BREAKDOWN REPORT

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1 Introduction -

This breakdown report majorly focuses on the analysis of a dataset that includes information on unemployment rates, minimum wages, and presidential election results in different counties over time. We have tried to explain that these economic indicators can help to understand trends in the market and the impact of political events on the economy. By linking the datasets together using postal codes, the authors perform more nuanced analyses of economic trends across different regions of the country.

2 Dataset :

2.1 Minimum wage :

It is important to note that finding the minimum wage dataset was not a straightforward task, and I had to invest considerable time and effort in searching for it on various platforms, also had to conduct web scraping from the U.S. Department of Labor, Wage and Hour Division website to obtain the minimum wage dataset. . After finding the datasets, I conducted several group meetings and discussions to agree on the specific topic and this particular dataset to be used for the analysis. I, after discussion with the team, had to go through multiple datasets to find one that was relevant to the research question and provided comprehensive information on minimum wages across different states and counties in the United States.

After careful consideration and evaluation, I finally selected this dataset from, The U.S. Department of Labor, Wage and Hour Division website to obtain the minimum wage dataset which contained parameters such as years, state-wise minimum wage, state-wise minimum wage in the year 2020, federal minimum wage, and effective minimum wage.

Dataset Description : The U.S. Department of Labor's Wage and Hour Division offers historical data on minimum pay rates for each state and territory in the union. This dataset includes both the state minimum salaries and the federal minimum wages for various years. The information includes the associated wage rates as well as the dates on which the minimum wage was changed. To reflect changes in minimum wage rates within the nation, the dataset is updated frequently.

Year	State	State.Minimum.Wage	State.Minimum.Wage.2020.Dollars	Federal.Minimum.Wage	Federal.Minimum.Wage.2020.Dollars	Effective.Minimum.Wage
1968	Alabama	0.00000	0.00	1.15	8.55	1.15
1968	Alaska	2.10000	15.61	1.15	8.55	2.10
1968	Arizona	0.46800	3.48	1.15	8.55	1.15
1968	Arkansas	0.15625	1.16	1.15	8.55	1.15
1968	California	1.65000	12.26	1.15	8.55	1.65
...	...	...	...	...	...	...
2020	Virginia	7.25000	7.25	7.25	7.25	7.25

Figure 1: Minimum wage dataset

2.2 Projection :

This dataset was then mapped to the unemployment rate dataset, allowing me to explore the relationship between unemployment rate and minimum wage across different regions of the country.We then tried to explain that these economic indicators can help to understand trends in the market and the impact of political events on the economy. By linking the datasets together using postal codes,we performed more nuanced analyses of economic trends across different regions of the country.

To explore the relationship between unemployment rate and minimum wage, we mapped the minimum wage dataset to the unemployment rate dataset, merged the datasets, and used a function to get the minimum wage of a particular county. We then applied correlation and covariance on some DataFrame to identify the relationship between the two variables.

	Year	Month	State	County	Rate	min_wage
885543	2009	November	Maine	Somerset County	10.5	8.46
885544	2009	November	Maine	Oxford County	10.5	8.46
885545	2009	November	Maine	Knox County	7.5	8.46
885546	2009	November	Maine	Piscataquis County	11.3	8.46
885547	2009	November	Maine	Aroostook County	9.0	8.46

Figure 2: Merged dataset

The analysis revealed a slight positive relationship between unemployment rate and minimum wage, with a strong covariance between the two variables. However, the impact of one on the other is not significant.

	Rate	min_wage
Rate	1.000000	0.153047
min_wage	0.153047	1.000000

Figure 3: Correlation between the unemployment rate and minimum wage

	Rate	min_wage
Rate	9.687873	0.651586
min_wage	0.651586	1.874228

Figure 4: Covariance between the unemployment rate and minimum wage

Moreover, a plot that displays the distribution of a variable along with its density distribution using univariate data analysis was plotted. The horizontal axis represents the range of values for the variable, while the vertical axis shows the density distribution of these values.

The plot provides insights into the shape of the data distribution, such as whether it is symmetrical or skewed, and the location of the central tendency, such as the mean or median. The density distribution provides information on how the values are spread out around the central tendency, with a higher density indicating more values are clustered around that point.

Also, The figure of a count plot shows how the data is diverse.

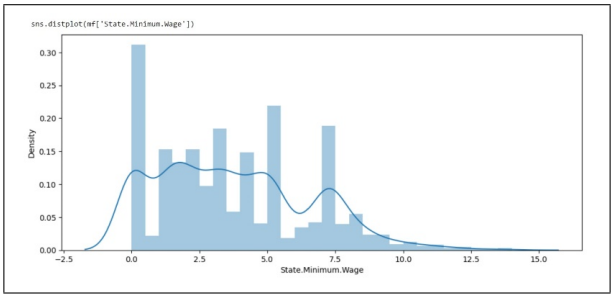

Figure 5: Dist plot of minimum wage.

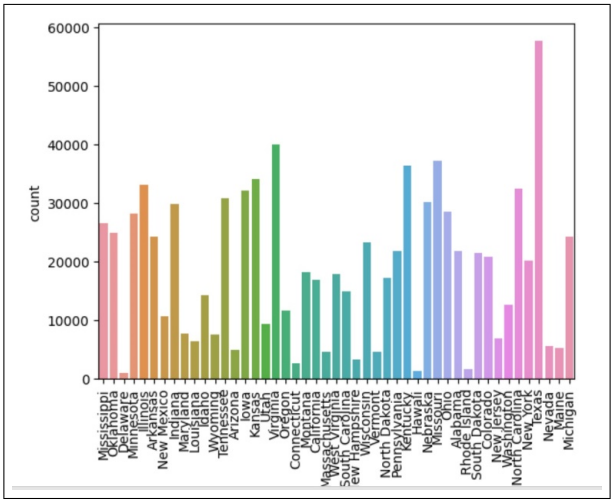

Figure 6: Covariance between the unemployment rate and minimum wage

3 Further Analysis and Conclusion :

Furthermore, the work was passed on to the team mates so that we can further highlight how presidential voting is closely related to unemployment rate and minimum wage, and includes a dataset of the United States presidential voting of the year 2016. This information can help policymakers and analysts to understand the impact of political events on the economy and the relationship between political decisions and economic indicators.