The Data

Source

The dataset used for these visualizations is provided by The World Bank, which is an organization that provides a wide array of financial products, technical assistance, and innovative solutions to the challenges they face. The company used the data to create World Development Report 2021, which can be found at - https://wdr2021.worldbank.org/ .

Potential Bias

Potential biases in the Employment database can include -

- Measurement biases: The indicators in the database are based on official national sources, which may use different methodologies and definitions for measuring employment and unemployment. This can lead to differences in the data across countries.

- Data quality biases: The data quality depends on the national sources' accuracy and completeness. In some countries, the data may be affected by under-reporting, particularly for informal employment or self-employment.

- Reporting biases: The data in the database is reported by national statistical agencies, which may have different reporting practices and political incentives that can influence the data.

About the dataset

The OECD Employment database provides a collection of comparable statistics on employment and unemployment for the 34 OECD member countries. The database covers a wide range of indicators, including employment rate, unemployment rate, labor force participation rate, job creation and destruction, and many more. The data is updated regularly and is based on official national sources. The database provides the ability to compare employment and unemployment indicators across countries and over time, making it a valuable resource for economists, policymakers, and researchers. The data is available for download in various formats, including Excel, CSV, and SDMX.

Variables

- Country - Country of the data

- Sex - Gender groups used to bundle the data
- Age group - Continuous intervals of age groups
- Series - Subcategory of the data like employment or unemployment
- Time - Year of the data
- Unit - Unit of data value i.e. thousands
- Value - The number of people in the category

Calculated columns

- Employment Rate - Employed * 100 / (Employed + Unemployed)

The Audience

Women Empowerment Organizations

Many organizations in the United States focus on empowering women. Some examples include the National Organization for Women (NOW), which promotes equality and women's rights through advocacy and education. The National Women's Business Council (NWBC) is another organization that promotes women-owned businesses' growth. Additionally, many local organizations and grassroots efforts work to empower women in their communities through mentorship, education, and advocacy.

Questions -

- How is the employment rate trending for different age groups of women in the USA over the years?
- Are women returning to work more today after starting a family, which has been the major challenge so far?

World Development Enthusiasts

World development enthusiasts are individuals and organizations that are passionate about making a positive impact on the lives of people around the world. They are committed to sustainable and equitable development, including improving access to education, healthcare, and economic opportunities. They also focus on issues such as poverty reduction, gender equality, and environmental sustainability.

Questions -

- How has the number of women employed changed worldwide over the years?

- Has the percentage of female employees changed over time with the expected increase in absolute numbers?

Gender Equality Champions

Gender equality champions are individuals and organizations who actively promote and advocate for the rights of all genders to be treated with dignity and respect, with the same opportunities and outcomes. They work to end discrimination and violence against women and girls and promote equal political, economic, and social participation. Some examples of organizations that work towards gender equality globally are UN Women, Amnesty International, and the International Women's Rights Action Watch Asia Pacific.

Questions -

- How does the employment rate of women compare with men's in different parts of the world?
- How does the US compares with the rest of the world in terms of gender equality, & employability for women?

The Ethics

Representation: How data is presented can greatly impact how people understand it. It is important to avoid using stereotypes or making generalizations about groups of people, including women. The visualizations should present a balanced and fair representation of women's employment without perpetuating gender biases.

