Final Individual Project Report

MGMT 47900

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Background

I chose to analyze the "US Minimum wage by state from 1968 to 2020" dataset as it quite impactful in determining the varying effects of minimum wage elements on prospective job seekers and individuals who are looking to migrate to a different state to earn more. I specifically focused and laid emphasis only on the Midwest states and how the different aspects of minimum wage differ in these specific regions. When it comes to Midwest, my analysis focused on states namely Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota and Wisconsin

Problems for the target audience

In the US, usually the state and federal government select minimum wage that all the workers across the regions receive in order to make sure that all the workers are basically getting a minimum lifestyle quality. These minimum wage figures differ by state. Since, my study focuses more on the Midwest regions.

There are certain problems that I was keener in analyzing into. Firstly, I was curious how these Midwest states are affecting the quality of life of the workers working in these regions. Secondly, the problem that is quite fascinating to work upon is how these minimum wage figures differ by certain years. These can really help the workers have a basic understanding of the wage economics distribution around their areas.

In addition to that prospective job seekers face an adversity in selecting which specific state to work upon to earn more than their current state, so they are more likely to fulfill the minimum criteria to sustain their livelihood especially those who live in the Midwest regions.

Moreover, workers are keen in knowing which specific regions are more susceptible to optimal living conditions. Also, they are interested in knowing which regions are quite low in terms of economic feasibility.

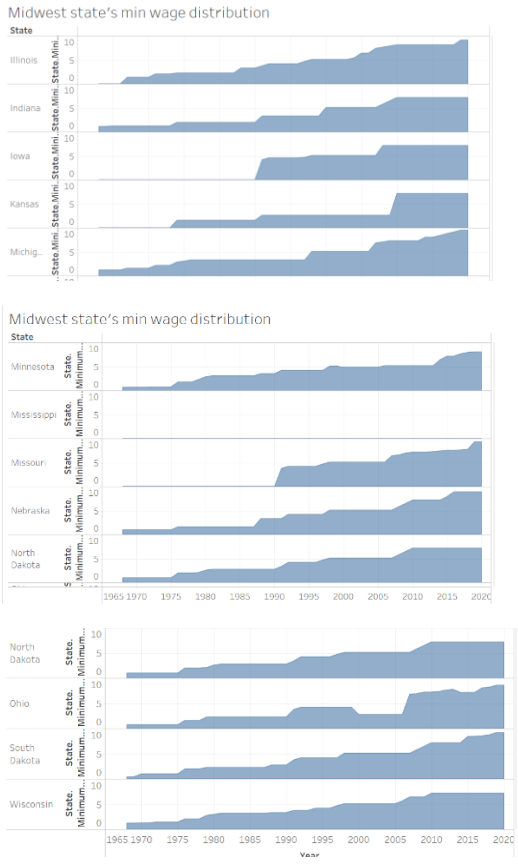
Project Objectives

Considering the dataset chosen "US Minimum wage by state from 1968 to 2020" that consists of US state and federal minimum wages, it was instilled from the United States Department of Labor's table of minimum wage by state. Basically, the dataset is segregated into several values.

My analysis focused specifically on values like State, Year, State.Minimum.Wage, Department.of.Labor.Cleaned.(High/Low)Value.2020.Dollars and Effective Minimum Wage.

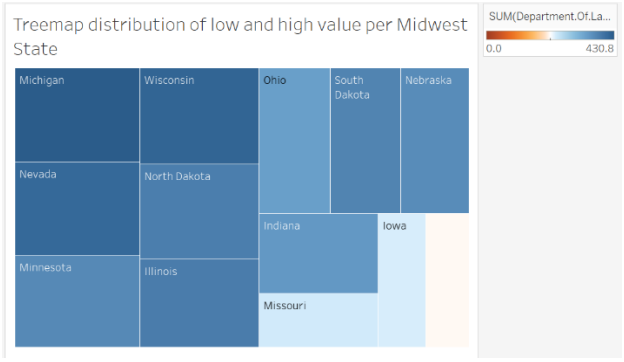
Initially, I started by visualizing the area distribution of state's minimum wage across the Midwest regions and how it varies from 1968 to 2020 to get a better understanding of the trend they are showing throughout the years. Then I tried to visualize the treemap distribution of high and low value of Department of Labor to know which specific states show high and low enforced wage values. After that I began visualizing in stacked bars about the average of effective minimum wages of these states in the latest years of 2018,2019 and 2020 to understand which states had the tendency to enforce federal minimum wage more when their state's minimum wage was lower it is followed by scatter plot distribution high and low values of department of labor to know which of them showed higher and lower trend of these values and finally a map distribution of average effective minimum wage to get a clear picture of variation per Midwest state.

