TASK 4: DATA VISUALIZATION FOR ADVOCACY

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1 Introduction

Access to higher education is a pivotal factor influencing an individual's economic stability and social mobility. This project aims to create interactive visualizations that advocate for higher education by highlighting its impact on median earnings, unemployment rates, and poverty levels. By leveraging data-driven narratives, the visualizations intend to persuade stakeholders about the tangible benefits of higher educational attainment.

The interactive visualizations can be accessed at `https://staging.di24s26eebevu.amplifyapp.com/`.

2 Dataset and Questions

The datasets used originate from educational attainment and employment statistics in the United States. The primary focus is on different educational levels and their correlation with key economic indicators. The questions addressed are:

1. How does educational attainment affect median earnings?
2. What is the relationship between education level and unemployment rate?
3. How does educational attainment influence poverty rates?

3 Visualization Design and Rationale

The visualizations are designed to be interactive and intuitive, allowing users to engage with the data effectively. The dashboard, titled *Education Analytics*, is divided into two main sections: the top section displays key metrics and their changes, and the bottom section allows for detailed comparisons between different education levels (see Figure 1).

3.1 Top Section Metrics

The top section of the dashboard showcases three primary metrics with large numerical values:

- **Median Earnings**: $86,524 for graduate degree holders.
- **Unemployment Rate**: 2.3% for bachelor's degree or higher.
- **Poverty Rate**: 4.6% for bachelor's degree or higher.

Below these metrics, there are three charts displaying the change in these metrics between previous and current education levels:

3.1.1 Median Earnings Chart

A bar graph compares the median earnings with the previous value at $31,660 and the current value at $39,428. The difference of $7,768, representing a 24.5% increase, is displayed below the chart.

3.1.2 Unemployment Rate Chart

Similarly, the unemployment rate bar graph shows a decrease from 6.5% to 4.6%, with a difference of 1.9% and a 29.2% change displayed below the chart.

