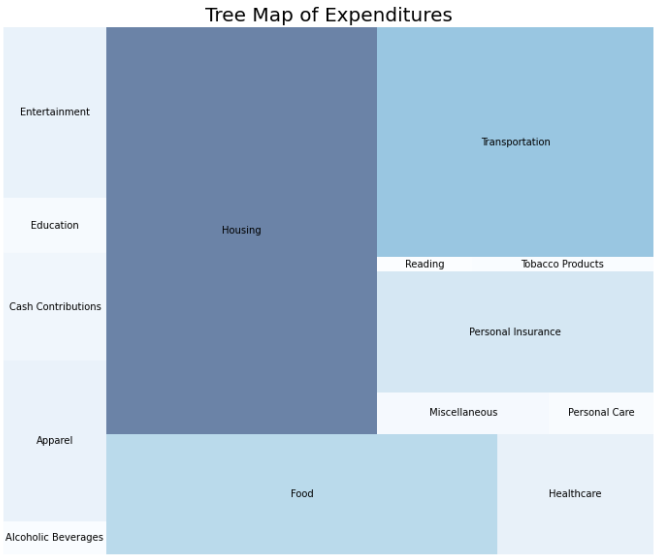
Python:

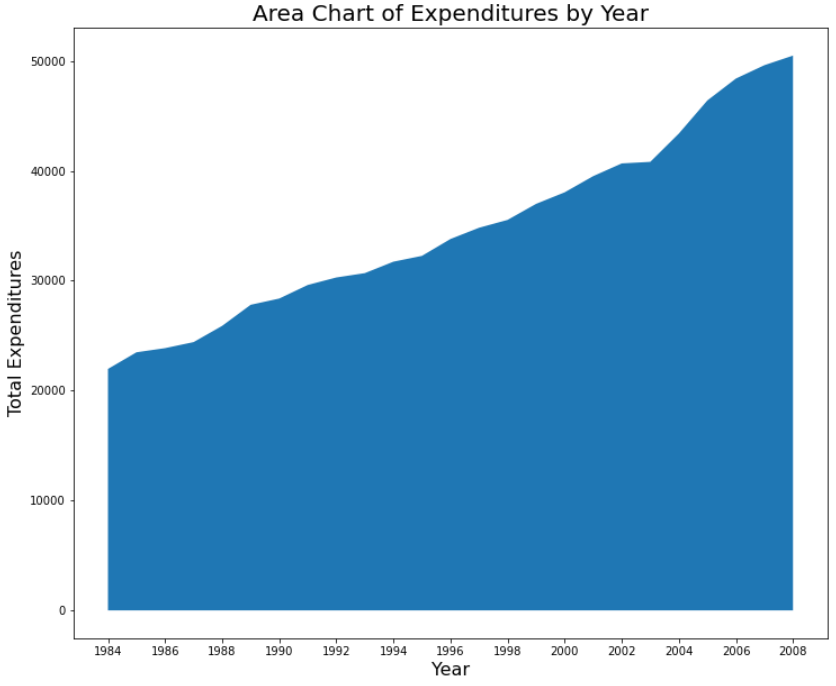
```
norm = matplotlib.colors.Normalize(vmin=min(grouped.expenditure), vmax=max(grouped.expenditure))
colors = [matplotlib.cm.Blues(norm(value)) for value in grouped.expenditure]

plt.figure(figsize=(12,10))
squarify.plot(sizes=grouped.expenditure, label=grouped.index, color=colors, alpha=0.6)
plt.title('Tree Map of Expenditures', fontsize=20)
plt.axis('off')
plt.show()
```