Understanding the visualization

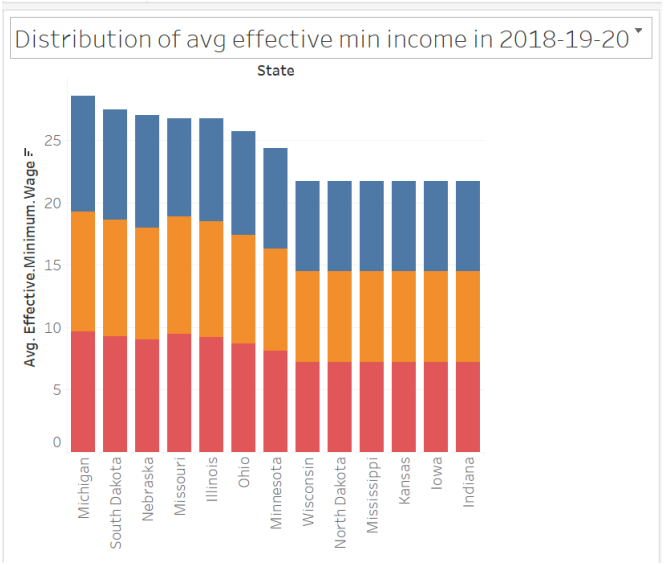


The first visualization depicts the area chart distribution of the sum of state's minimum wage of all the Midwest states from the year 1968 to 2020. The sum of the state's minimum wage is divided into the range from 0 to 5 to 10. The main objective of this visualization is to showcase the change in the sum of state's minimum wage over the provided time range. From this visualization, states like Illinois, Michigan, South Dakota, and Nebraska showed a steady positive change in the distribution of state's minimum wage sum from starting from 1.3 to 9.4 range over the years. While states like Indiana, Iowa, Kansas, Wisconsin and North Dakota peaked only at 7.4. And Ohio and Minnesota peaked at 8.7 and 8.150. This basically show the

bigger that those states that peaked in the range of 9 had more variation in state's minimum wage as compared to other states and more susceptible for job seekers to earn potentially more.

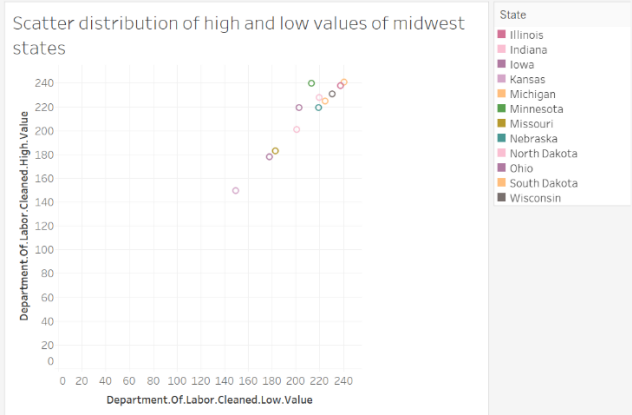


The second visualization focuses more in depth on the tree map distribution of low and high value of state's enforced wage's sum in 2020 dollars and the sum filter lies in the range of 0 to 430.8. It tries to depict an overall hierarchical pattern of these values to show which states have higher (high/low) enforced wage values. From this it observed that states like Michigan (430.8,430.8), Nevada (427.4, 418.8), and Wisconsin (419.5,419.5) showed the highest pattern in values. Secondly these states Minnesota (423.4, 368.5), North Dakota (416.1, 383.4) and Illinois (386, 386) showed somewhat high values. While States like Missouri(236.4,236.4), Iowa(233.2,233.2) and Kansas(211.9,211.9) showed the lowest trend in values. This visualization helps workers understand which states are going to offer them higher enforced wages.

