama_approvals_df)
```

```
## [1] 13
```

```
head(obama_approvals_df,5)
```

```
## # A tibble: 5 × 4
##    Issue          Approve Disapprove  None
##    <chr>            <dbl>      <dbl> <dbl>
## 1 Race Relations      52         38    10
## 2 Education           49         40    11
## 3 Terrorism           48         45     7
## 4 Energy Policy       47         42    11
## 5 Foreign Affairs     44         48     8
```

DONUT CHART

```
#fig <- obama_approvals_df %>% plot_ly(labels = ~Issue, values = ~Approve, textposition = 'outside', #textinfo='p
ercent+label', width = 1)
#fig <- fig %>% add_pie(hole = 0.6)
#fig <- fig %>% layout(title = list(text='Donut charts using Plotly'),
#                      autosize = T ,showlegend = F)
#fig


fig1 <- plot_ly(obama_approvals_df, labels = ~Issue, values = ~Approve, #type = 'pie',
        textposition = 'inside',
        textinfo = 'percent+label',
        text = ~paste(Issue),
        showlegend = FALSE)
fig1 <- fig1 %>% add_pie(hole = 0.6)
fig1 <- fig1 %>% layout(title = 'Approval Rates by Issue',autosize = T)
fig1
```

Approval Rates by Issue
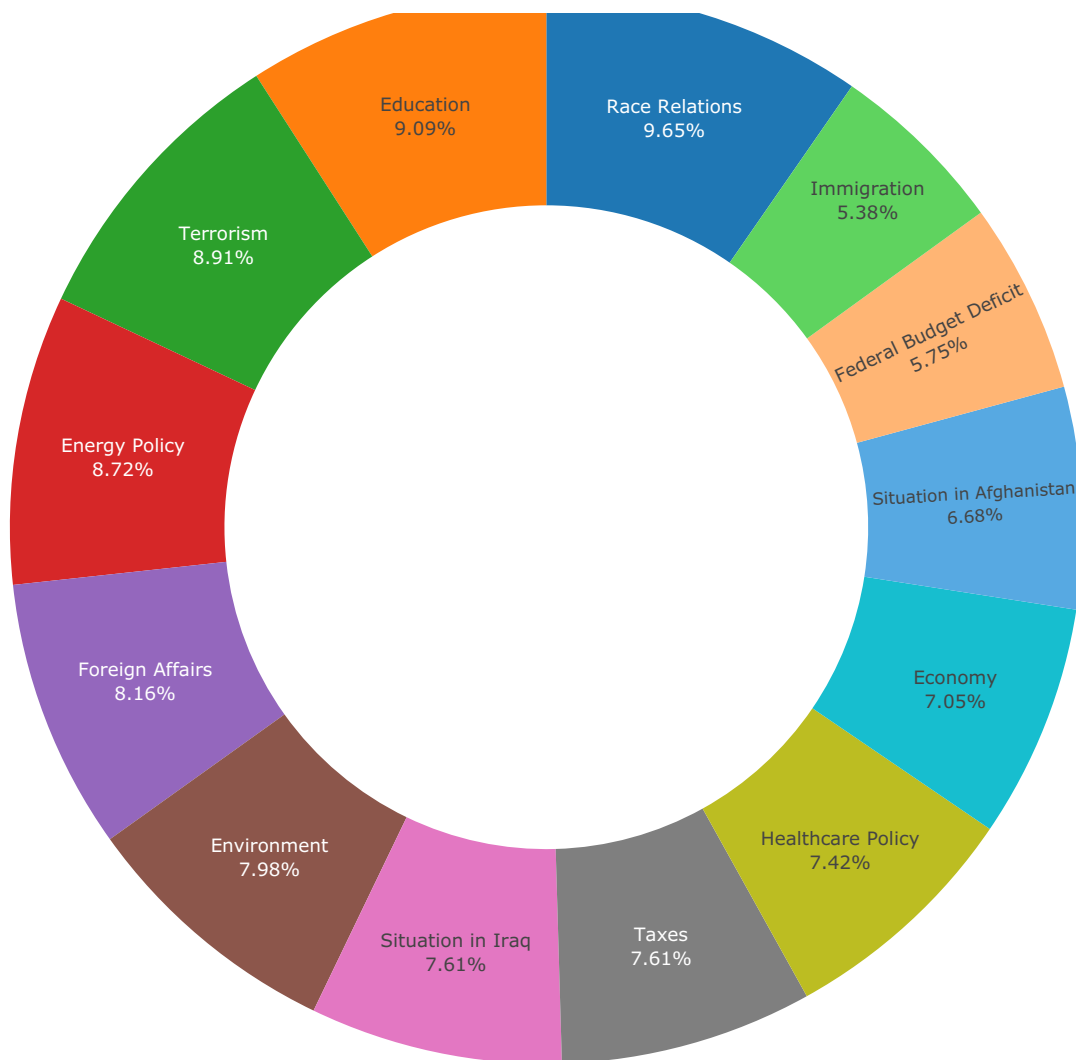
PIE CHART

