

Measuring the Pulse of Prosperity: An Index of Economic Freedom Analysis

Internship Program: SmartInternz + APSCHE Short-Term Internship + SmartBridge

Platform Used: Tableau Public

Dataset: 2022 Index of Economic Freedom

Team Size: 2

Team Members:

- Tadiparthi Naga Tirumala Lakshmi Jahnavi — Designed and built Visualizations 1–5
- Bala Indrasena Reddy — Created Visualizations 6–11

Problem Statement:

"In a rapidly globalizing world, understanding how macroeconomic factors influence economic freedom is crucial for shaping policies that drive prosperity. This project aims to uncover these patterns using real-world data and compelling visualizations."

Technical Stack / Tools Used:

Tableau Public, Microsoft Excel (for data preprocessing), Google Docs (documentation), Canva (poster design), GitHub (file storage).

Introduction

This project was an insightful journey into understanding how a nation's economic policies and indicators shape its place in the world. Using Tableau, we visually explored the 2022 Index of Economic Freedom by examining a variety of metrics—GDP growth, inflation, unemployment, investment freedom, and more.

We developed 11 data-driven visualizations that tell a story of how freedom in economic decision-making can correlate with national prosperity. The results offer insights into which countries are thriving, which are struggling, and what policy levers might be at play.

Visualizations Overview

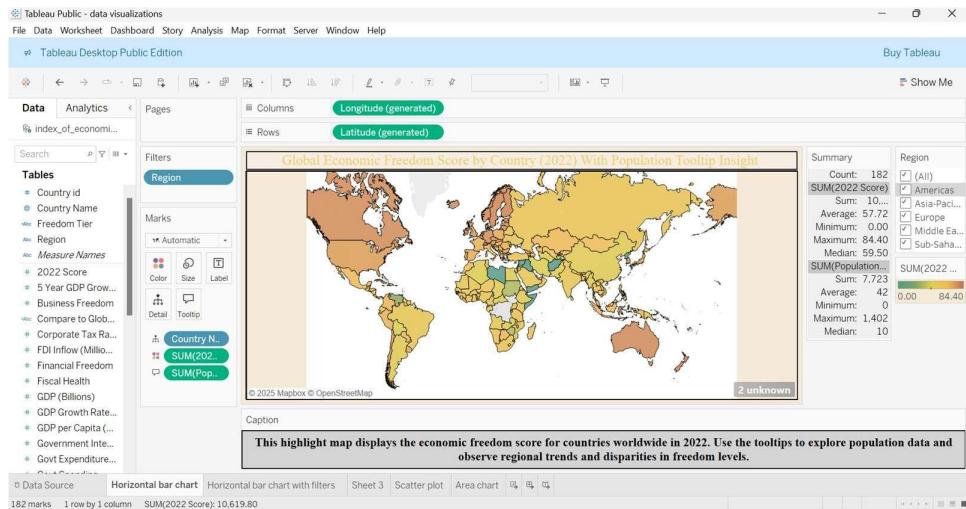
Each visualization was carefully planned and executed to highlight a different perspective of the data. For every chart, we documented:

- The purpose and story behind it
- The chart type used
- The key data fields involved
- The process of building it in Tableau
- Styling choices like color and grouping
- Key takeaways from the visualization

Visualizations by Tadiparthi Naga Tirumala Lakshmi Jahnnavi (1–5)

1.2022 Economical Freedom Score

- **Type:** Filled Map (Choropleth Map)



- **Goal:** compare the economic freedom scores of countries and observe regional patterns, possibly correlating with population distribution and freedom levels.
- **Fields Used:** Fields used include **Country Name**, **2022 Economic Freedom Score**, and **Population (Millions)**. Generated **Latitude** and **Longitude** were used to plot the filled map geographically.
- **How It Was Built:**
 - Dragged Country Name to the **Detail** shelf.
 - Added 2022 Score to the **Color** shelf to shade each country based on economic freedom.
 - Dragged Population (Millions) to the **Tooltip** shelf.
 - Added **Latitude (generated)** and **Longitude (generated)** to Rows and Columns to create a map.
 - Applied a **filter** on the Region field to toggle continents.
 - Used the **automatic marks type (Map)**.

Analytical Insights

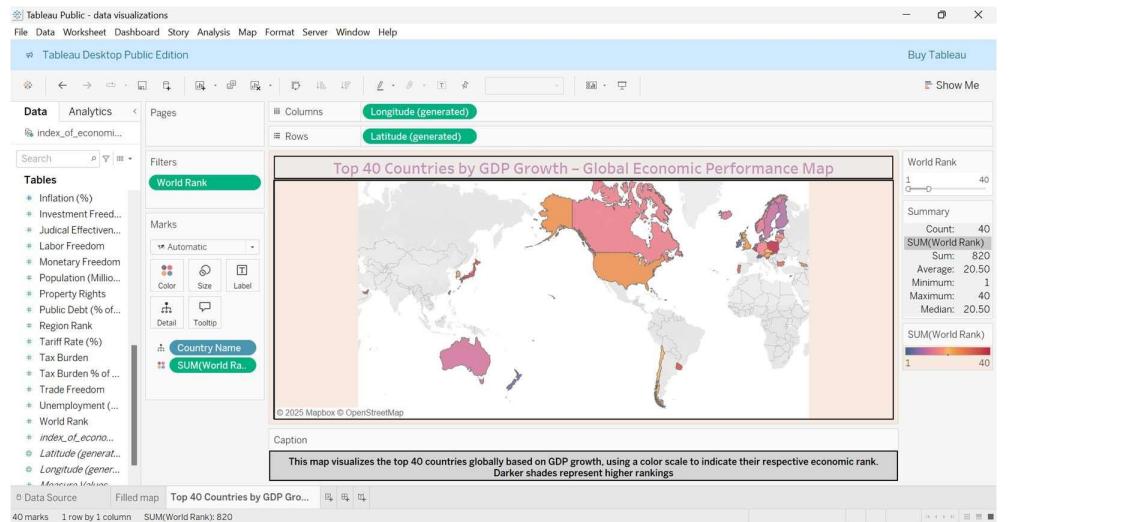
The filled map illustrates global differences in economic freedom, with each country shaded according to its 2022 index score. Higher-scoring nations—mostly in North America, Europe, and Oceania—indicate strong legal frameworks, limited government interference, and open economic policies. In contrast, darker-shaded countries often struggle with regulatory barriers, political instability, or restricted market access. This visualization complements related sheets on population, GDP growth, and freedom tiers, offering a geographic perspective on how policy environments shape economic potential worldwide.

