Assignment 2

Data visualization for economics

Due date: November 3, 2025

Datasets

Use the following data sources for this assignment:

- **OECD Tax Revenue Statistics**. This dataset includes tax revenue as a percentage of GDP, broken down by tax types (e.g., income, corporate, VAT) for OECD countries.

- **IMF Government Finance Statistics (GFS)** for broader international comparisons, including corporate and income tax data.

- **EUROSTAT Database** for tax revenue and GDP growth data on European countries, enabling a detailed view of regional trends.

Instructions

Task 1: Visualization Creation (30%)
Create the following three visualizations using the OECD dataset:

 a) **Tax Revenue Composition Across Selected Countries:** Create a graph showing the composition of tax revenue (e.g., income, corporate, VAT, property tax) across OECD countries for a given year. Justify your choice of graph.

 b) **Trend in Average Corporate Tax Revenue:** Create a graph showing the evolution in average corporate tax revenue of OECD countries as a percentage of GDP over time. Justify your choice of graph.

 c) **Relationship Between GDP Growth and Tax Revenue:** Explore the relationship between GDP growth and total tax revenue as a percentage of GDP across OECD countries over a period of your choice. Justify your choice of graph.

Each visualization should include a descriptive title, labels, and an appropriate legend. Pay careful attention to color choices, axis scaling, and layout to improve readability and impact.

Task 2: Refining Visualizations (15%)
After creating each visualization, refine your work by addressing the following questions for each chart:

i) **Label Readability and Orientation:** Are x-axis labels readable? Adjust orientation, size, or placement to avoid overlapping.

ii) **Color Choice and Clarity:** Adjust color choices to enhance clarity without overwhelming the viewer. Pay attention to the color palette you use.

iii) **Annotations and Key Points:** Are there notable peaks, troughs, or anomalies? Add annotations to highlight these.

Task 3: Comparative Analysis (30%)
The idea of this task is to compare the OECD-based charts to their counterparts from the IMF or EUROSTAT data. Answer the following:

a) **Tax Revenue Composition Across Selected Countries:** Restrict the OECD graph created previously to five selected countries. Then, replicate this graph using the IMF GFS data, using the same five countries. Do the graphs differ?

b) **Trend in Average Corporate Tax Revenue:** Compare the OECD graph to a graph showing the evolution of corporate tax revenue as a percentage of GDP over time in the world using IMF Government Finance Statistics (GFS). Comment the results.

c) **Relationship Between GDP Growth and Tax Revenue:** Using EUROSTAT data, replicate the OECD graph for European countries. Comment the results.

Task 4: Exploring Different Narratives (25%)
For this last task, use the data from the OECD tax revenue statistics.

a) Create **two different visualizations** of the same dataset, each telling a contradictory story.

b) Write a brief explanation (100–150 words) of the narrative each visualization tells. Describe how your design choices (e.g., chart type, color, data aggregation) contribute to the distinct story each visualization presents.

Submission Guidelines

The assignment should be done using RMarkdown and the final output should be a pdf file. The answers should show the R code used to produce the results as well as the results themselves.