```
#Pie Chart
fig <- obama_approvals_df %>% plot_ly(labels = ~Issue, values = ~Disapprove,
                                      type = 'pie', textposition = 'inside',
                                      textinfo='value+label')
fig <- fig %>% layout(title = "Disapproval Counts per Issue",autosize = T,  showlegend = F)
fig
```
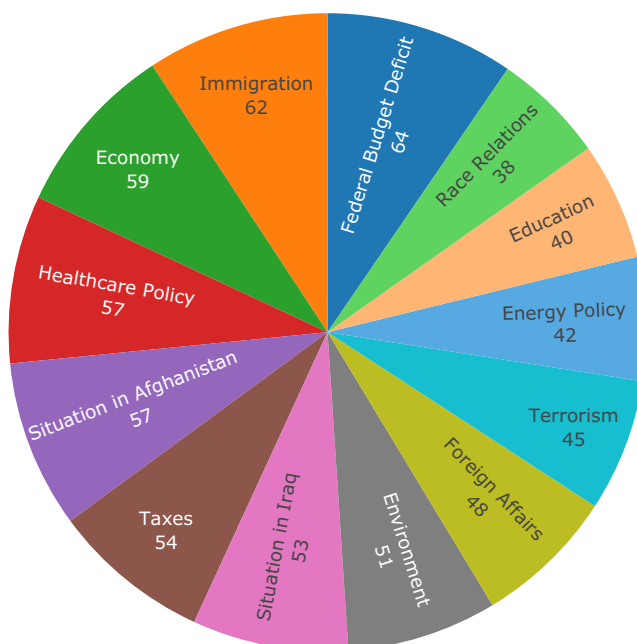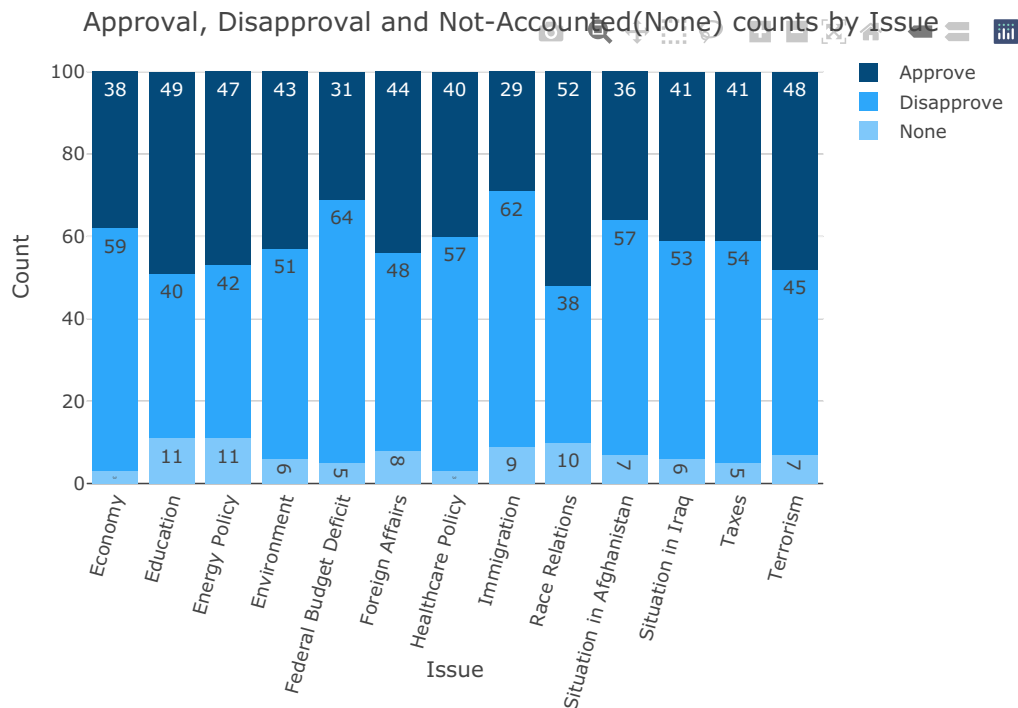
Disapproval Counts per Issue

STACKED BAR CHART

```
#Stacked Bar Chart
fig <- plot_ly(obama_approvals_df)
fig <- fig %>% add_trace(x = ~Issue,y = ~None, name = 'None',text = ~None, type='bar',
                         marker = list(color = 'rgb(127, 200, 250)',
                                       line = list(color = 'rgb(8,48,107)' )))
fig <- fig %>% add_trace(x = ~Issue,y = ~Disapprove, name = 'Disapprove',text = ~Disapprove, type='bar',
                         marker = list(color = 'rgb(45, 167, 250)',
                                       line = list(color = 'rgb(8,48,107)')))
fig <- fig %>% add_trace(x = ~Issue,y = ~Approve, name = 'Approve', text = ~Approve, type='bar',
                         marker = list(color = 'rgb(4, 74, 122)',
                                       line = list(color = 'rgb(8,48,107)')))
fig <- fig %>% layout(title = "Approval, Disapproval and Not-Accounted(None) counts by Issue",yaxis = list(title
= 'Count'),autosize = T,
                      barmode = 'stack',xaxis = list(title = "Issue", tickangle = -75))
fig
```



BAR CHART

```
#Bar Chart
fig <- plot_ly(obama_approvals_df,x = ~Issue,y = ~Disapprove, name = 'Disapprove',
               text = ~Disapprove, type='bar',
               marker = list(color = 'rgb(20, 71, 252)',
                             line = list(color = 'rgb(8,48,107)')))
fig <- fig %>% layout(title="Disapproval counts per Issue",autosize = T,yaxis = list(title = 'Count'),
                      xaxis = list(title = "Issue", tickangle = -75))
fig
```
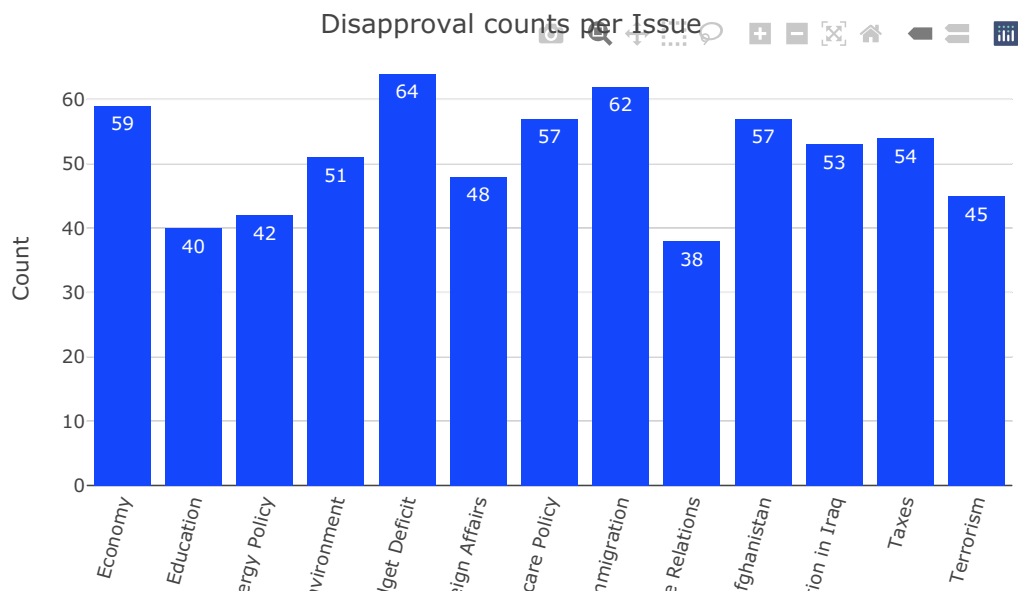
LINE CHART