- **Tooltip Looks Like:**

Country Name:	Sri Lanka
2022 Score:	53.30
Population (Millions):	22

2. Top 40 by GDP Growth Countries

- **Type:** Filled Map Showing Top 40 Countries by GDP Growth



- **Goal:** To represent the **top 40 countries** ranked by **GDP Growth** on a world map, enabling a geographical comparison of growth rankings.
- **Fields Used:** Latitude (Generated) in Rows, Longitude (Generated) in Columns; Country Name in Detail, World Rank in Color, and World Rank (Top 40) in Filters.
- **How It Was Built:**
 - Drag "Latitude (Generated)" to Rows and "Longitude (Generated)" to Columns.
 - Drag "Country Name" to Detail on the Marks card.
 - Drag "World Rank" to Color to shade countries by GDP Growth Rank.
 - Apply filter to show only Top 40 countries by GDP Growth or World Rank.
 - Customize color scheme to reflect rank gradient .
 - Use **Mapbox** background to show the world layout.
 - Tooltip is automatically generated based on the fields used.

Analytical Insights

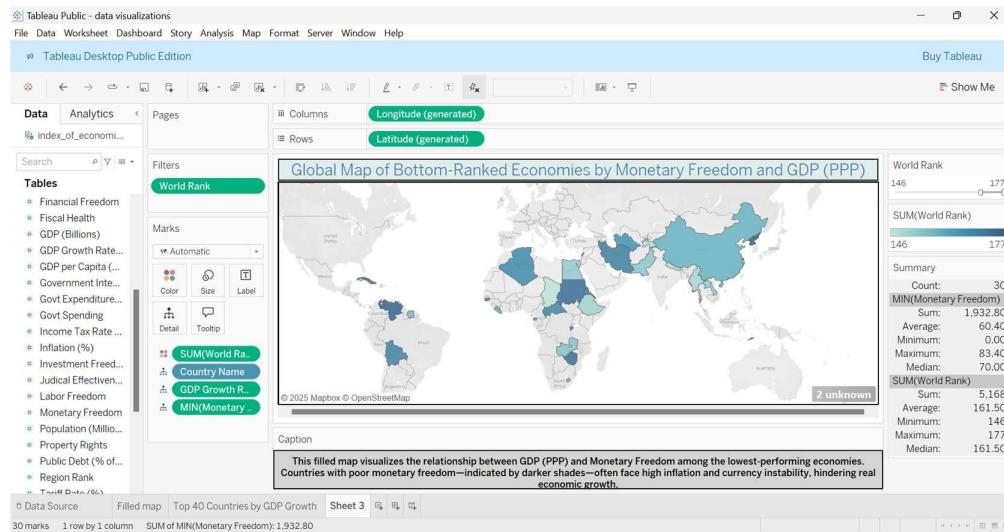
The map highlights the world's top 40 countries by GDP growth, revealing dynamic regional economic trends. Fast-growing economies, primarily in Asia, Africa, and parts of Eastern Europe, reflect strong investment climates, export expansion, or post-crisis rebounds. The varying color intensity visually ranks nations by their performance, emphasizing geographic clusters of rapid development. This map complements related dashboards on global rankings and economic performance, offering a concise view of where growth is accelerating.

- **Tooltip Looks Like:**

Country Name: Denmark
World Rank: 10

3. Bottom Ranking Countries in the Index

- **Type:** Filled Map of bottom countries by Monetary Freedom and GDP (PPP).



- **Goal:** To analyze and highlight countries with **low GDP (Purchasing Power Parity)** and **poor Monetary Freedom**, using a geographic map to reveal spatial patterns in economic underperformance and currency instability.
- **Fields Used:** Country Name, World Rank, Monetary Freedom, GDP Growth Rate (%), Latitude (generated), Longitude (generated)
- **How It Was Built:**
 - Drag Longitude (generated) to **Columns** and Latitude (generated) to **Rows**.
 - Add Country Name to **Detail** in the Marks card.
 - Drag Monetary Freedom to **Color** to shade countries based on freedom score.
 - Add World Rank to **Filters** → set range to bottom countries (e.g., **146–177**).
 - Add GDP Growth Rate (%) and World Rank to **Tooltip**.

Analytical Insights

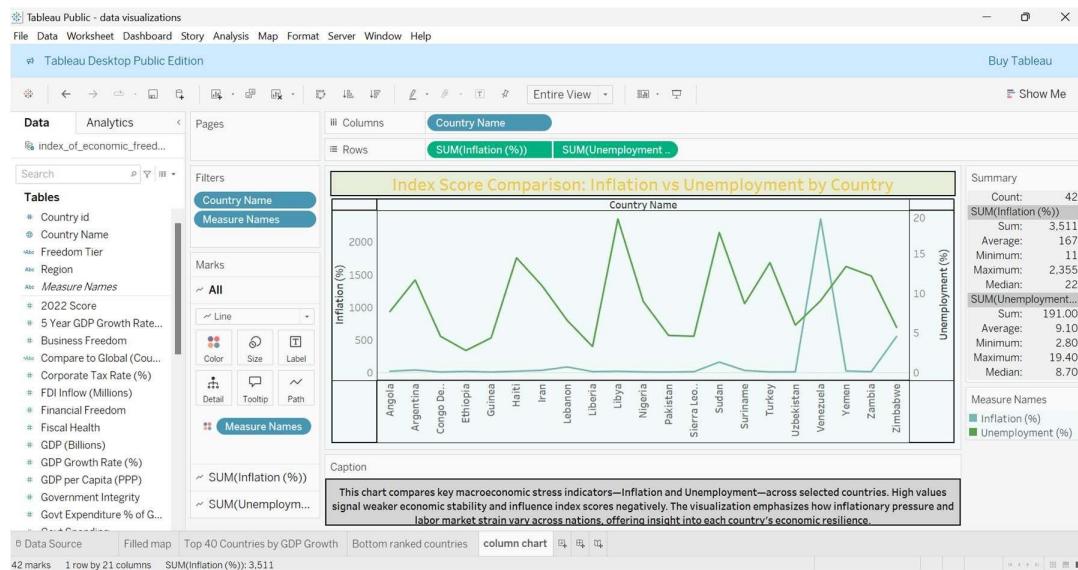
This filled map highlights countries with the lowest monetary freedom and weak GDP growth. Nations like Venezuela and Sudan face high inflation, unstable currencies, and strict price controls. These monetary issues often result in poor economic performance and negative growth rates. The map shows a clear link between weak monetary policy and suppressed national prosperity. It complements other visualizations on economic freedom, reinforcing how instability hinders development. This visual aligns closely with other metrics like GDP growth and economic freedom rankings, offering a compelling geographic perspective on how fragile monetary systems limit a country's overall economic health.

