Python Plots

In [1]:
```
pip install squarify
```

```
Requirement already satisfied: squarify in /Users/navavallepalli/opt/anaconda3/lib/python3.9/site-packages (0.4.3)
Note: you may need to restart the kernel to use updated packages.
```

In [2]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import squarify
from datetime import datetime as dt
```

In [3]:
```
df = pd.read_csv("unemployement-rate-1948-2010.csv")
```

In [4]:
```
df
```

0	LNS14000000	1948	M01	3.4
1	LNS14000000	1948	M02	3.8
2	LNS14000000	1948	M03	4.0
3	LNS14000000	1948	M04	3.9
4	LNS14000000	1948	M05	3.5
...	...	...	...	...
741	LNS14000000	2009	M10	10.1
742	LNS14000000	2009	M11	10.0
743	LNS14000000	2009	M12	10.0
744	LNS14000000	2010	M01	9.7
745	LNS14000000	2010	M02	9.7

746 rows × 4 columns

In [5]:
```
df1 = pd.read_csv("expenditures.txt", sep = '\t', header=0)
```

In [6]:
```
df1
```

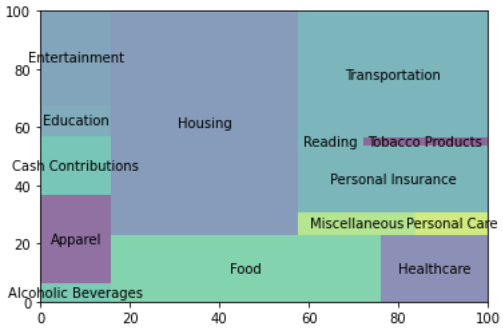
Out[6]:

	year	category	expenditure	sex
0	2008	Food	6443	1
1	2008	Alcoholic Beverages	444	1
2	2008	Housing	17109	1
3	2008	Apparel	1801	1
4	2008	Transportation	8604	1
...	...	...	...	...
345	1984	Education	303	1
346	1984	Tobacco Products	228	1
347	1984	Miscellaneous	451	1
348	1984	Cash Contributions	706	1
349	1984	Personal Insurance	1897	1

In [7]:
```
# Calculate total expenditure for categories
expend_cat = df1.groupby(['category'])['expenditure'].sum().reset_index()

