Geospatial Analysis & Visualizations with O\*NET & PowerBI  
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Dashboard Link: [Link](https://app.powerbi.com/groups/me/reports/eaf22558-627a-4be9-a8d2-83c3b5341ba7/1fbd2051ad0258b4ade7?ctid=1113be34-aed1-4d00-ab4b-cdd02510be91&experience=power-bi)  
  
Prompt1:  
  
Design Choices for the Wages and Workforce Dashboard

The dashboard is divided into three segments:

1. **Employment Distribution by State**
2. **Top 20 States by Annual Median Income**
3. **Top 20 States by Hourly Median Income**

Visuals Used:

* Used ArcGIS map to display **employment distribution** with a **heatmap-style color gradient** for clarity.
* Highlights the **top 20 states** with the **highest hourly median income**, as hourly wages are more relevant for the middle-class workforce.
* **Data Card & Table**: Provides a **national vs. state comparison** for employment and wages (2022), ensuring easy reference without excessive scrolling.
* Added a drill through page for showing the percentiles (Hourly and Annually by State)

Key Data Variables:

* **Median wages** are used instead of averages, as averages can be misleading due to outliers (e.g., New York's high earners distorting the data).
* The dataset includes **annual and hourly wage percentiles** for better accuracy.

Slicers Implemented:

* **J**ob Title, Geographic Area, and Employee Range allow users to filter and analyze different aspects of employment and wages effectively.

Limitations:  
1. The ArcGIS map uses state-level data, which may oversimplify employment distribution within states. Large states like **California or Texas** have regional disparities that this visualization does not fully capture.

2. Upon selecting a slicer value from Title filter, the gradient turns gray in the ArcGIS map, currently exploring possibilities to fix this issue.

Prompt2:

**Understanding the Data Used**

The dashboard includes **three key datasets**:

1. **Employment Distribution by State** – Shows where jobs are concentrated across the U.S.
2. **Top 20 States by Annual Median Income** – Highlights states with the highest yearly earnings.
3. **Top 20 States by Hourly Median Income** – Focuses on states with the highest wages for hourly workers.

Note: We use **median wages** instead of averages to avoid misleading interpretations caused by extreme high-income earners.

**How to Read the Maps and Visuals**

**1. Employment Distribution by State (ArcGIS Map)**

* This map visualizes **total employment across states**.
* **How to Read It**:
  + **Darker shades** represent **higher employment levels**.
  + **Lighter shades** indicate **lower employment concentration**.
  + Hovering over a state will show the exact employment numbers for Total Employment for that specific state and also Median Annual and Hourly Income.

2. Top 20 States by Hourly Median Income (Symbol Map)

* What It Shows: The highest-paying states for hourly workers.
* How to Read It:
  + Larger symbols represent higher hourly median wages.
  + Hovering over a state displays the exact wage value.

3. Top 20 States by Annual Median Income (ArcGIS Map)

* What It Shows: Highlights the 20 states with the highest annual median income.
* How to Read It:
  + Color Intensity: Darker shades indicate higher annual median wages.
  + Lighter shades represent relatively lower annual median wages within the top 20 states.
  + Hovering over a state displays the exact annual median wage.

3. National vs. State Wage Comparison (Data Card & Table)

* What It Shows: A side-by-side comparison of your selected state's wage and employment data against national averages.
* How to Read It:
  + The data card summarizes key state-level employment and wage statistics.
  + The table allows easy comparison without scrolling.

**How to Use Filters to Customize Insights**

At the top of the dashboard, you will find **three slicers**:

* **Job Title** – Select your occupation to filter relevant wage and employment data.
* **Geographic Area** – Choose a specific state or compare across multiple states.
* **Employee Range** – Analyze wage trends based on workforce size.

These filters help **refine insights** to match specific user queries.