- **Tooltip Look Like:**

Country Name: Suriname
GDP Growth Rate (%): -13.50
Monetary Freedom: 58.40
World Rank: 156

4. Index Score Based on Unemployment Rate

- Type: Dual-Axis Line Chart



- **Goal:** To analyze the macroeconomic instability of countries by comparing **Inflation (%)** and **Unemployment (%)**, which are key indicators of economic distress and help infer an indirect **index score** reflecting economic health.
- **Fields Used:** Country Name, Inflation (%), Unemployment (%), Measure Names
- **How It Was Built:**
 - Drag **Country Name** into Columns.
 - Drag **Inflation (%)** and **Unemployment (%)** into Rows (set as dual-axis).
 - Right-click on one axis and choose "**Dual Axis**".
 - Synchronize axes if necessary and format them separately.
 - Drag Measure Names to **Color** and **Path** in the Marks card to differentiate both lines.
 - Filter only required countries using the Country Name field.

Analytical Insights

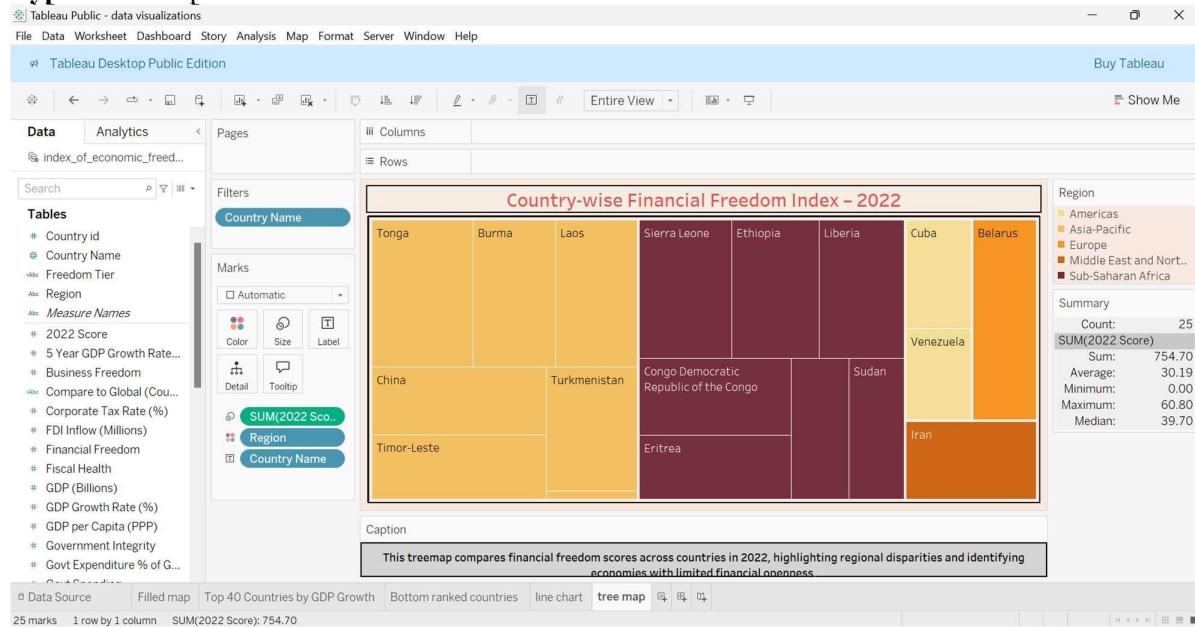
The chart provides a comparative view of inflation and unemployment across various countries, highlighting disparities in macroeconomic stability. Countries like Venezuela and Libya exhibit extreme inflation rates, indicating severe monetary instability and policy failure, which severely undermine their economic health. In contrast, some nations show high unemployment but moderate inflation, suggesting structural labor market issues rather than overall economic overheating. Countries with low values in both metrics reflect more stable economies with balanced growth potential. This dual-axis visualization effectively reveals how the interplay between inflation and unemployment influences a country's overall economic environment and perceived index score.

- **Tooltip Looks Like:**

Country Name:	Angola
Inflation (%):	11
Unemployment (%):	2.80

5. Index Score Based on Financial Freedom

- **Type:** Tree map



- **Goal:** To visualize and compare **financial freedom scores** across countries, grouped by regions, to identify patterns of economic restriction
- **Fields Used:** **Country Name** (Columns), **2022 Score** (Rows), **Region** (Color),**Country Name** (Label).
- **How It Was Built:**
 - **Drag Country Name to Columns.**
 - **Drag 2022 Score to **Rows**.**
 - Click on “**Show Me**” and select **Treemap**.
 - **Drag Region to Color** on the **Marks** card to differentiate by region.
 - **Drag Country Name to Label** on the **Marks** card to show country names.
 - Format as needed (add borders, tooltips, or labels for clarity).

Analytical Insights

The tree map reveals stark regional disparities in financial freedom across the globe. Sub-Saharan African nations dominate the lower end of the spectrum, with countries like Sudan, Ethiopia, and the Democratic Republic of the Congo showing some of the lowest scores, indicating limited financial autonomy and restrictive economic policies. In contrast, Asia-Pacific nations such as China, Laos, and Burma occupy mid-tier positions, reflecting controlled but somewhat open financial systems. Regions like Europe and the Americas are notably absent, suggesting they fall outside the filtered lower score range. Overall, the visualization highlights how geography and governance directly influence financial freedom, offering a clear visual cue into regions needing reform.