# Calculate total expenditure by year
expend_year = df1.groupby(['year'])['expenditure'].sum().reset_index()
```

Python: Tree Map

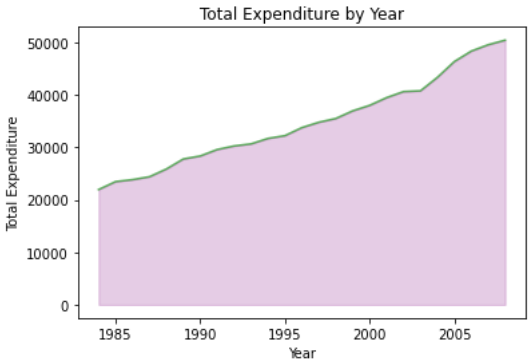
In [8]:
```
squarify.plot(sizes=expend_cat['expenditure'], label=expend_cat['category'], alpha=0.6)
plt.axis('on')
plt.show()
```



Python: Area chart

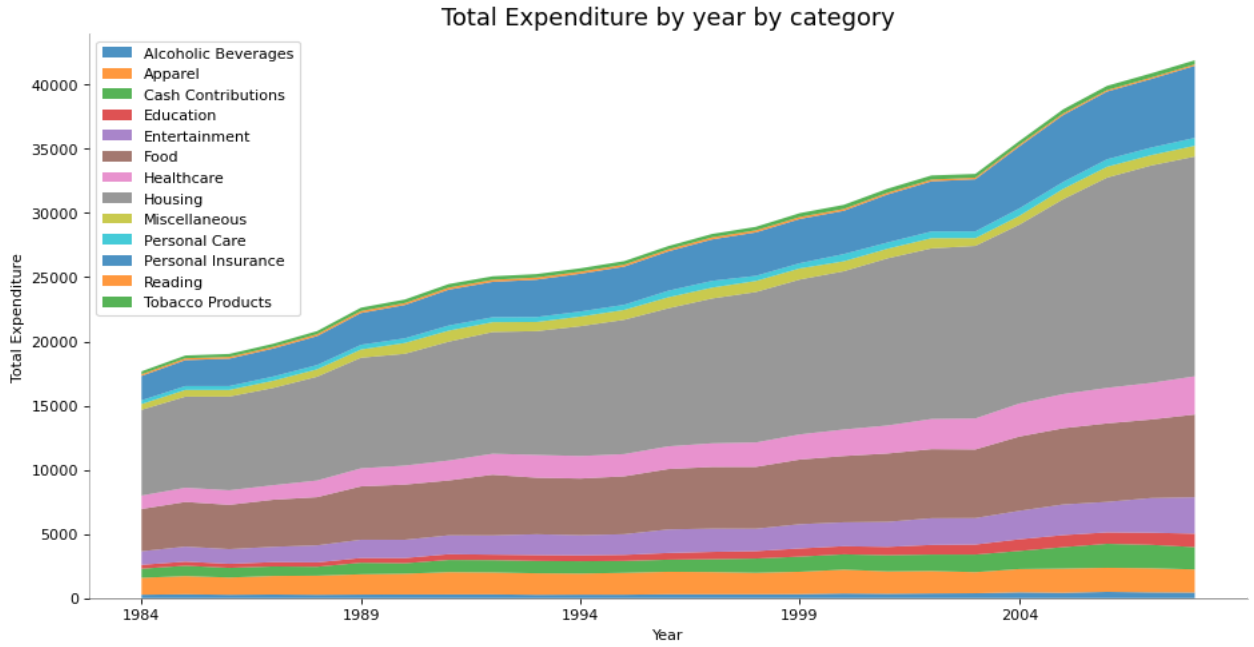
In [9]:
```
a = expend_year['year']
b = expend_year['expenditure']
plt.fill_between( a, b, color='purple', alpha=0.2)
plt.title('Total Expenditure by Year')
plt.xlabel('Year')
plt.ylabel('Total Expenditure')
plt.plot(a, b, color='green', alpha=0.6)
```

Out[9]:
```
[<matplotlib.lines.Line2D at 0x7f8e80248970>]
```



Python: Stacked Area chart

In [10]:
```
df2 = df1.loc[:, df1.columns != 'sex'].pivot(index='year', columns='category', values='expenditure')
df2.reset_index(level=0, inplace=True)

# Draw Plot and Annotate
fig, ax = plt.subplots(1,1,figsize=(14, 7), dpi= 80)
columns = df2.columns[1:]
labs = df2.values.tolist()

# Prepare data
x  = df2['year'].values.tolist()
y0 = df2[columns[0]].values.tolist()
y1 = df2[columns[1]].values.tolist()
y2 = df2[columns[2]].values.tolist()
y3 = df2[columns[3]].values.tolist()
y4 = df2[columns[4]].values.tolist()
y5 = df2[columns[5]].values.tolist()
y6 = df2[columns[6]].values.tolist()
y7 = df2[columns[7]].values.tolist()
y8 = df2[columns[8]].values.tolist()
y9 = df2[columns[9]].values.tolist()
y10 = df2[columns[10]].values.tolist()
y11 = df2[columns[11]].values.tolist()
y12 = df2[columns[12]].values.tolist()

y = np.vstack([y0, y1, y2, y3, y4, y5, y6, y7, y8, y9, y10, y11, y12])

# Plot for each column
labs = columns.values.tolist()
ax = plt.gca()
ax.stackplot(x, y, labels=labs, alpha=0.8)

# Create title
ax.set_title('Total Expenditure by year by category', fontsize=16)
plt.xlabel('Year')
plt.ylabel('Total Expenditure')

# Show legend
ax.legend(fontsize=10, ncol=1, loc = 'upper left')
plt.xticks(x[::5], fontsize=10, horizontalalignment='center')

# Lighten borders
plt.gca().spines["top"].set_alpha(0)
plt.gca().spines["bottom"].set_alpha(.3)
plt.gca().spines["right"].set_alpha(0)
plt.gca().spines["left"].set_alpha(.3)

# Output graph
plt.show()
```



R Plots

In [1]:
```
# Import required packages
library('magrittr')
library("ggplot2")
library("dplyr")
```

```
Registered S3 methods overwritten by 'ggplot2':
  method         from
  [.quosures     rlang
  c.quosures     rlang
  print.quosures rlang