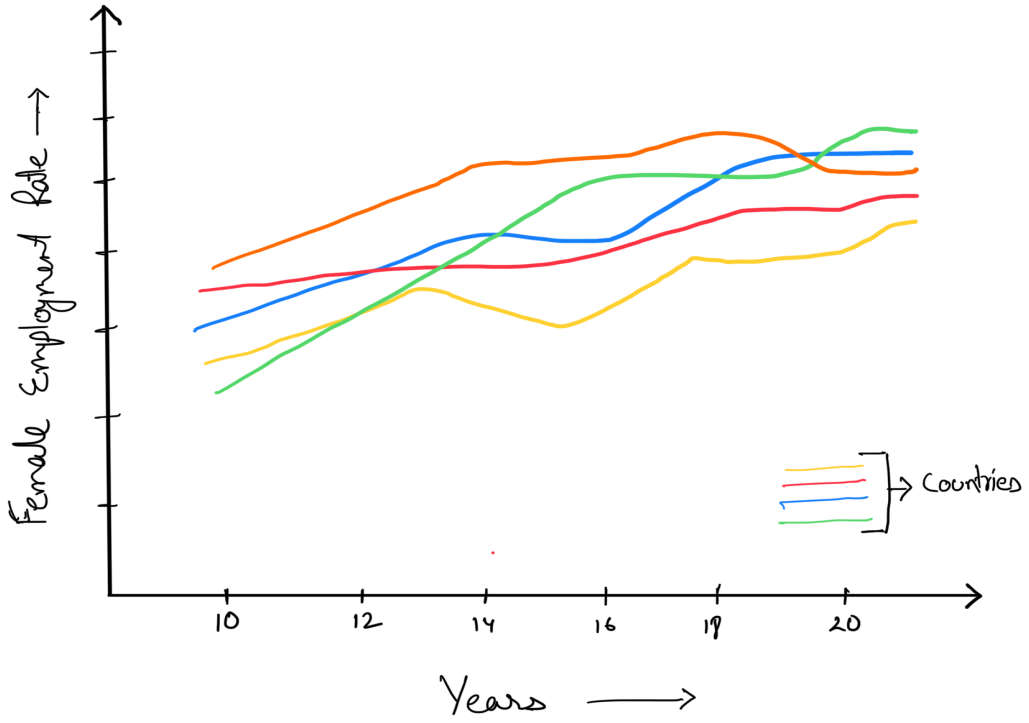
Context: It's crucial to provide enough context to help understand the data being presented. This can include information about the data source, time period, and any relevant limitations or cautions. Avoid drawing incorrect conclusions from the data, as this could perpetuate incorrect beliefs about women's employment.

Accuracy: The data used for visualization should be accurate and representative of all aspects of women's employment. This includes ensuring that the data includes a diverse representation of women from different backgrounds, industries, and positions.