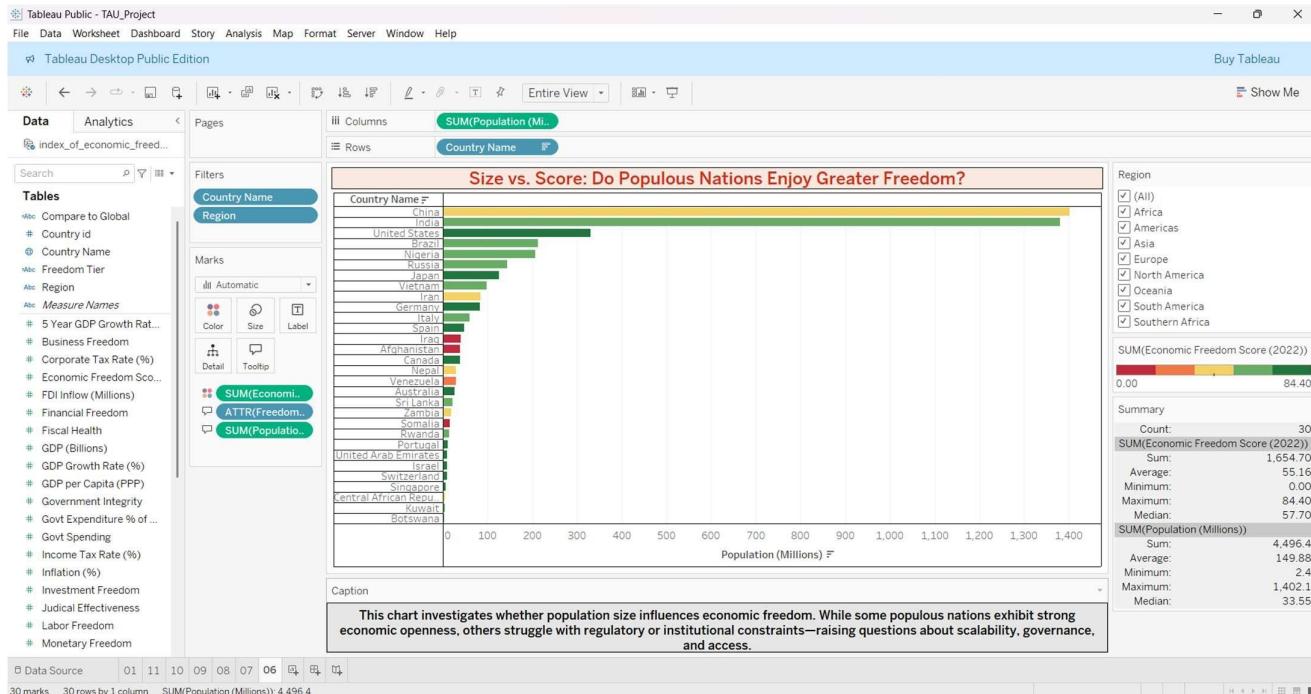
- **Tooltip Looks Like:**

Country Name: Turkmenistan
 Region: Asia-Pacific
 2022 Score: 46.20

Visualizations by Bala Indrasena Reddy (6–11)

6. Index Score Based on Population

Chart Type: Horizontal Bar Chart



- **Goal:** Compare long-term economic growth with freedom status
- **Fields Used:** Country, 5-Year GDP Growth, Economic Freedom Score, Population, Region
- **How It Was Built:**
 - Arranged country_name along the Y-axis,
 - Displayed Population growth % with bar length and colored by Economic Score(2022).
 - Tooltips like Freedom Tier and Population gave a quick comparative glance for this Visual.

Analytical Insight

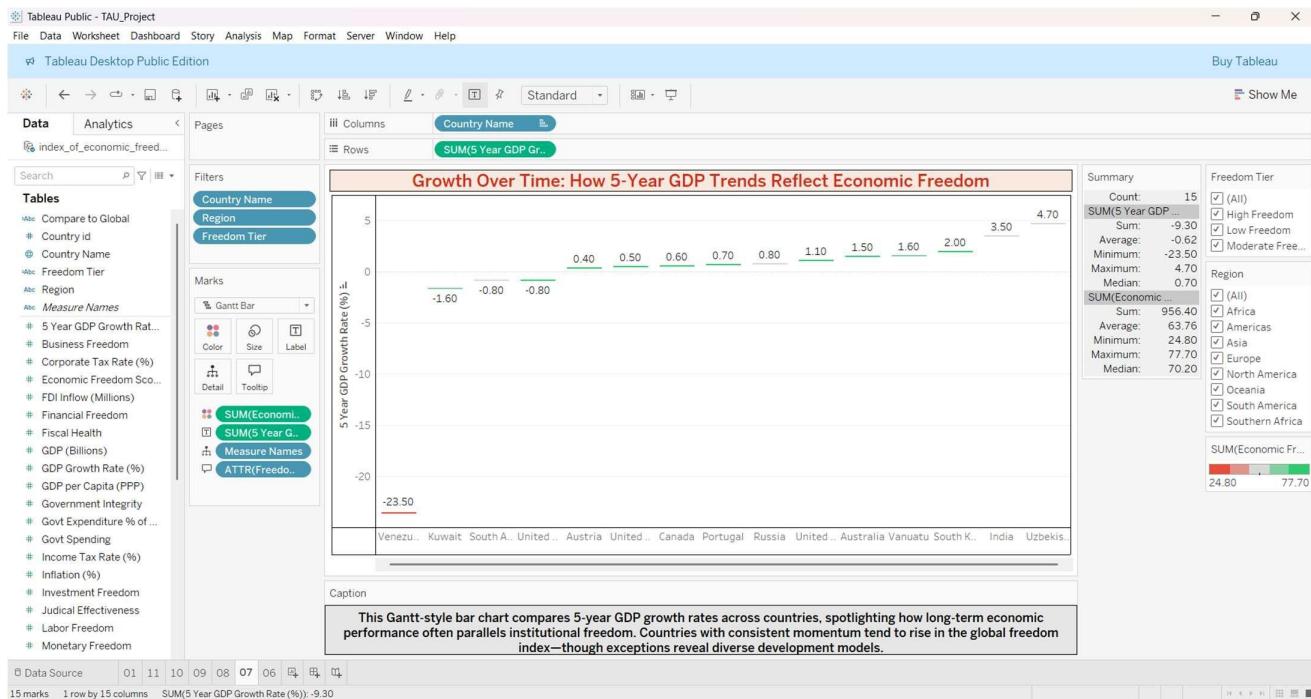
The chart encourages viewers to assess if demographic scale contributes to economic policy complexity or governance limitations. While some large countries (e.g., India, USA) maintain high freedom scores, others may show that **scale alone doesn't determine freedom**.

- I Applied **calculated fields** for tier categorization and
- Enhanced interpretability via **custom tooltips, reference lines, and color semantics**
- **Tooltip Looks Like:**

Country Name:	India
Freedom Tier:	Low Freedom
Economic Freedom Score (2022):	53.90
Population (Millions):	1,380

7. Index score based on 5 year on GDP growth rate(%)

- Chart Type: Gantt Bar Chart



- **Goal:** Determine if fast-growing economies are also economically free
- **Fields Used:** Country Name, 5 Year GDP Growth Rate, Freedom Tier, Region, and Economy scores of 2022
- **How It Was Built:**
 - Plotted 5 Year GDP growth rate on Y-axis and Country Name on X-axis
 - Colored by Economies of (2022) and added a regression line
 - Helped surface growth-without-freedom outliers

Analytical Insight

By visualizing both **GDP growth** and **freedom scores** together, this chart prompts questions such as:

- Do high-growth countries consistently enjoy higher economic freedom?
- Are there nations with rapid growth but low institutional openness?