```
# Line Chart

fig <- plot_ly(obama_approvals_df, x = ~Issue)
fig <- fig %>% add_lines(y = ~Disapprove, name = "Disapprove")
fig <- fig %>% add_lines(y = ~Approve, name = "Approve")
fig <- fig %>% layout(title="Approvals and Disapproval by Issue",autosize = T)
fig
```
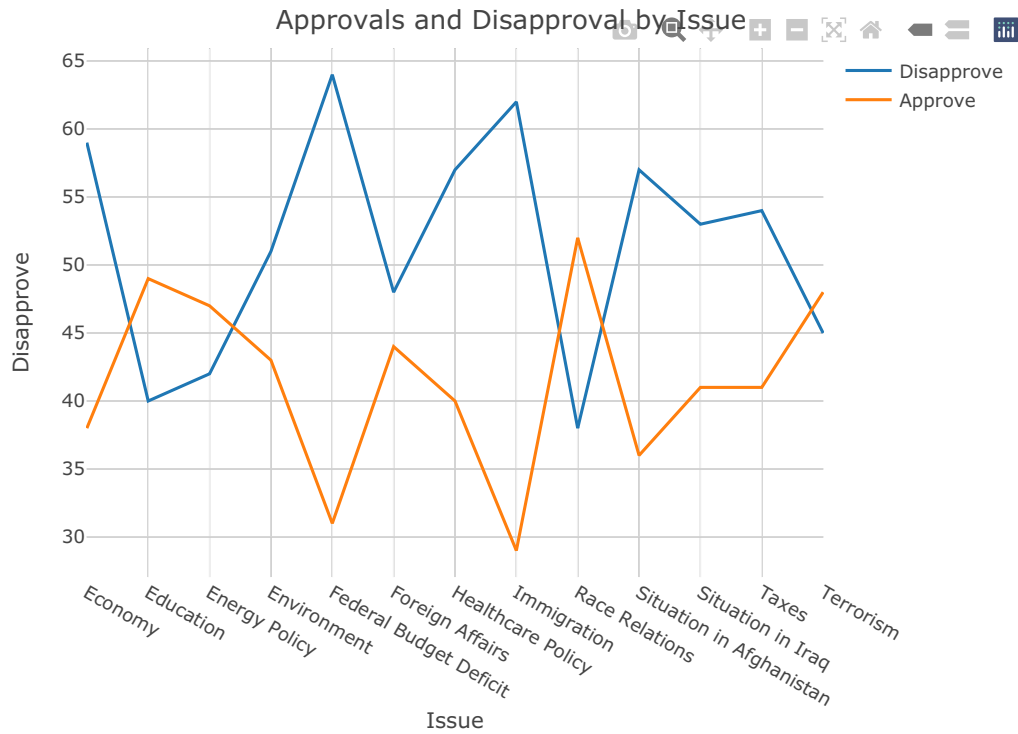
PYTHON

1.2 - Charts

```
In [1]: import pandas as pd
        import numpy as np
        import matplotlib as plt
        import plotly.express as px
```

```
In [2]: #approval_df = pd.read_excel("obama-approval-ratings.xls")

        approval_df = pd.read_excel('obama-approval-ratings.xls', sheet_name='Sheet1')
        approval_df.head(5)
```

Out[2]:

	Issue	Approve	Disapprove	None
0	Race Relations	52	38	10
1	Education	49	40	11
2	Terrorism	48	45	7
3	Energy Policy	47	42	11
4	Foreign Affairs	44	48	8

## Donut Chart

```
In [3]: fig = px.pie(approval_df, values="Approve", names="Issue", hole=.5)
        fig.update_traces(textposition='inside', textinfo='percent+label')
        fig.update_layout(title_text="Approval Rates by Issue", title_x=0.3)
        fig.show("notebook")
```

Approval Rates by Issue
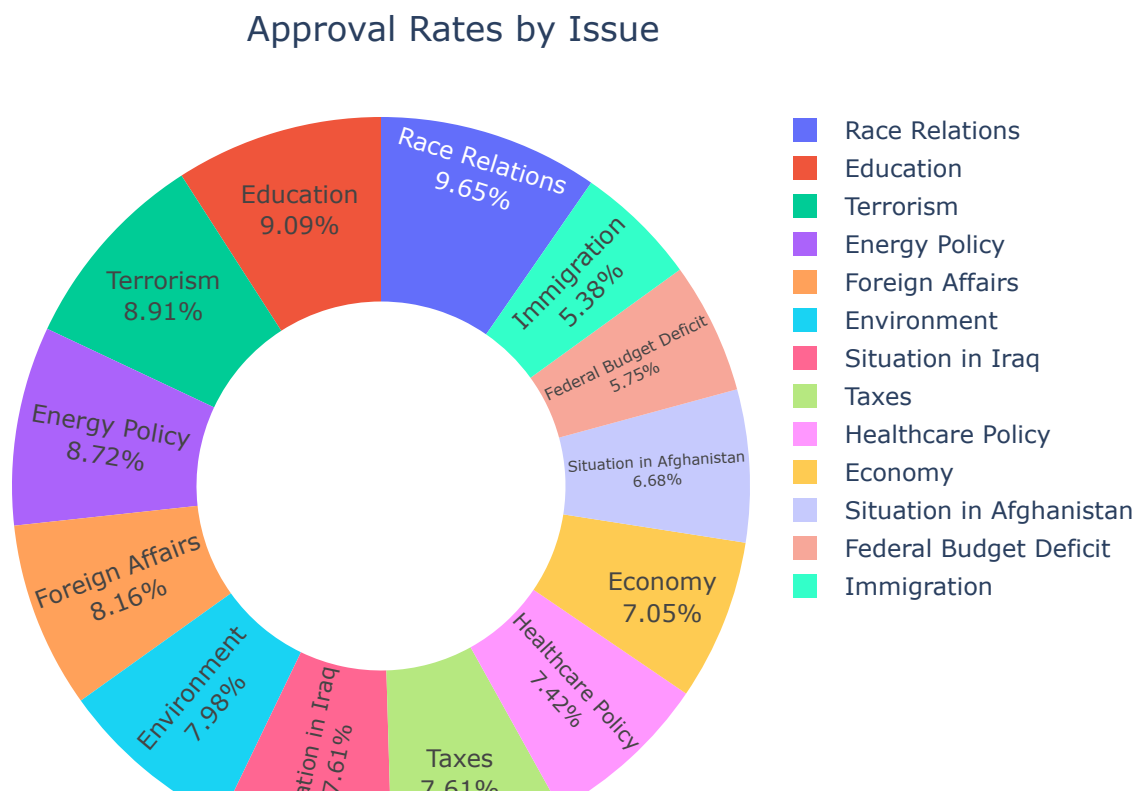
Pie Chart