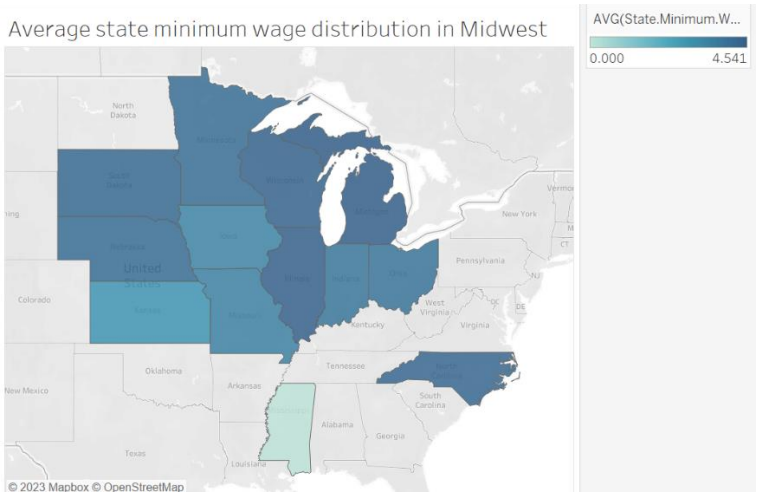


The third visualization showcases the stacked bar distribution of average effective wage only in the latest years of 2018,2019, and 2020. Effective minimum wage basically help workers to be avoid being exploited by employers meaning they are being provided with effective wage needed to maintain their minimum livelihood necessities. The visualization is segregated by average of effective minimum wage on the y axis and the Midwest states on the x axis while the different colors (red, orange and blue) depict the years (2018,2019,2020). From the visualization, it can be seen that Michigan, South Dakota, Nebraska showed the highest stack bar distribution trend for

average effective minimum wage while states like Wisconsin, North Dakota, Mississippi, Kansas, Iowa and Indiana showed lowest in their average of effective minimum wage.



The fourth visualization shows the scatterplot distribution of sum of high and low values of department of labor of the respective Midwest states. The range lies from 0 to 250. The y axis depicts the low values while the x axis depicts the high values, and the different states are being shown by varying colored circles. From this above scatterplot it was observed that states like Michigan (240.65,240.65), Illinois (237.85,237.85), Minnesota (239.81, 213.29) and Wisconsin (230.85, 230.85) show the highest values of sum of high and low values of department of labor. On the other hand, the state that showed the lowest value of sum of high and low values of department of labor was Kansas (149.30,149.30). This clearly shows Kansas is a not an optimal choice for achieving optimal effective minimum as per it's high and low values of department of labor. While Michigan is the optimal state that supports the effective minimum wage.



The fifth visualization is a symbol map that depicts the average state minimum wage's distribution in Midwest. The range of the distribution lies in 0 to 4.6. The concentration of distribution is shown by blue color where color showing more darker version of blue has higher value and color showing lighter version of blue has lower. From the above map, it can observe that Michigan (4.541), Illinois (4.488), and Wisconsin (4.356) have the highest average of state's

minimum wage meaning they have the tendency to pay higher minimum wage has compared to other states. Kansas showed the lowest average and Mississippi acted as an outlier.

The following visualization depicts the box and whisker plot of high value of effective minimum wage by mid west states. It focuses primarily on the higher value that is which states are more consistent in showing higher trend for effective minimum wage. From the above box and whisker plot it can be observed that Michigan, Illinois fall above the plot significantly depicting a quite high value for effective minimum wage. On the other hand, states that fall below the effective minimum wage include Missouri, Iowa and Kansas showing a very low value trend in their effective minimum wage distribution value. Also, the box plot is left skewed pattern.

Useful Insights and Conclusion

There were some important and impactful insights that I observed after performing my visualizations.

Firstly, Michigan showed quite high distribution values in all the above visualizations having high value for area distribution for sum of minimum state wage, higher sum of enforced wage in treemap, higher average of effective minimum wage in stacked bar and higher distribution scatter and symbol map. This implies it is the top Midwest state that offers the highest minimum state wages and can be a good choice for prospective job seekers if they are looking to earn more.

Secondly, Michigan, South Dakota and Nebraska showed the highest distribution for average effective minimum wage which implies their workers have the least tendency to be exploited by employers since effective minimum wage ensure this fact. Thus, these states act as a safe job location for potential job seekers who want to satisfy their minimum living standards.

Also, when it comes to states being more economically feasible in terms of their average state's minimum wage, Michigan, Illinois and Wisconsin take the lead and prove to be more stable. Thus, it can help job seekers in searching for states that are more stable in terms of their state wage.

In addition, when it comes to region with low minimum wage standards, Kansas seems to show a very low trend in almost every visualization, depicting that it is not the optimal state for prospective job seekers as it is not economically feasible in terms of minimum wage standards.