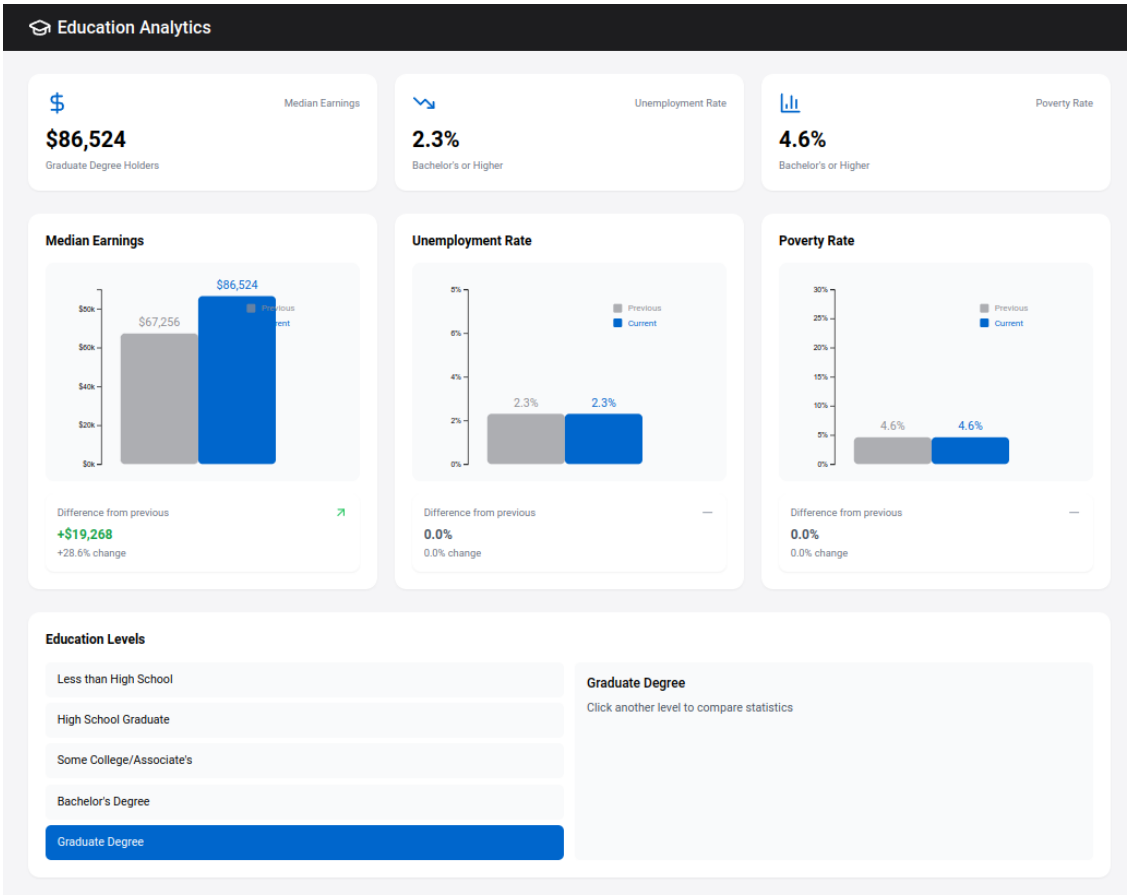

Figure 1: Screenshot of the Education Analytics dashboard displaying statistics related to income and unemployment based on education levels. The dashboard is divided into two sections: the top section shows key metrics and their changes, while the bottom section allows users to select and compare different education levels.

3.1.3 Poverty Rate Chart

The poverty rate chart indicates a reduction from 24.3% to 14.6%, with a difference of 9.7% and a 39.9% change displayed below.

3.2 Bottom Section: Education Level Comparison

The bottom section allows users to select education levels from a vertical bar on the left side. When an education level, such as "High School Graduate," is selected, the information for that level is displayed in the charts and metrics above, updating the values accordingly.

When an education level is selected, it is duplicated in a box on the right-hand side with the prompt "Click another level to compare statistics" underneath. This feature enables users to compare statistics between different education levels directly.

If no education level is selected, the area above the bar chart displays "Select an education level to compare," and below the bar chart, it reads "Select an education level to see detailed statistics."

4 Interaction Methods

4.1 Selection of Education Levels

Users interact with the dashboard by selecting education levels from the vertical bar on the left side. This action updates the charts and metrics in the top section, reflecting data specific to the chosen education level.

4.2 Comparison Feature

By selecting multiple education levels, users can compare statistics directly. The selected levels appear in boxes on the right-hand side, and the charts update to display comparative data.

4.3 Dynamic Data Updates

The dashboard provides immediate feedback with dynamic data updates upon user interaction. This real-time responsiveness enhances user engagement and aids in understanding the differences between education levels.

4.4 Responsive Design

The dashboard is designed to be responsive, ensuring accessibility across various devices. Interactive elements are optimized for both desktop and mobile users.

5 Strengths and Weaknesses

5.1 Strengths

- **User Engagement**: The interactive selection and comparison features encourage users to actively participate in data exploration.
- **Clarity and Intuitiveness**: The dashboard's layout and design make it easy to navigate and understand the data presented.
- **Comparative Analysis**: The ability to compare statistics between different education levels provides valuable insights into the impact of educational attainment.

5.2 Weaknesses

- **Limited Data Scope**: Focusing on only a few key metrics may overlook other significant factors influencing economic outcomes.
- **Lack of Demographic Filters**: The absence of demographic variables such as age, gender, or region limits the depth of analysis.
- **Interactivity Limitations**: While the comparison feature is useful, additional interactive elements like time-series data or more granular controls could enhance the user experience.

6 Conclusion

The updated interactive visualizations effectively highlight the benefits of higher education on individual economic outcomes. By allowing users to select and compare different education levels, the dashboard serves as an engaging tool for advocacy. Future enhancements could include incorporating demographic filters, expanding the dataset to include additional metrics, and adding more interactive features to provide a more comprehensive analysis.

Access to Visualization

The interactive dashboard can be accessed online at: `https://staging.di24s26eebevu.amplifyapp.com/`.