```
In [4]:  fig = px.pie(approval_df, values="Disapprove", names="Issue")
         fig.update_traces(textposition='inside', textinfo='value+label')
         fig.update_layout(title_text="Disapproval Counts per Issue", title_x=0.3)
         fig.show("notebook")
```

Disapproval Counts per Issue
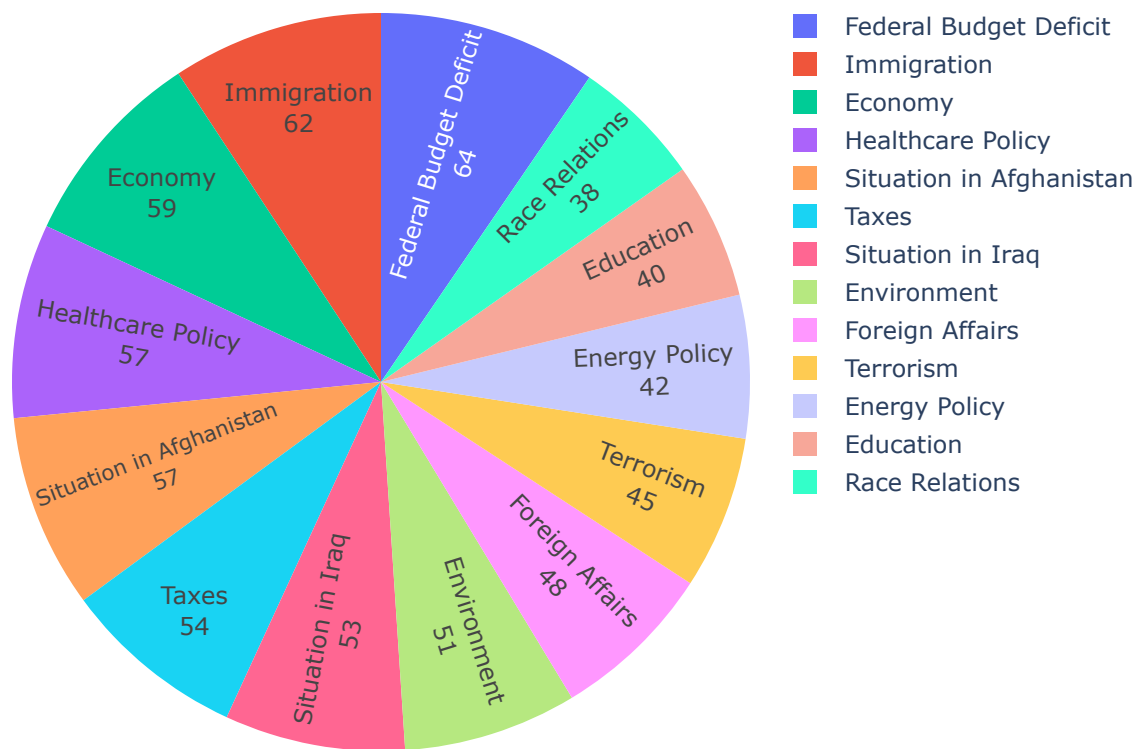
Stacked Bar Chart

```
In [5]:  colors = [ # matplotlib named colors
             'cornflowerblue','lightblue','lightsteelblue',
             # any color using the color codes
             "#a977e2"]
         fig = px.bar(approval_df, x="Issue", y=['None','Disapprove','Approve'],
                 color_discrete_sequence=colors,text_auto=True)
         fig.update_layout(title_text="Approval, Disapproval and Not-Accounted(None) counts by Is
         fig.show('notebook')
```

Bar Chart