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
```

In [2]:
```
file = paste(getwd(), '/expenditures.txt', sep = '')
df1 = read.table(file, header = TRUE, sep = '\t', dec = '.', fill = TRUE)
```

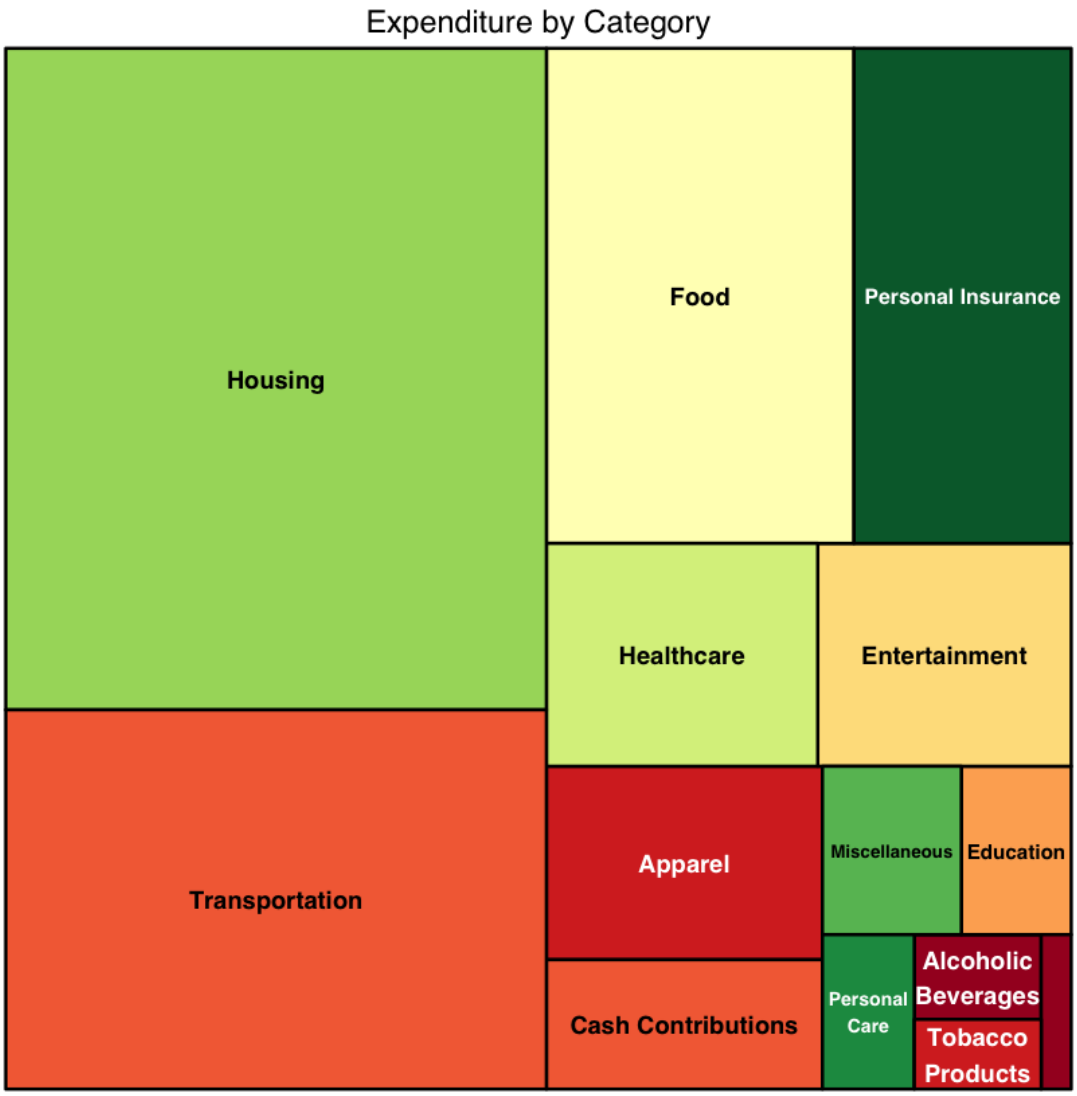
In [3]:
```
df = read.csv("unemployement-rate-1948-2010.csv", sep=',', stringsAsFactors = FALSE) %>%
    dplyr::mutate(Value = as.numeric(Value)) %>%
    as.data.frame()
```

In [4]:
```
print(head(df))
```