This strengthens the project's narrative by adding a **5 Year GDP Growth Rate** to the overall freedom analysis.

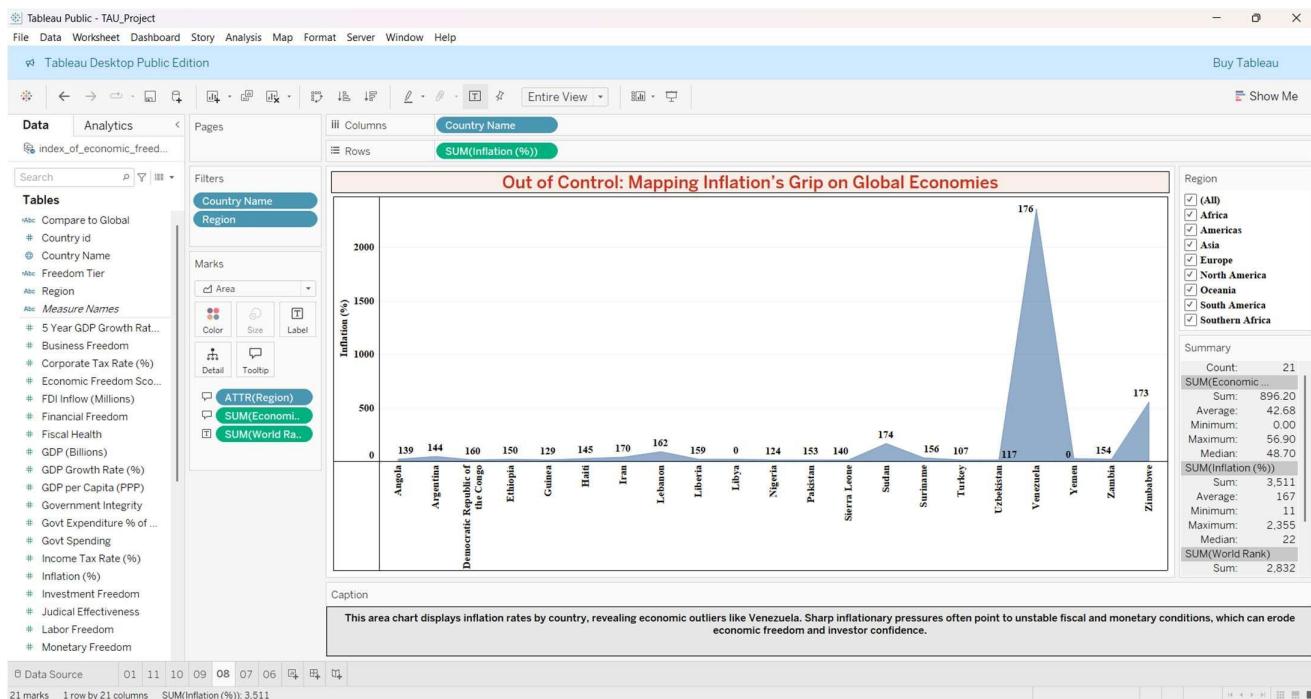
- Enabled **Region Filter** to segment comparisons
- Add '**5 year GDP growth rate**' as a **Label** next to each bar for instant context

- **Tooltip Looks Like:**

Country Name:	United Kingdom
Freedom Tier:	High Freedom
5 Year GDP Growth Rate (%):	-0.80
Economic Freedom Score (2022):	72.70

8. Inflation rate in different countries

- **Chart Type:** Area Chart



- **Goal:** Analyze how inflation might affect a country's economic freedom
- **Fields Used:** Inflation Rate, Country Name, World Rate etc..

This visualization compares **inflation rates across countries**, demonstrating how price volatility correlates with each country's **position in the 2022 Index of Economic Freedom**. It enables users to:

- Identify **outliers** like Venezuela with extreme inflation.
- Understand how high inflation signals possible policy breakdowns.
- Explore if inflation disrupts economic freedom and investor confidence.
- **How It Was Built:**
 - Sorted countries by inflation rate
 - Colored bars by region to spot clusters
 - Noted that extreme inflation generally dragged freedom scores down

Analytical Insight

The chart reveals stark contrasts in macroeconomic stability across nations. Countries with hyperinflation (like Venezuela) often reflect **regulatory failure, poor fiscal health, or unstable monetary policy**—all of which directly affect their index score. This visualization ties closely with other sheets on **monetary freedom, GDP growth, and unemployment**, offering a vivid depiction of how **price pressure undermines prosperity**.

- **Tooltip Looks Like:**

Country Name:	Venezuela
Region:	South America
Economic Freedom Score (2022):	24.80
Inflation (%):	2,355
World Rank:	176

9. Correlation between inflation and unemployment

- **Chart Type:** Line Graph



- **Goal:** Show if wealthier countries also enjoy greater freedom.
- **Fields Used:** Country Name, Inflation (%), Unemployment rate, and Region.
- **How It Was Built:**
 - Using Country Name, Inflation and Unemployment rate as axes
 - Colored by Measure Names
 - Helped visualize both scale and status

Analytical Insight

Historically, inflation and unemployment have been thought to follow an inverse relationship (Phillips Curve). However, this chart aims to test whether this holds true across all countries in 2022. The phrase "*closely related*" suggests that in your visualization, the line chart may indicate:

- **A positive relationship** in some countries (e.g., both inflation and unemployment rising)
- Or unusual behavior such as **stagflation** in countries facing structural economic issues