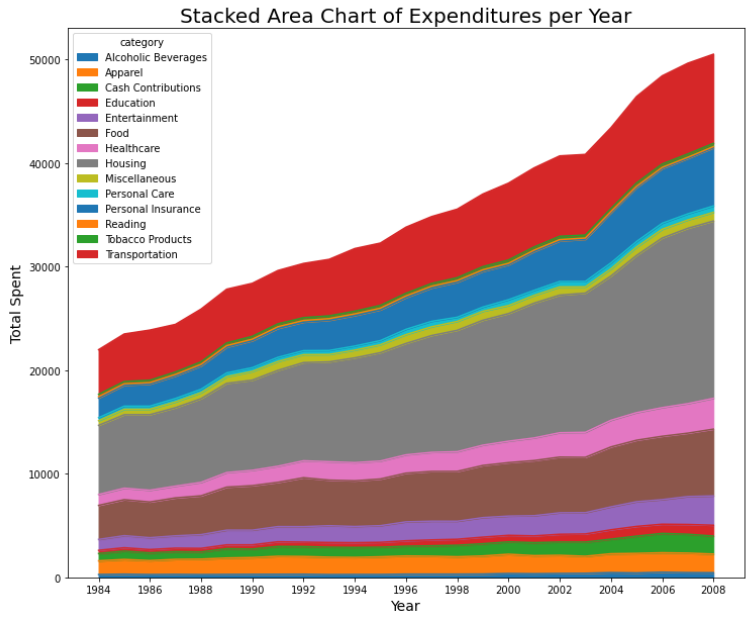

```
x=groupyear.index
y=groupyear.expenditure

plt.figure(figsize=(12,10))
plt.fill_between(x,y)
plt.title('Area Chart of Expenditures by Year', fontsize=20)
plt.xlabel('Year', fontsize=16), plt.ylabel('Total Expenditures', fontsize=16)
plt.xticks(np.arange(1984,2010, step=2))
plt.show()
```



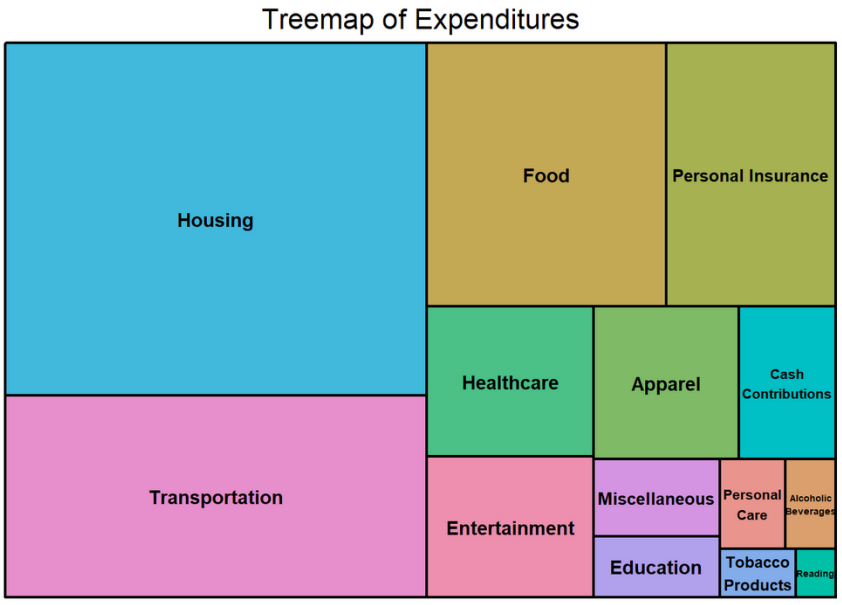
```
unstacked = df2.groupby(['year', 'category']).sum().unstack()
```

```
unstacked.plot(kind='area',y='expenditure', stacked = True, figsize=[12,10])
plt.title('Stacked Area Chart of Expenditures per Year', fontsize=20)
plt.xlabel('Year', fontsize=14), plt.ylabel('Total Spent', fontsize=14)
plt.xticks(np.arange(1984,2010, step=2))
plt.show()
```



R:

```
tree <- treemap(expenditures, index="category", vSize="expenditure", type="index", title="Treemap of Expenditure
s", fontsize.title=16)
```