```
In [6]:  fig = px.bar(approval_df, x="Issue", y='Disapprove',text_auto=True)
         fig.update_layout(title_text="Disapproval counts per Issue", title_x=0.3)
         fig.show('notebook')
```

Disapproval counts per Issue
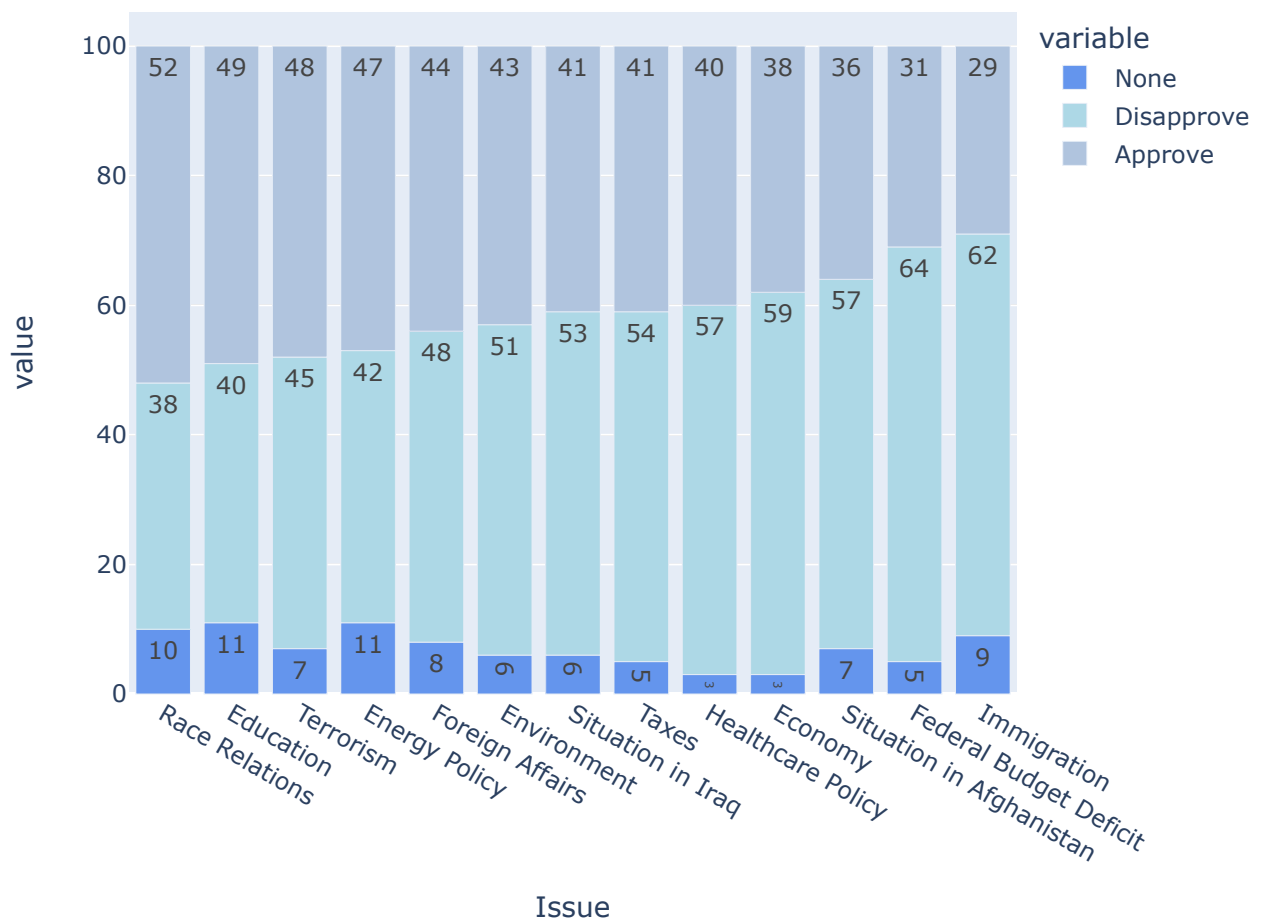
Race Relations
Education
Terrorism
Energy Policy
Foreign Affairs
Environment
Situation in Iraq
Taxes
Healthcare Policy
Economy
Situation in Afghanistan
Federal Budget Deficit
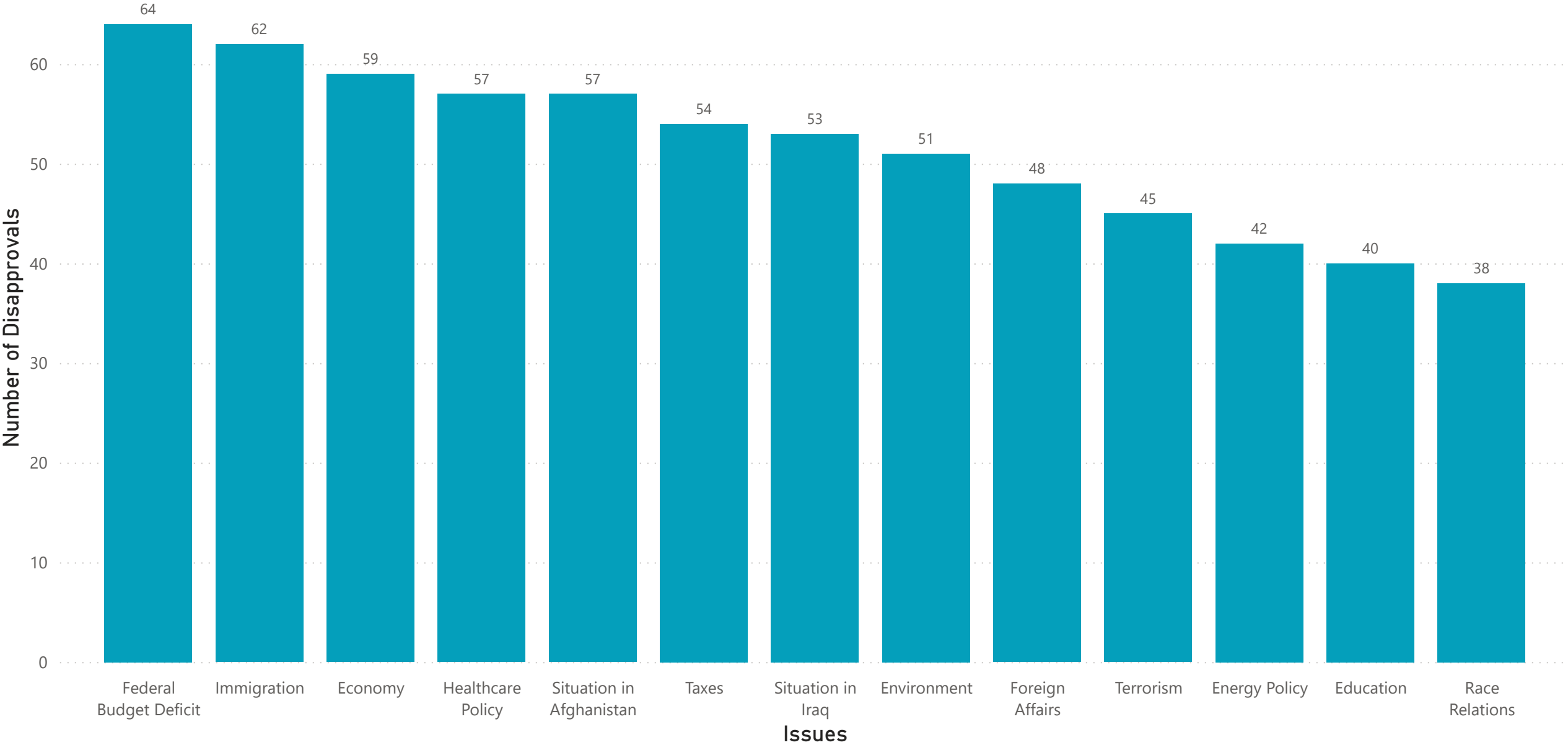Immigration

Issue

Line Chart