Iterations

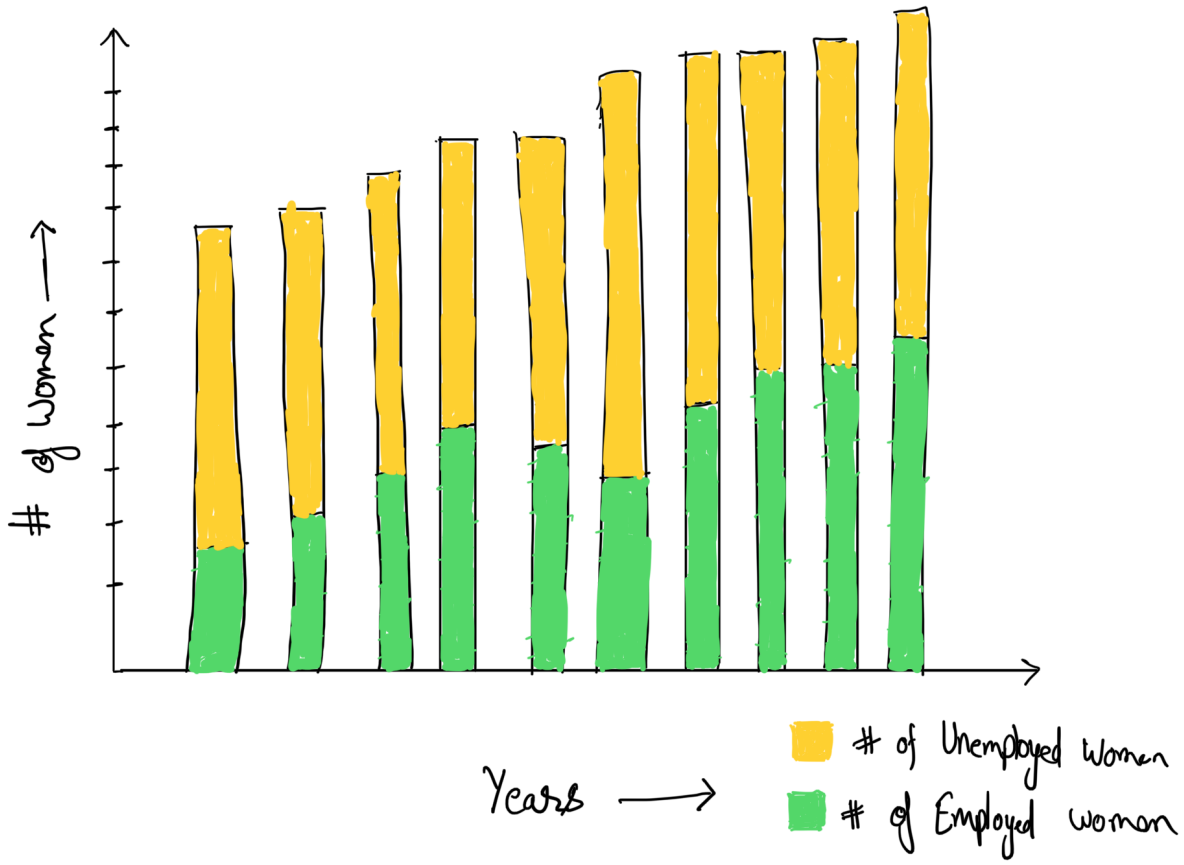
Sketch 1 - Line Graph

This line graph shows the changing female employment rate of different countries over the last decade. The data set contains employment and unemployment data from 39 countries between 2010 to 2021. The data is further broken down by gender, female, male, and overall. For this graph, I used the data on female employment and plotted the calculated employment rate to see the changing trends worldwide. Females of all age groups are considered for this visualization. Different color lines represent data for different counties. The x-ais represent the years while the y-axis shows the employment rate.