Through this visualization, I

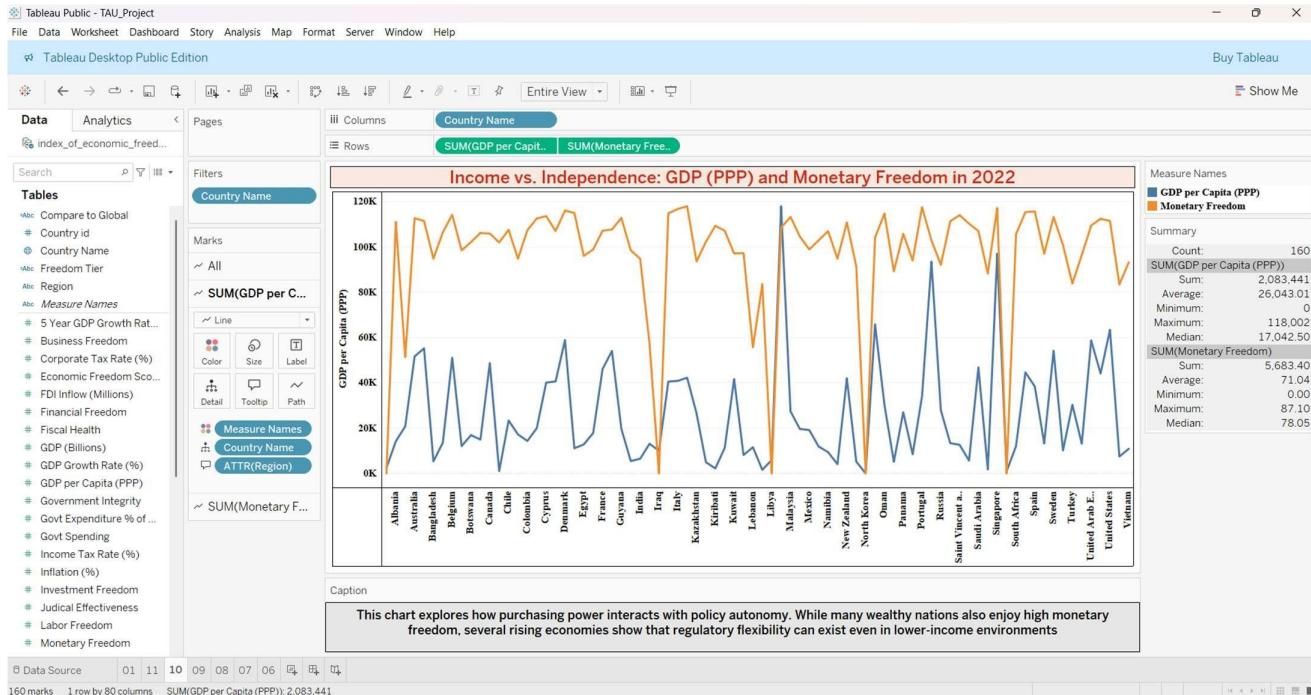
- Practiced building correlation-based insights using **line graphs** and **dual-axis comparisons**
- Applied **trend line modeling and tooltip storytelling**

Tooltip Looks Like:

Country Name:	Canada
Region:	North America
Percentile of Inflation (%) along Table (Across):	31.9%
Unemployment (%):	9.50

10. Correlation between GDP(PPP) and monetary freedom

- **Chart Type:** Line Graph



- **Goal:** Compare two pillars of economic openness
- **Fields Used:** GDP (PPP), Monetary Freedom Score, Region etc...

- **How It Was Built:**

- Simple X/Y scatter of the two indicators
- Color-coded by region/freedom tier
- Provided insight into microeconomic flexibility

This visualization explores the relationship between a country's **GDP per capita (Purchasing Power Parity)** and its **Monetary Freedom Score**, as defined by the 2022 Index of Economic Freedom.

Analytical Insight

- GDP (PPP) reflects a country's **individual wealth and consumer purchasing power**, adjusted for exchange rate differences.
- Monetary Freedom measures **price stability** and the extent of **government intervention in pricing** and monetary policy.

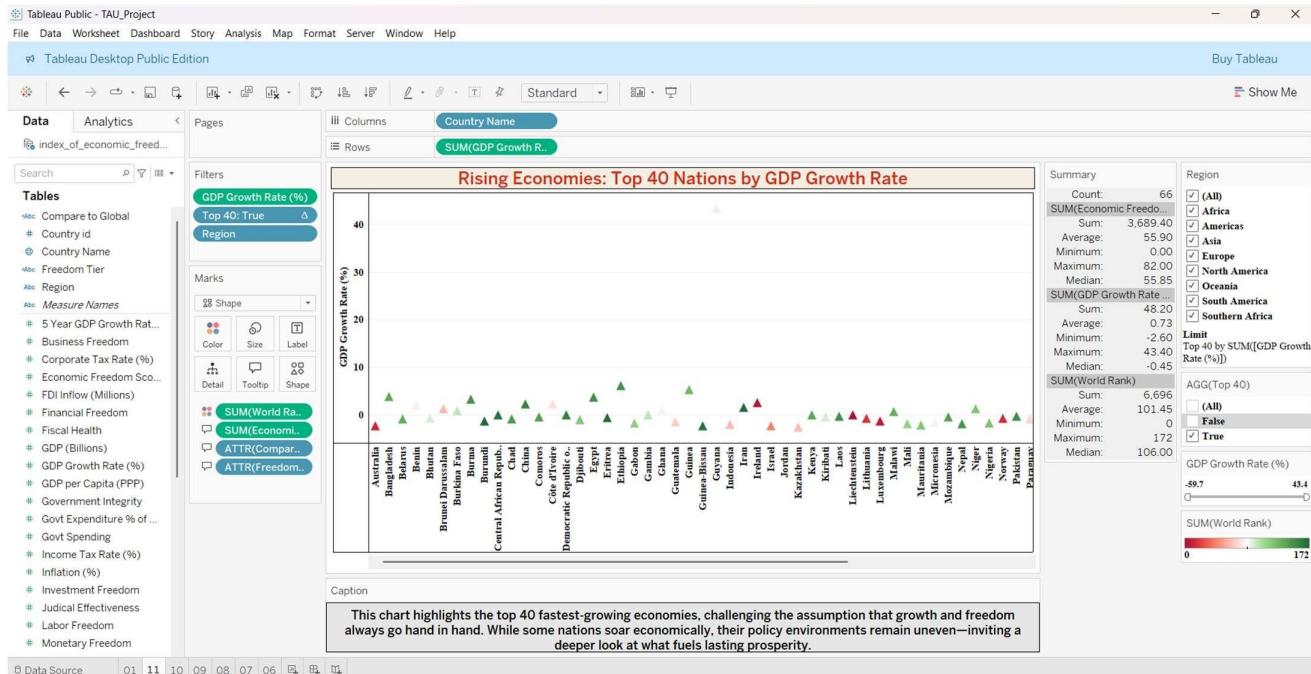
By placing these indicators together, this chart examines whether **economic wealth** is driven by **monetary independence**, or if other forces dominate a country's prosperity.

