**Title:** Economic Analysis Economic Disparities Among the U.S. States in 2023：

An Analysis of Regional Data from the Bureau of Economic Analysis

**Group Members**: Ruisi Ma and Gloria Zhou

**Data Source:** Data acquired through the BEA API and the bea.R package, with focus on tables of SAINC30 (Economic Profile), SAGDP1 (GDP by State Summary), and SAPCE2 (PCE by Major Types of Product) in the Regional Dataset. We extract and calculated the variables we feel interested and necessary and merged them into a new dataset with 50 rows and 22 columns. Each row represents a state, and each column represents a different economic indicator.

**Research Questions**

1. How do the U.S. States differ in employment density/GDP/PCE/GOS/income?
2. How do these indicators of economic disparities correlate with each other?
3. How does geographical proximity associate with economic disparities?

**Key Indicators:** *PerCap personal Income, PerCap Real GDP, PerCap Gross operating surplus, PerCap Personal consumption expenditures, Employment Per thousand.*

**Description:**

This study aims to explore regional economic disparities among the U.S. states. To illustrate the geographic distribution of five key economic indicators, we used geographic boundaries data form usmap. package with our merged dataset. Also, to explore how employment density is related to income and how GDP will influence PCE, we did simple linear regression between income and employment, GDP and PCE. In addition, to investigate how income disparities reflect broader economic inequality across states, we did multiple linear regression (MLR) using income as the outcome variable, other key indicators as predictors. Moreover, we used the three variables that are significant in the MLR model and income variable to do hierarchical clustering. Finally, we used the six clusters found in the dendrogram to plot a map of clustered 50 states. It enables us to understand the economic disparities across states on a more comprehensive scale and find out the relation between Geographical proximity and economic disparity.