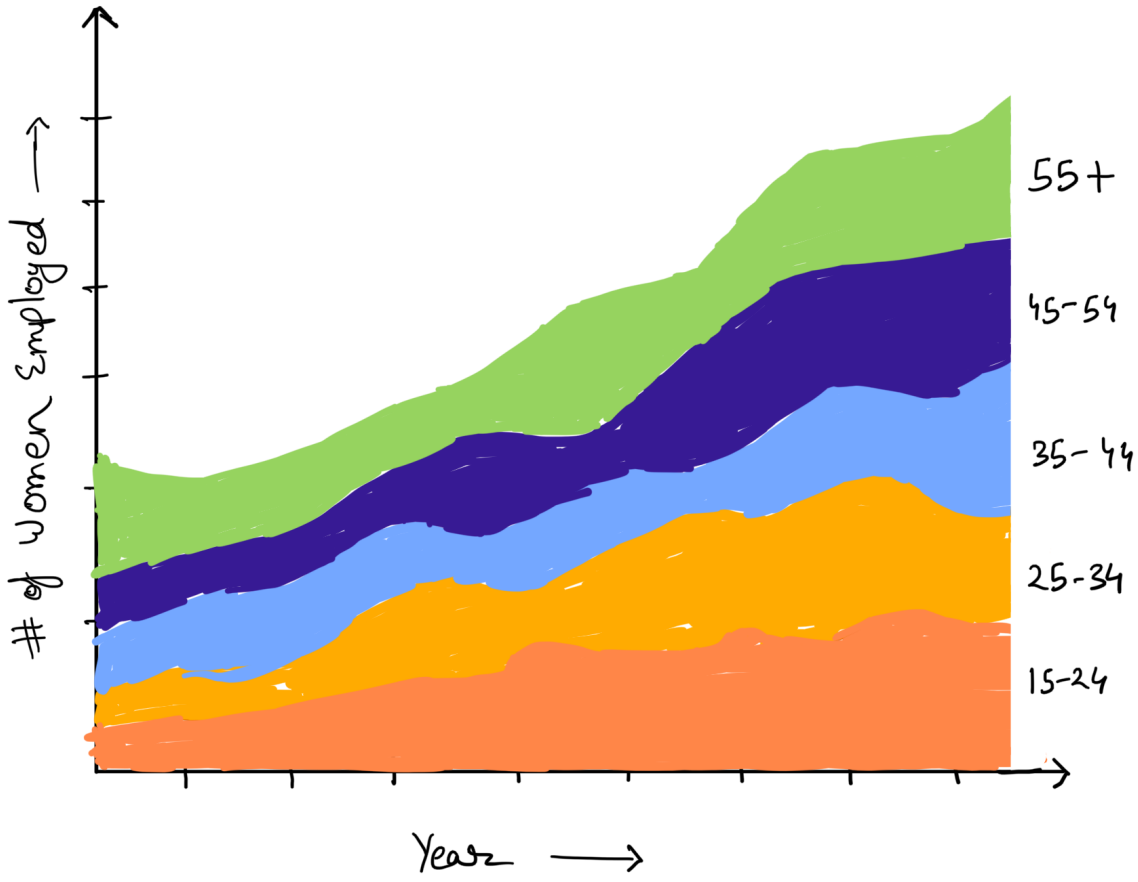
Sketch 2 - Stacked Bar Chart

The stacked bar chart visualization shows how the numbers of employed and unemployed women in the US have changed over time. The visualization gives an idea of increasing numbers of employed women with the increase in population. The x-axis of the graph shows years and the y-axis represents the number of women. The green part of the bars represents the number of employed women and the yellow part represents unemployed women.



Sketch 3 - Stacked Area Chart

This visualization shows how the number of employed women in different age groups have changed over time. This graph only shows data on women in the USA. The stacked area chart only shows the employment data and does not cover unemployment and total population data points. This char is useful in answering questions like which age group is seeing the highest increase in female employment over the years. The x-axis of the graph represents years while the y-axis represents the number of females. The different colored layers represent the different age groups in ascending order.