```
    Series.id Year Period Value
1 LNS14000000 1948    M01   3.4
2 LNS14000000 1948    M02   3.8
3 LNS14000000 1948    M03   4.0
4 LNS14000000 1948    M04   3.9
5 LNS14000000 1948    M05   3.5
6 LNS14000000 1948    M06   3.6
```

R: Tree Map

In [5]:
```
treemap::treemap(df1,index = c('category'),
                 vSize = 'expenditure',
                 title = 'Expenditure by Category',
                 palette = 'RdYlGn')
```

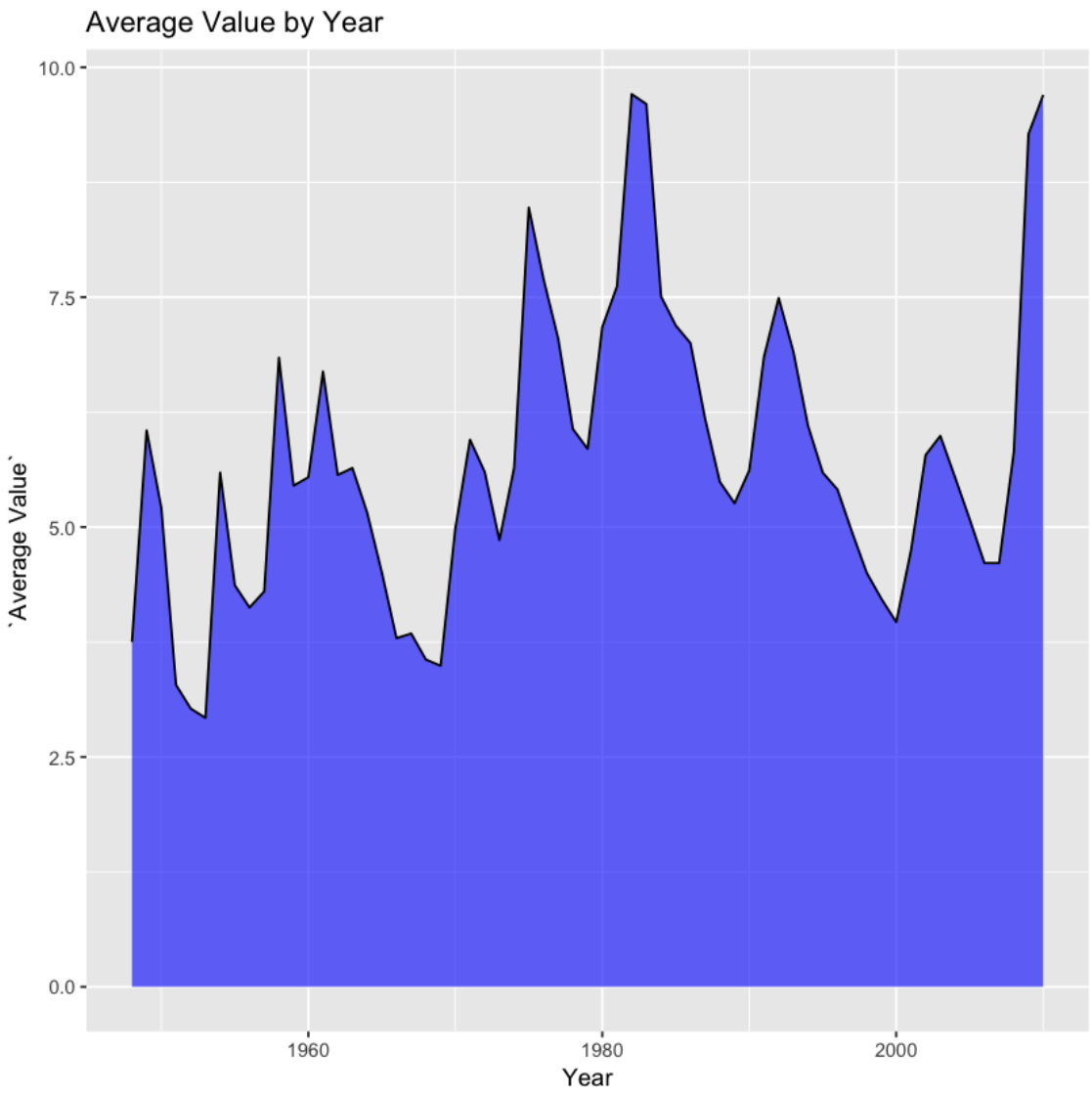


R: Area Plot

In [6]:
```
avg_unemployement = df %>%
    dplyr::group_by(Year) %>%
    dplyr::summarize('Average Value' = mean(Value))