```
In [7]:  fig = px.line(approval_df, x="Issue",  y=['Disapprove','Approve'])
         fig.update_layout(title_text="Approvals and Disapproval by Issue", title_x=0.3)
         fig.show('notebook')
```


Approvals and Disapproval by Issue
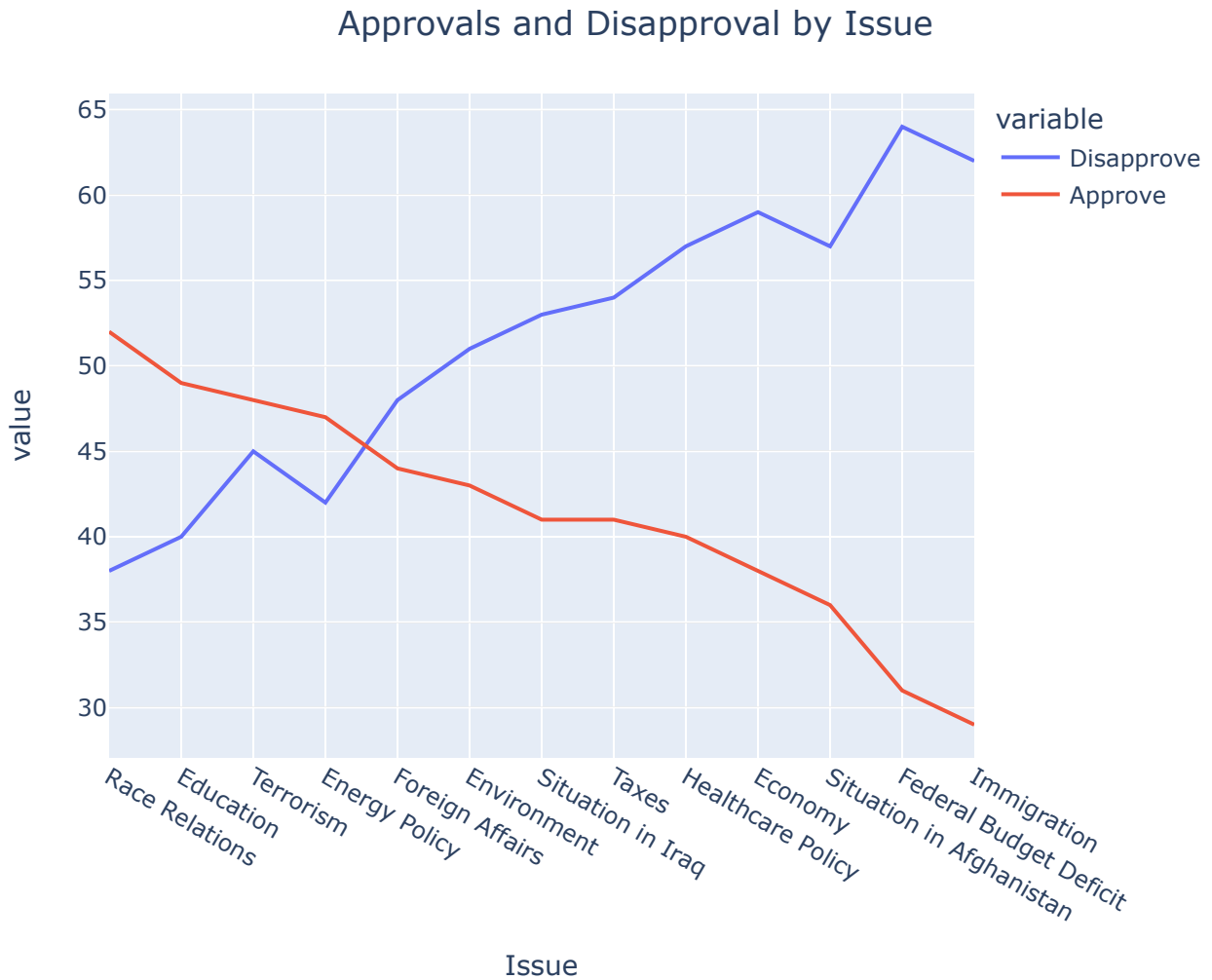
Number of Disapprovals by Issues

Sum of None, Disapprove and Approve by Issue

Issue	None	Disapprove	Approve
Education	11	40	49
Energy Policy	11	42	47
Race Relations	10	38	52
Immigration	9	62	29
Foreign Affairs	8	48	44
Situation in Afghanistan	7	57	36
Terrorism	7	45	48
Environment	6	51	43