The Visualization

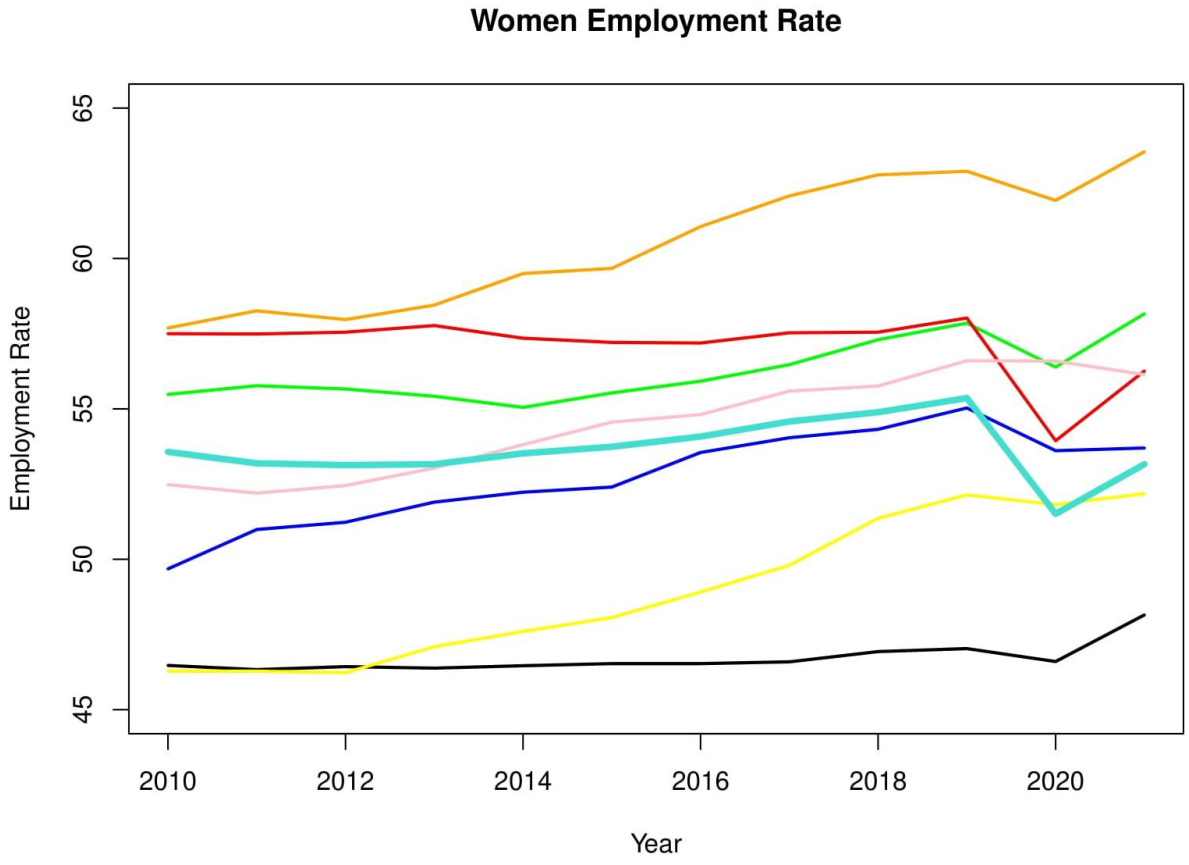
I chose to make the visualization based on iteration #1 because I wanted to show how the employment rate of women has changed over time in the USA. The graph also shows how it trends for other major countries worldwide over the last decade. The data set contains employment, unemployment, and population data from 39 countries between 2010 to 2021. Females of all age groups are considered for this visualization. Different color lines represent data for different counties. The x-ais represents the years while the y-axis shows the employment rate. The different color lines represent the employment rates of different countries. The data is clearly answering the questions of all three audience groups.

United States
NZ - New Zealand

AU - Australia
UK - United Kingdom
JP - Japan
FR - France

Using R

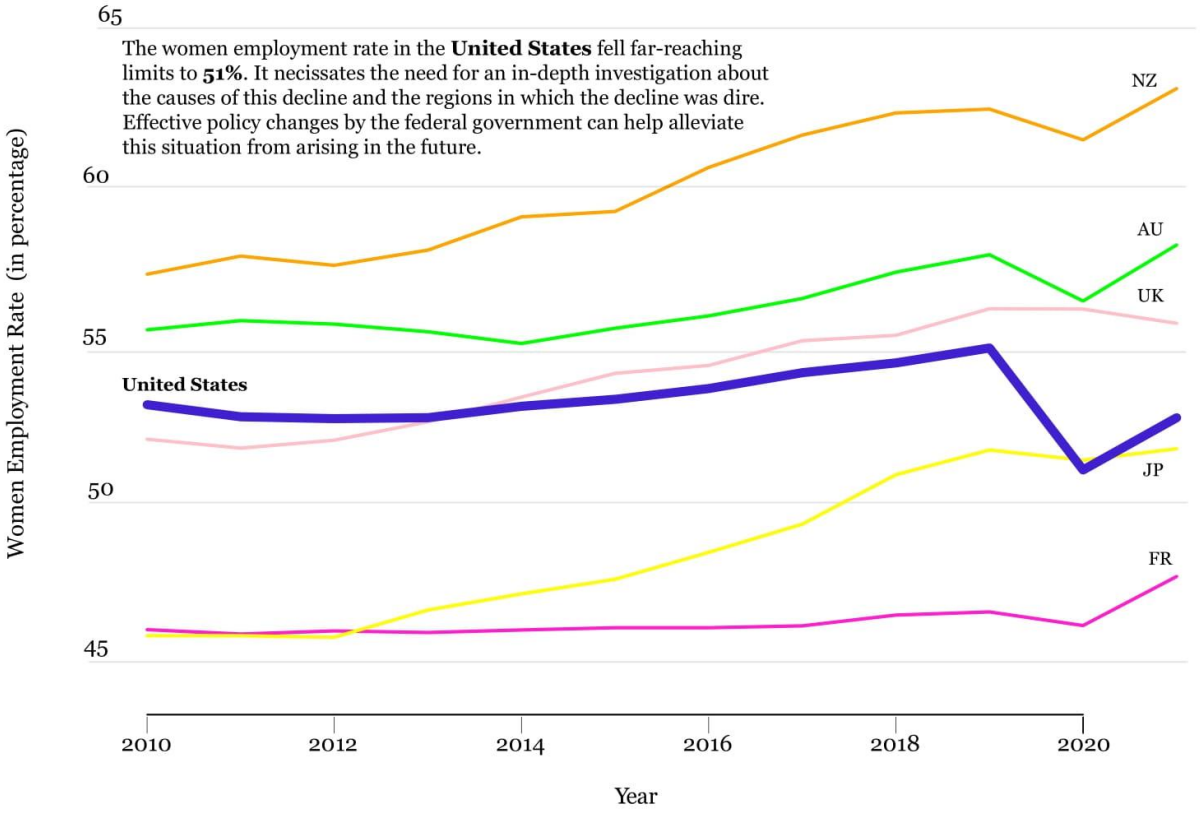
- Cleaned the data and calculated new field employment rate
  Employment Rate (Females) = Employed * 100 / (Employed + Unemployed)
- Plotted line graph for different countries with different colors
- Added the title, axis labels, and markings