head(avg_unemployement)
```

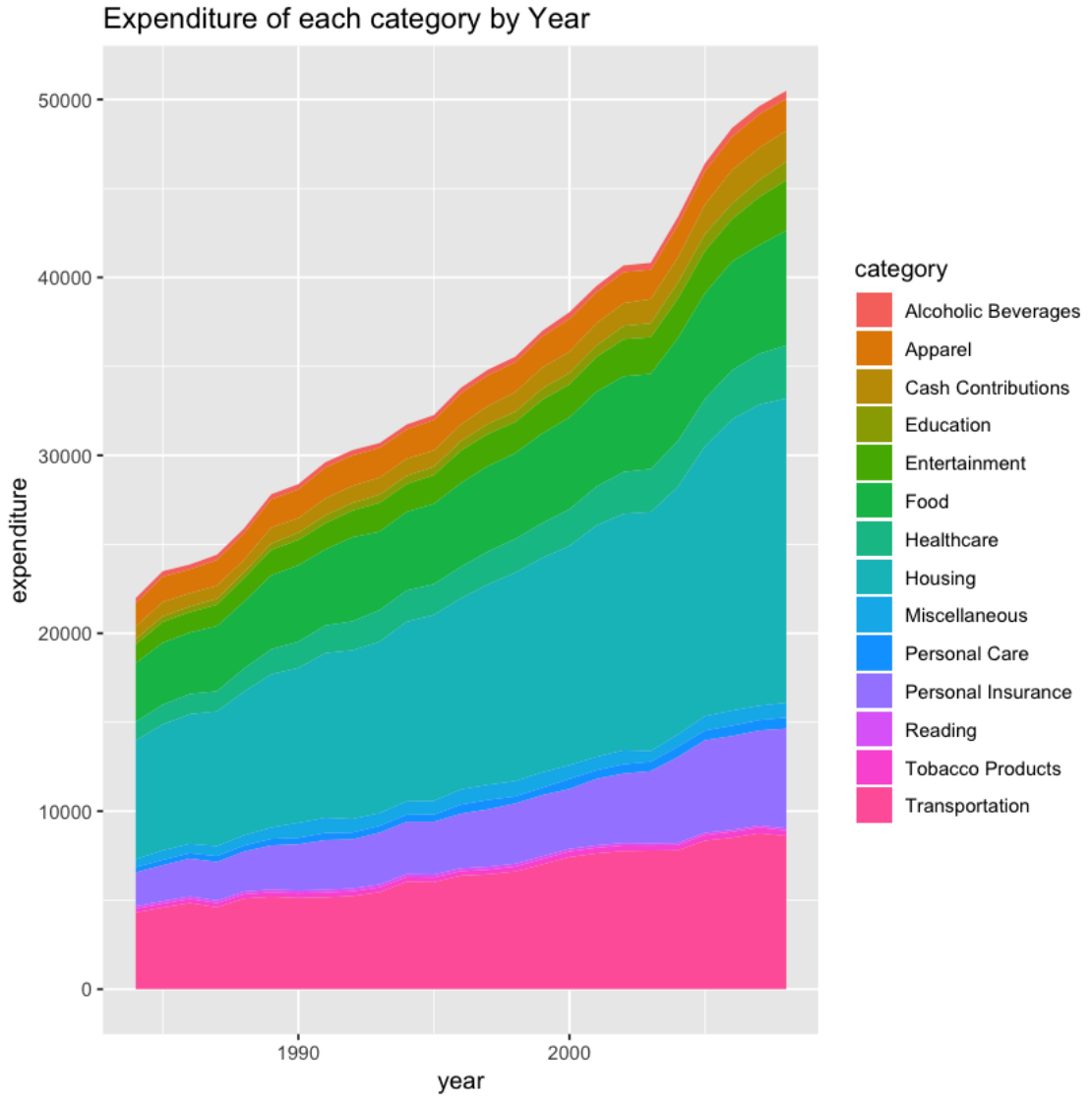
Year	Average Value
1948	3.750000
1949	6.050000
1950	5.208333
1951	3.283333
1952	3.025000
1953	2.925000

In [7]:
```
ggplot2::ggplot(avg_unemployement, ggplot2::aes(x=Year , y=`Average Value`)) +
ggplot2::geom_area( fill='blue', alpha=.6) +
ggplot2::geom_line() +