Tooltip looks like:

Country Name:	Kuwait	Country Name:	Kuwait
Region:	Asia	Region:	Asia
GDP per Capita (PPP):	41,627	Monetary Freedom:	71.70

11. Top 40 Countries by GDP Growth Rate

- **Chart Type:** Bar Chart with Icons



- **Goal:** This chart highlights the **top 40 fastest-growing economies**, ranked by **GDP growth rate (%)**, and explores whether this growth positively aligns with the country's **Economic Freedom Index Score (2022)**. It identifies global leaders in momentum and gives users a sense of whether economic expansion is tied to policy openness.
- **How It Was Built:**
 - Selected 5–6 key visuals for storytelling
 - Linked charts with filters and parameters
 - Added navigation buttons and annotations for user guidance

Analytical Insight

Rapid GDP growth often suggests strong investment, increased productivity, and market confidence. This chart helps answer:

- Are high-growth countries also ranked high in economic freedom?
- Do certain regions outperform others in growth despite lower freedom scores?

With this visualization, I:

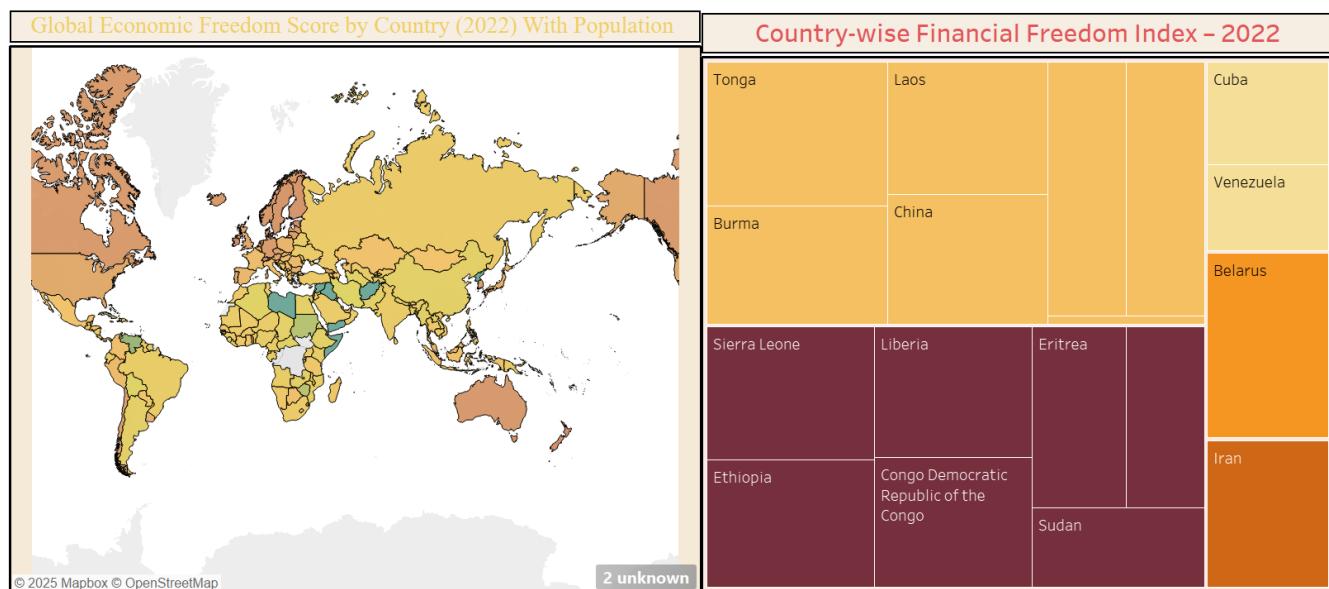
- Practiced **ranking functions and calculated filtering**
- Encoded values using **policy tiers and gradient color logic**
- Created a **clear, comparative layout** for global growth performance
- Provided context to explore connections between **expansion and institutional freedom**

Tooltip Looks Like:

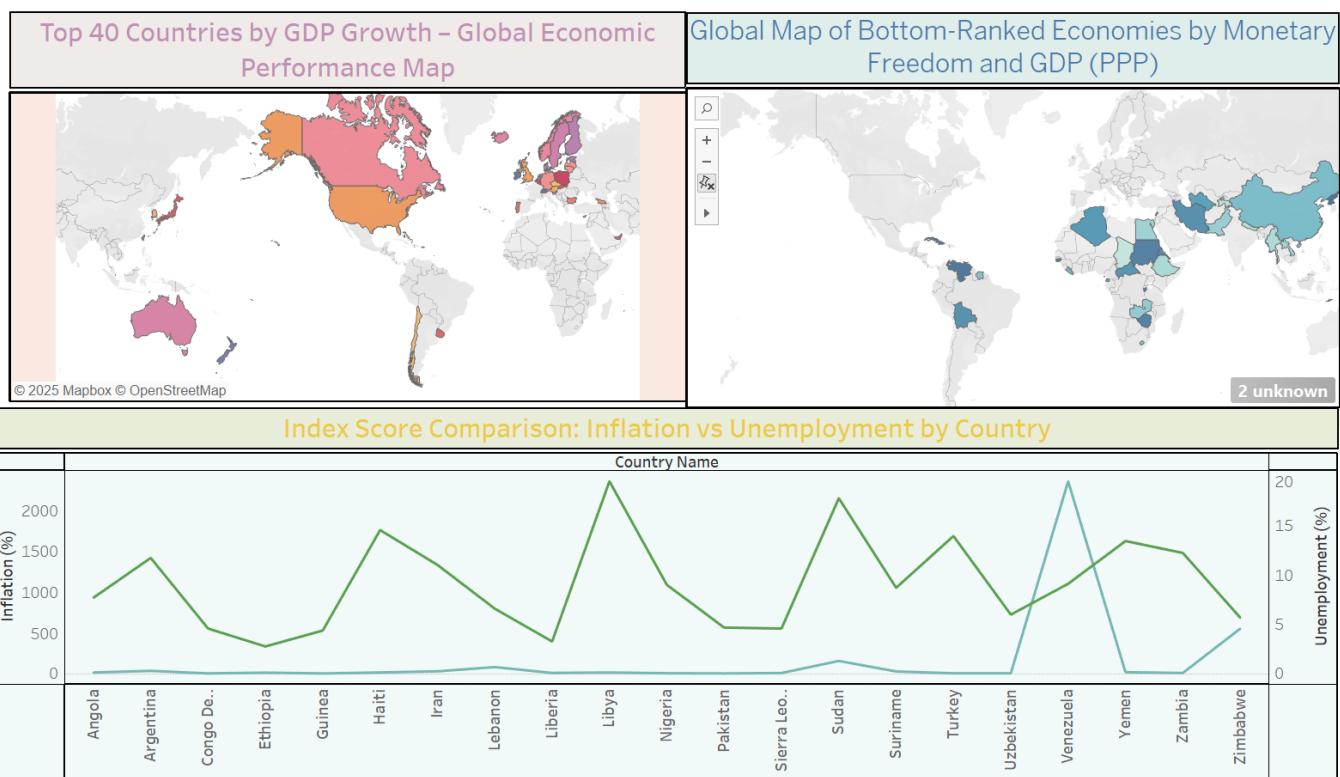
Country Name:	Ethiopia
Freedom Tier:	Low Freedom
Compare to Global:	Below
Economic Freedom Score (2022):	49.60
GDP Growth Rate (%):	6.10
World Rank:	150