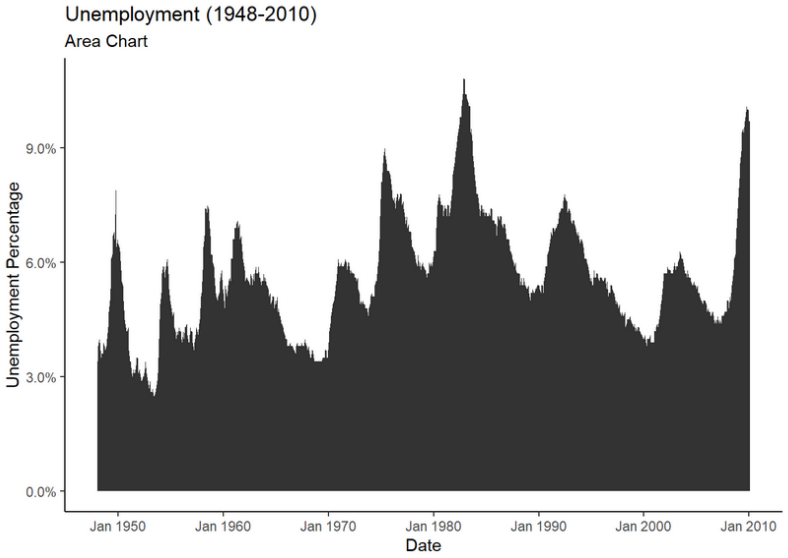
```
unemployment$Period<-gsub("M","",as.character(unemployment$Period))

unemployment$Period <- as.integer(unemployment$Period)

unemployment$Date <- as.yearmon(paste(unemployment$Year, unemployment$Period), "%Y %m")

unemployment$Value <- unemployment$Value / 100
```

```
ggplot(unemployment, aes(Date, Value)) + geom_area()+ labs(title="Unemployment (1948-2010)", subtitle="Area Char
t") + xlab("Date") + ylab("Unemployment Percentage") + scale_y_continuous(labels = scales::percent) + theme_classi
c()
```




```
ggplot(expenditures, aes(x=year, y=expenditure, fill=category)) + geom_area() + labs(title="Expenditures by Year
(1984-2008)", subtitle="Stacked Area Chart") + xlab("Year") + ylab("Total Expenditure") + scale_x_continuous(break
s=seq(1984,2008, 2)) + theme_classic()
```

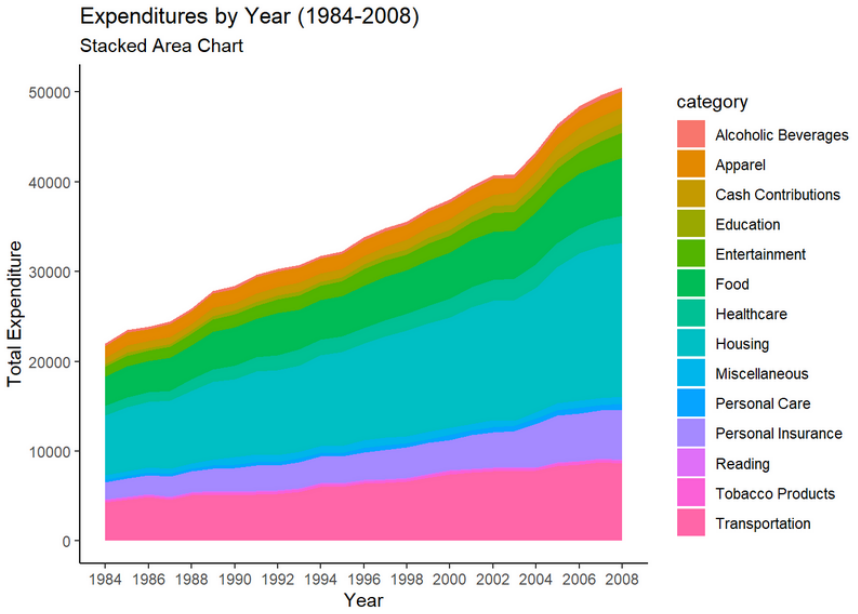
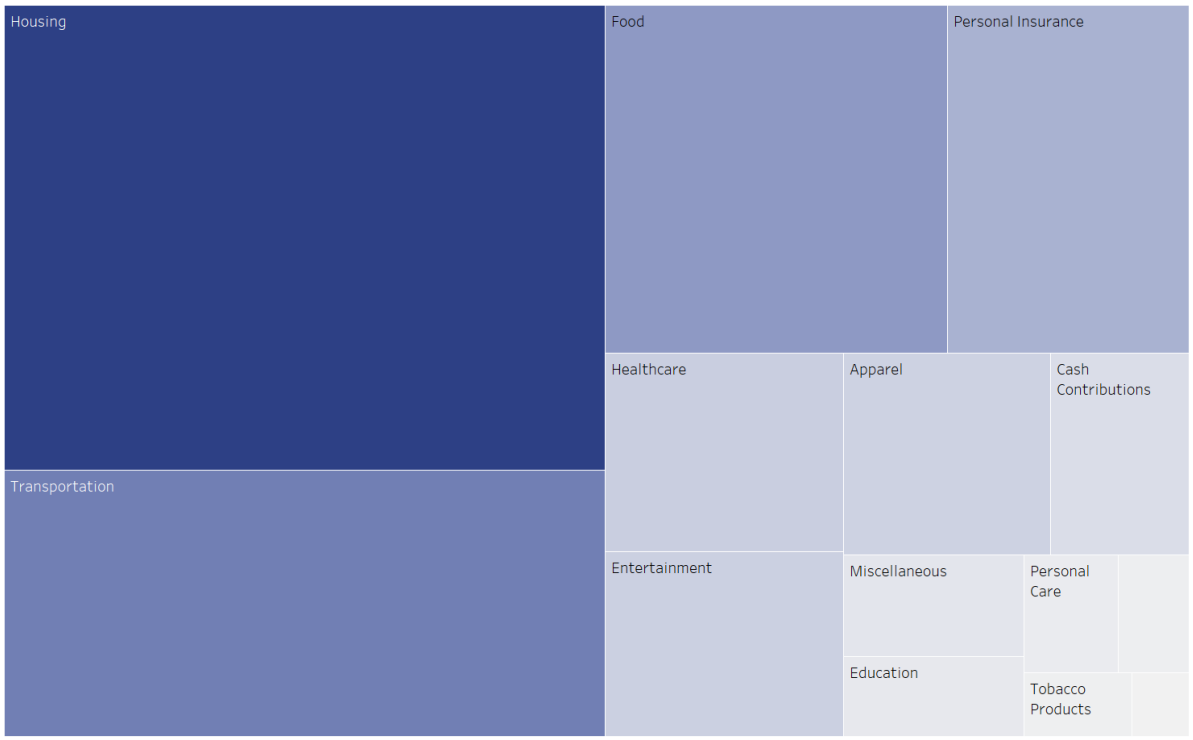