ggplot2::ggtitle('Average Value by Year')
```



R: Stacked Area Plot

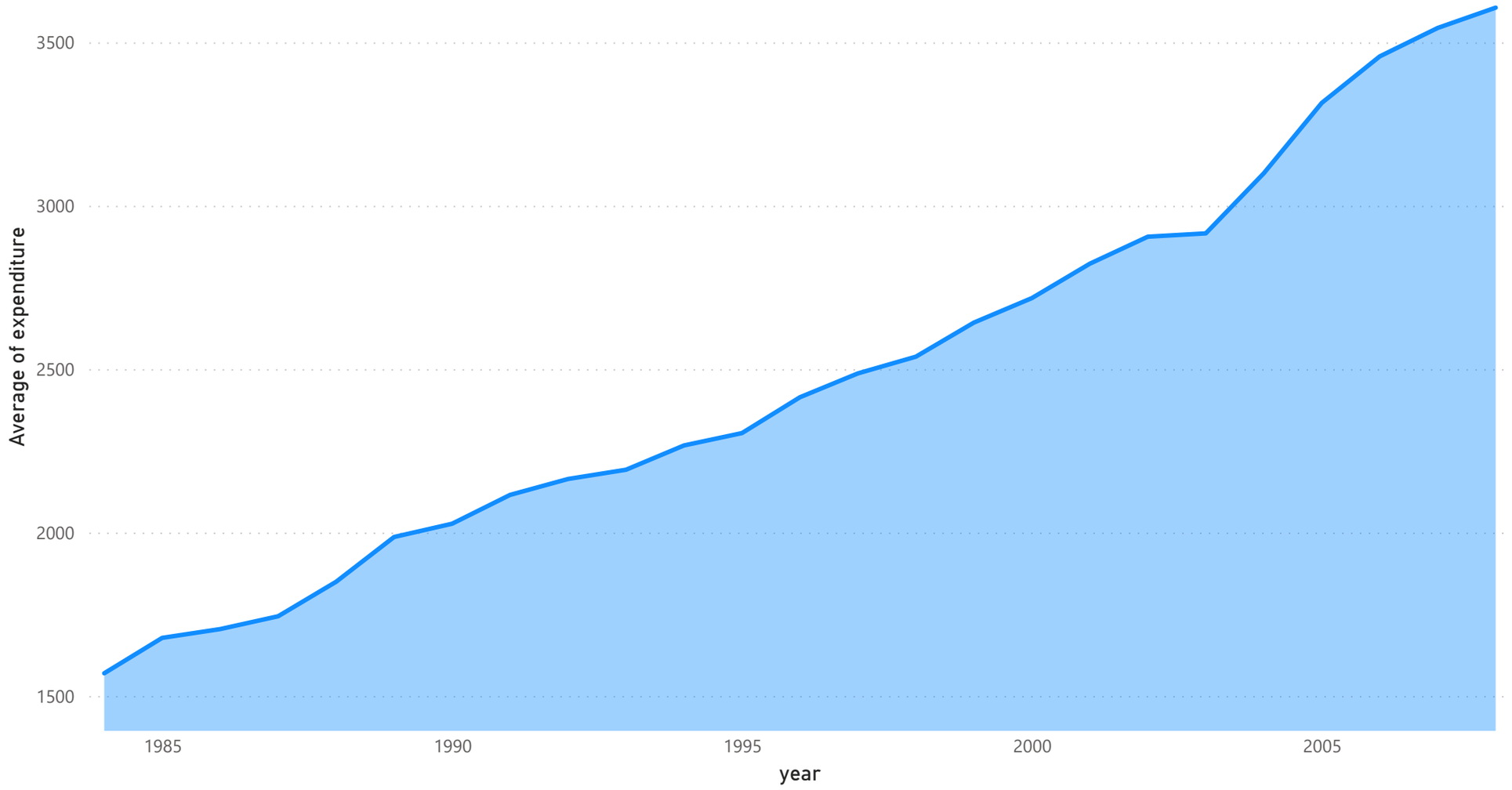
In [8]:
```
ggplot2::ggplot(df1, ggplot2::aes(x=year, y=expenditure, fill=category)) + ggplot2::geom_area() + ggplot2::ggtitle('Ex
```



In [ ]:

PowerBI-TreeMap

PowerBI - Area chart



PowerBI - StackedAreaPlot