Genesis Grant

4.2.4 & 4.2.5

CTEC 128 Week 6

**4.2.4 Step 3: Analyze Data**

1. The columns needed for the research include data on education level, unemployment rate, specific professions, and occupations. These columns provided insight into relevant information regarding conclusions I wanted to emphasize and by honing in on these specific topics it allowed me to focus on specific trends and correlations that are pertinent to the research objectives. This focused approach enables a more thorough analysis of the data, allowing for clearer and more precise conclusions to be drawn.

The columns I chose to remove and neglect include specific information about individuals this would not prove useful to the research.

2. To analyze the impact of education and automation on structural unemployment, I will use several calculations, filters, and pivot tables. Firstly, I will calculate the average unemployment rate for each education level (e.g., high school, bachelor's, master's) to understand the relationship between education and unemployment. Secondly, I will calculate the percentage and titles of jobs in specific professions or occupations that are at risk of automation, based on existing research or data, to assess the impact of automation. I will filter the data to include only records related to specific education levels and professions/occupations for analysis.

3. In my analysis, I looked at how education and automation affect job availability and income. To do this, I used median earnings (the middle value of all earnings) and unemployment rates (the percentage of people without jobs). By comparing the median earnings for different education levels with the average unemployment rates, I could see how education relates to income and job opportunities. The average unemployment rates showed the overall job trends for each education level. One interesting finding was that higher education levels tend to lead to higher earnings and lower unemployment rates. This suggests that getting more education can lead to better-paying jobs and more job security.

4. When doing my analysis, I do not believe I used a measure of spread. But if I were to utilize a specific method, I would choose standard deviation. This would show me the variation in data, a higher standard deviation would show more spread from the mean, while a lower standard deviation would prove closer to the mean. I could have used standard deviation to show spread of different unemployment rates over time to help me draw further conclusions.

5. The best visualizations to present my findings would be bar charts to show data comparisons and line graphs to show trends over time. More specifically within my research, after finetuning data I utilized a bar chart to show jobs that are prone to automation (thus emphasizing certain professions are more at risk than others) and another to highlight education levels. Also, I utilized a data matrix to include my own criteria, which I used to refine the data and focus on specific aspects relevant to my analysis. Finally, I included a line graph from a reliable source to show trend and comparison of education level to unemployment rates, to prove a true correlation.

**4.2.5 Step 4: Interpret Data**

1. Yes, the statistical questions were addressed effectively through data analysis. By examining various indicators such as automation trends, educational attainment, and employment data, clear patterns emerged that highlighted the factors perpetuating structural unemployment. The analysis revealed that industries heavily reliant on routine tasks are more susceptible to automation, while sectors requiring higher education and specialized skills are less affected. Additionally, the data underscored the crucial role of education in mitigating structural unemployment by equipping the workforce with skills adaptable to evolving job markets.

2. The exploration and analysis of the data led to several key conclusions. First, automation significantly impacts jobs involving repetitive tasks, leading to displacement in sectors like manufacturing and administrative support. Conversely, jobs in technology, healthcare, and education benefit from structural unemployment, as they require advanced skills less susceptible to automation. Furthermore, the data indicated that enhancing educational programs focused on technology and critical thinking skills could reduce structural unemployment by better preparing workers for the demands of the modern job market. These findings highlight the need for targeted education and training initiatives to address the evolving employment landscape.

3. The findings are crucial as they provide insights into the dynamics of structural unemployment and the roles of automation and education in shaping the labor market. These insights can inform policymakers, educators, and business leaders in their efforts to design effective strategies to mitigate the adverse effects of structural unemployment. For instance, educational institutions can adapt curricula to emphasize skills in technology and critical thinking, while policymakers can develop programs to support workers transitioning from automated industries to more resilient sectors. By leveraging these findings, stakeholders can foster a more adaptable and skilled workforce, ultimately contributing to economic stability and growth.

\*\*\*Presentation submitted in final project submission drop box.