Tableau:

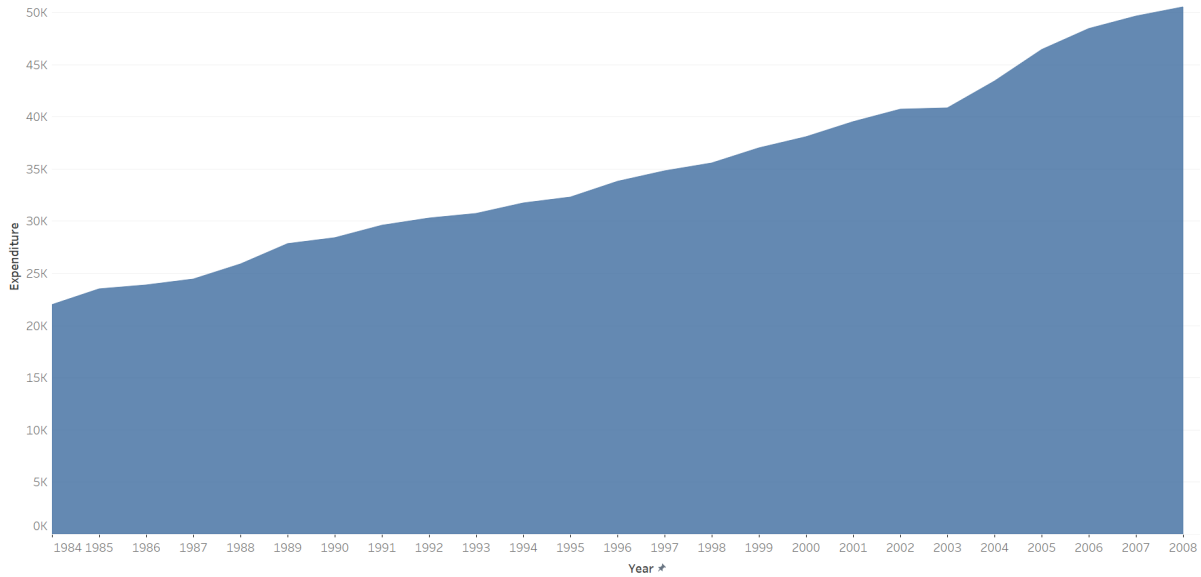
Total Expenditures

Tree Map



Expenditures by Year (1984-2008)

Area Chart



Expenditures by Year (1984-2008)

Stacked Area Chart