**Greg Pina**

**Udacity Data Visualization Course**

**WGU Course Code D500 – Data Visualization**

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**Links**

1. <https://public.tableau.com/views/GregPinaUdacityNanoDegreev2Dashboard1/Dashboard1?:language=en-US&publish=yes&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link>
2. <https://public.tableau.com/views/GregPinaUdacityNanoDegreev2Dashboard2/Dashboard2?:language=en-US&publish=yes&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link>
3. <https://public.tableau.com/views/GregPinaUdacityNanoDegreev2Dashboard3/Dashboard3?:language=en-US&publish=yes&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link>

**Summary**

This project explores **U.S. Census Demographic Data (2015)** to uncover insights into **transportation, income, poverty, and economic disparities across states**. The analysis is divided into three key visualizations:

1. **Best Transportation in the U.S.**

* **Key Insight:** States with shorter **mean commute times** and **higher public transit usage** tend to have better transportation systems.
* **Findings:**
  + The **Northeast region (e.g., New York, New Jersey, Massachusetts)** has the **highest public transit usage**.
  + **Rural states** (e.g., Montana, Wyoming) rely more on **personal vehicles** with **longer commutes**.
  + **Washington D.C.** leads in **public transit usage**, but some **West Coast states (California, Oregon)** also show strong public transit adoption.

1. **Income & Poverty Across America**

* **Key Insight:** Higher **median income** generally correlates with **lower poverty rates**, but there are exceptions.
* **Findings:**
  + **Northeastern states (e.g., Connecticut, Massachusetts)** have **higher incomes** and **lower poverty rates**.
  + **Southern states (e.g., Mississippi, Louisiana, West Virginia)** have the **highest poverty rates** despite having lower living costs.
  + **Trend line** in the scatter plot confirms a negative correlation: **as income increases, poverty decreases**.

1. **Employment & Economic Divides**

* **Key Insight:** **Transportation choices** impact employment, and **coastal states tend to have stronger economies** than inland states.
* **Findings:**
  + **Work-from-home states** have lower unemployment rates.
  + **High car dependency states** often have **higher unemployment** (possible due to fewer job clusters).
  + **Coastal states** tend to have **higher median incomes** than **inland states**, reinforcing an economic divide.

**Design**

This project follows **best practices in data visualization** to **enhance clarity, accessibility, and engagement**.

1. **Best Transportation in the U.S.**

* **Design Choices:**
  + **Choropleth Map:** Employs a **sequential blue gradient** to highlight mean commute times (lighter = shorter, darker = longer).
  + **Bar Chart**: Used **green color** to contrast **public transit usage** and sorted in descending order for clarity.
* **Feedback & Changes:**
  + Initially, the **map was cluttered**, so we adjusted **color scale contrast** to improve readability.

1. **Income & Poverty Across America**

* **Design Choices:**
  + **Scatter Plot**: Used **trend line** to emphasize the correlation between **income** and **poverty rate**.
  + **Heatmap**: Used **diverging colors (red for low income, blue for high income)** to clearly differentiate state-level income variations.
* **Feedback & Changes:**
  + Originally, some **data points overlapped in the scatter plot**, making it hard to read. Adjusted **point size and transparency**.

1. **Employment & Economic Divides**

* **Design Choices:**
  + **Stacked Bar Chart**: Used **color encoding** for different transportation modes to highlight employment differences.
  + **Coastal vs. Inland Comparison**: Used **side-by-side bars** with **distinct color palettes** for easy visual distinction.
* **Feedback & Changes:**
  + Initially, the **employment chart lacked clear labels**, so we **added tooltips and precise labels for better interpretation**.

**Resources**

* "N/A"