Adobe Illustrator

- Remvoed margins from the visualization and added grid lines
- Updated title and axis labels. Changes the font of everything
- Added the writeup to convey the important information

Variation in Women Employment Rate from 2010-2020



The Code

```
rawdata <- read.csv("/Users/divyanshchouhan/Documents/DC R files/561/Employment - data world.csv")

# data cleaning
-----------------
rawdata <- rawdata [ , !names(rawdata) %in% c("PowerCode.Code", "PowerCode", "COUNTRY",
                                              "SEX","AGE","SERIES","FREQUENCY","TIME",
                                             "Unit.Code","Unit","Reference Period Code",
                                             "Frequency","Reference Period","Flag Codes",
                                             "Flags","Reference.Period.Code","Reference.Period",
                                             "Flag.Codes")]

# data filtering

  countries <- c("Australia", "Canada", "France", "Germany",
                 "Japan", "Unoted States", "United Kingdom", "New Zealand")
  Sex_filter = c("Women")
  Series_filter = c("Employment","Population")
  Age_filter = c("Total")

  df_filter = subset(rawdata, Country %in% countries)
  df_filter = subset(df_filter, Sex %in% Sex_filter)
  df_filter = subset(df_filter, Series %in% Series_filter)
  df_filter = subset(df_filter, Age %in% Age_filter)
```

```
#plotting

plot(employment_rate$Time, employment_rate$Australia, type="l", col="green",
     lwd=2, xlab="Year", ylab="Employment Rate", ylim = c(45.0,65.0), main="Women Employment Rate")
lines(employment_rate$Time, employment_rate$Canada, col="red", lwd=2)
lines(employment_rate$Time, employment_rate$France, col="black", lwd=2)
lines(employment_rate$Time, employment_rate$Germany, col="blue", lwd=2)
lines(employment_rate$Time, employment_rate$Japan, col="yellow", lwd=2)
lines(employment_rate$Time, employment_rate$New.Zealand, col="orange", lwd=2)
lines(employment_rate$Time, employment_rate$United.Kingdom, col="pink", lwd=2)
lines(employment_rate$Time, employment_rate$United.States, col="turquoise", lwd=4)
legend(8,1,c("Australia","Canada", "France", "Germany", "Japan", "New Zealand",
             "United Kingdom", "United States"),
       col=c("green","red", "black", "blue", "yellow", "orange", "pink", "turquoise"), y.intersp=1.5)
```