Situation in Iraq	6	53	41
Federal Budget Deficit	5	64	31
Taxes	5	54	41
Economy	3	59	38
Healthcare Policy	3	57	40
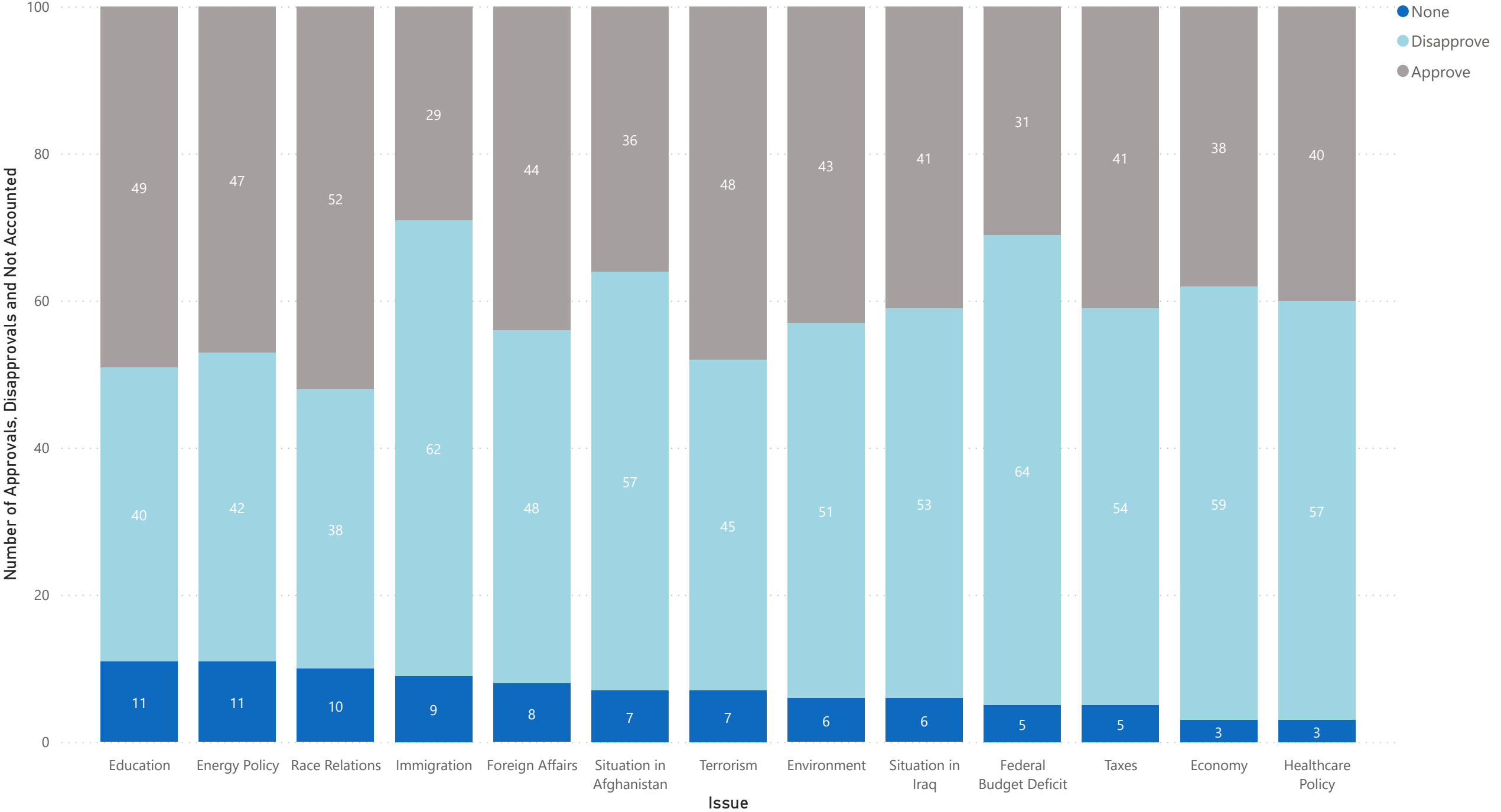
Obama's Disapproval Rates across Issues

Race Relations 38
Education 40
Federal Budget Deficit 64
Immigration 62
Energy Policy 42
Economy 59
Terrorism 45
Healthcare Policy 57
Foreign Affairs 48
Situation in Afghanistan 57
Environment 51
Taxes 54
Situation in Iraq 53
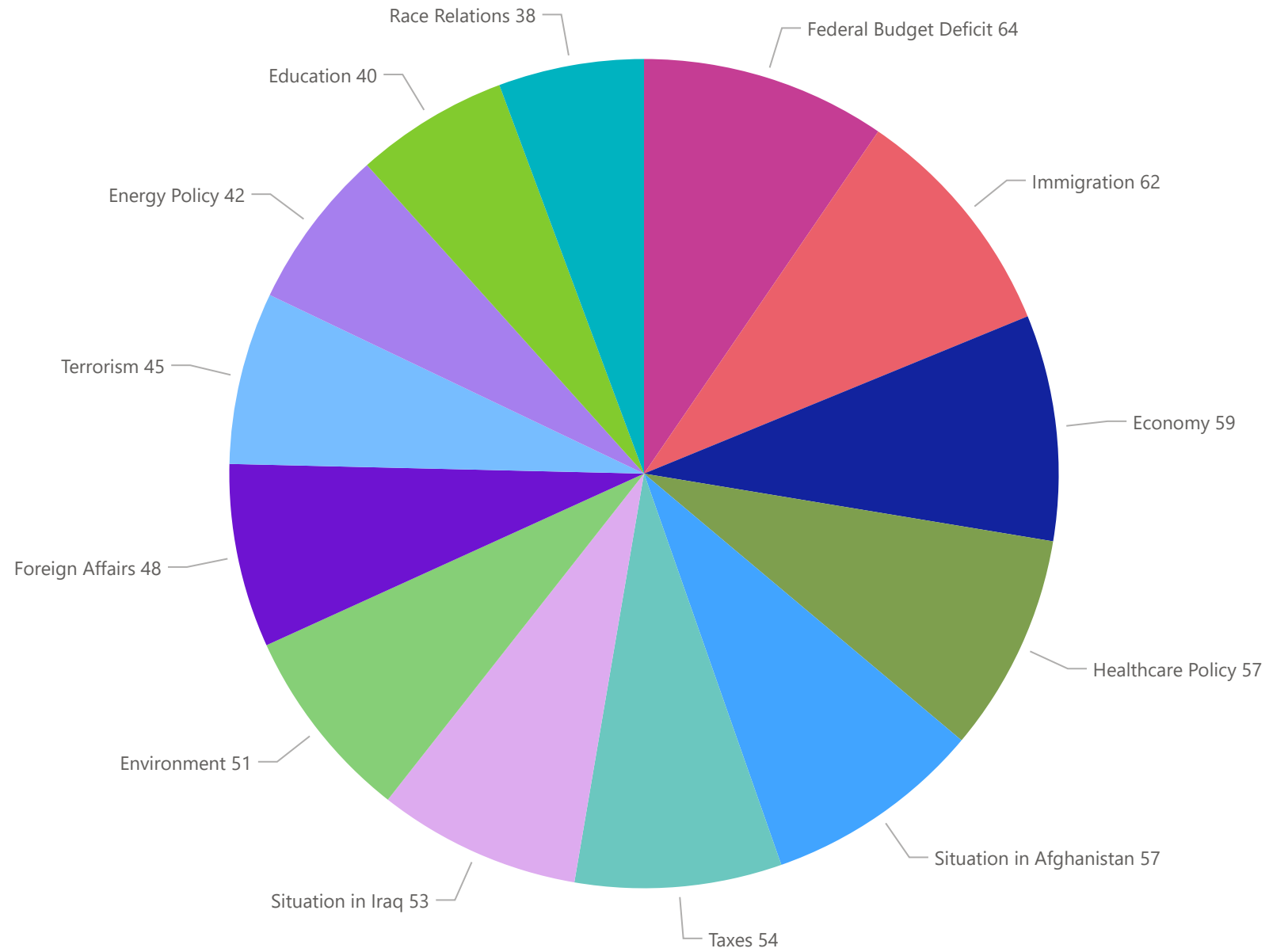
Obama's Approval Rates by Issue

- Economy 7.05%
- Education 9.09%
- Energy Policy 8.72%
- Environment 7.98%
- Federal Budget Deficit 5.75%
- Foreign Affairs 8.16%
- Healthcare Policy 7.42%
- Immigration 5.38%
- Race Relations 9.65%
- Situation in Afghanistan 6.68%
- Situation in Iraq 7.61%
- Taxes 7.61%
- Terrorism 8.91%
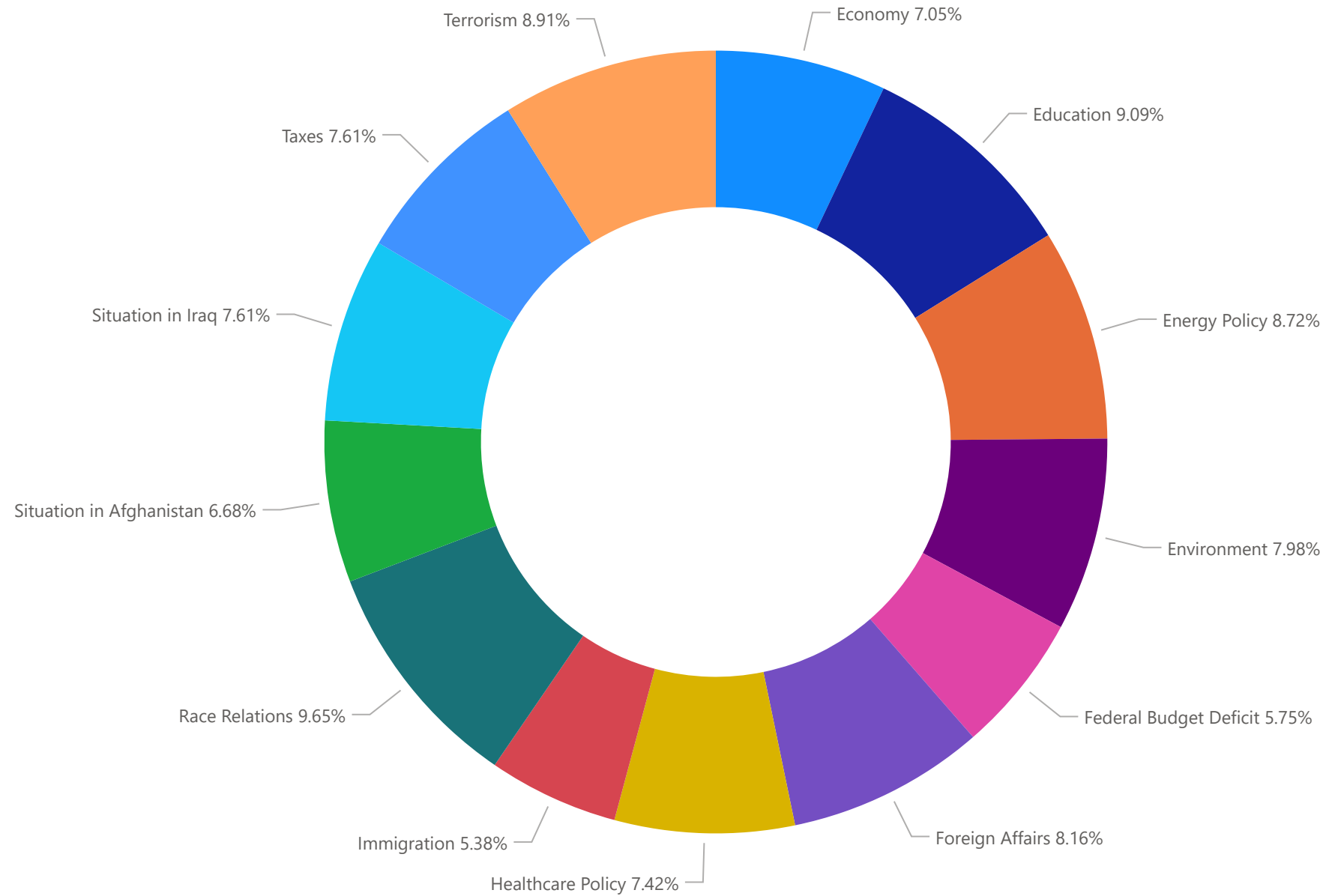
Approvals and Disapprovals by Issue

Approvals ● Disapprovals ●

Approvals and Disapprovals (y-axis): 30, 40, 50, 60

Issue (x-axis): Race Relations, Education, Terrorism, Energy Policy, Foreign Affairs, Environment, Situation in Iraq, Taxes, Healthcare Policy, Economy, Situation in Afghanistan, Federal Budget Deficit, Immigration