Dashboard

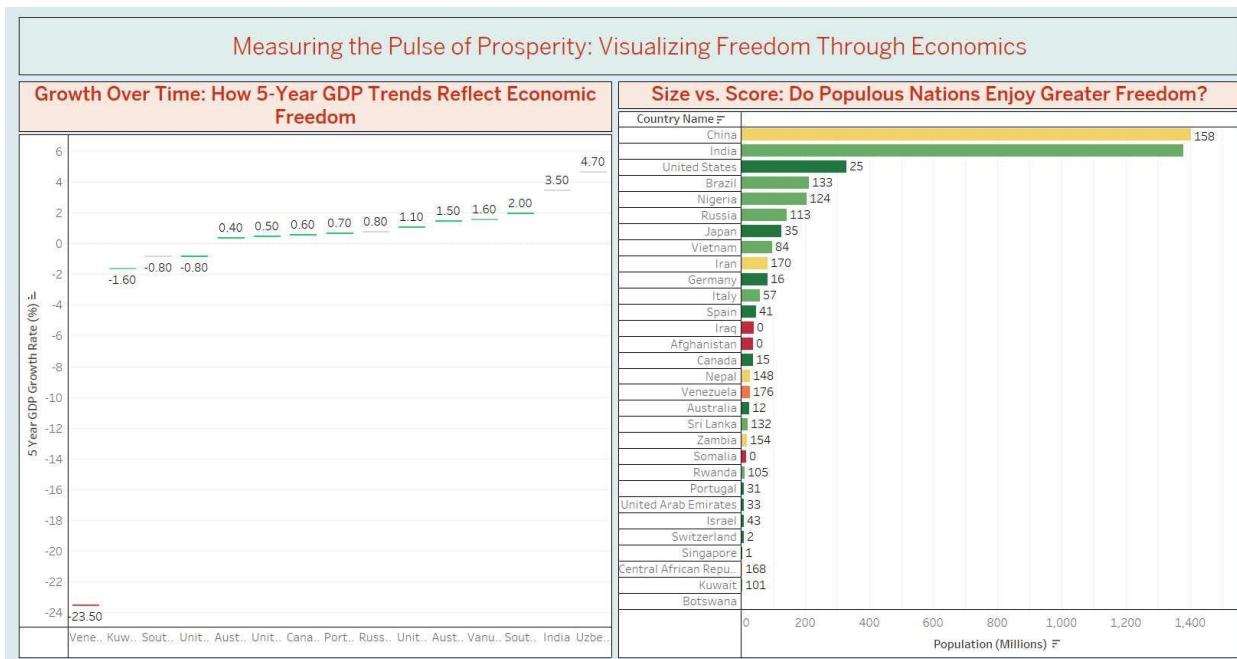
1. 1&5



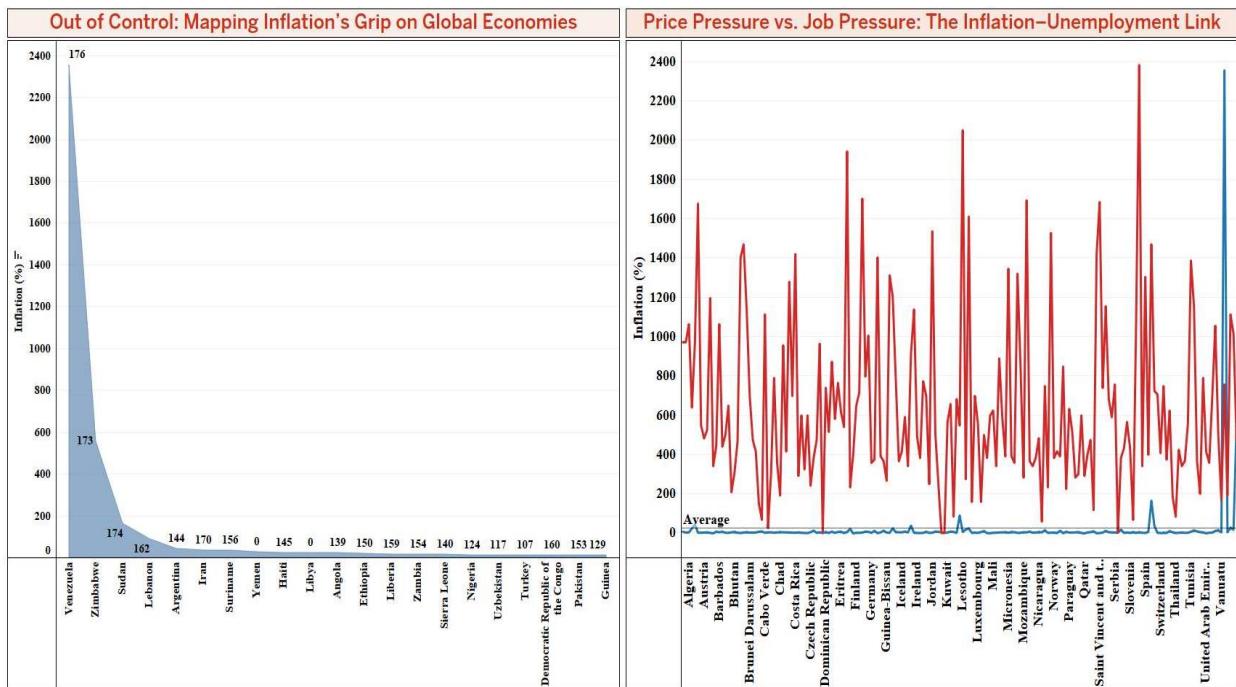
2. 2,3&5



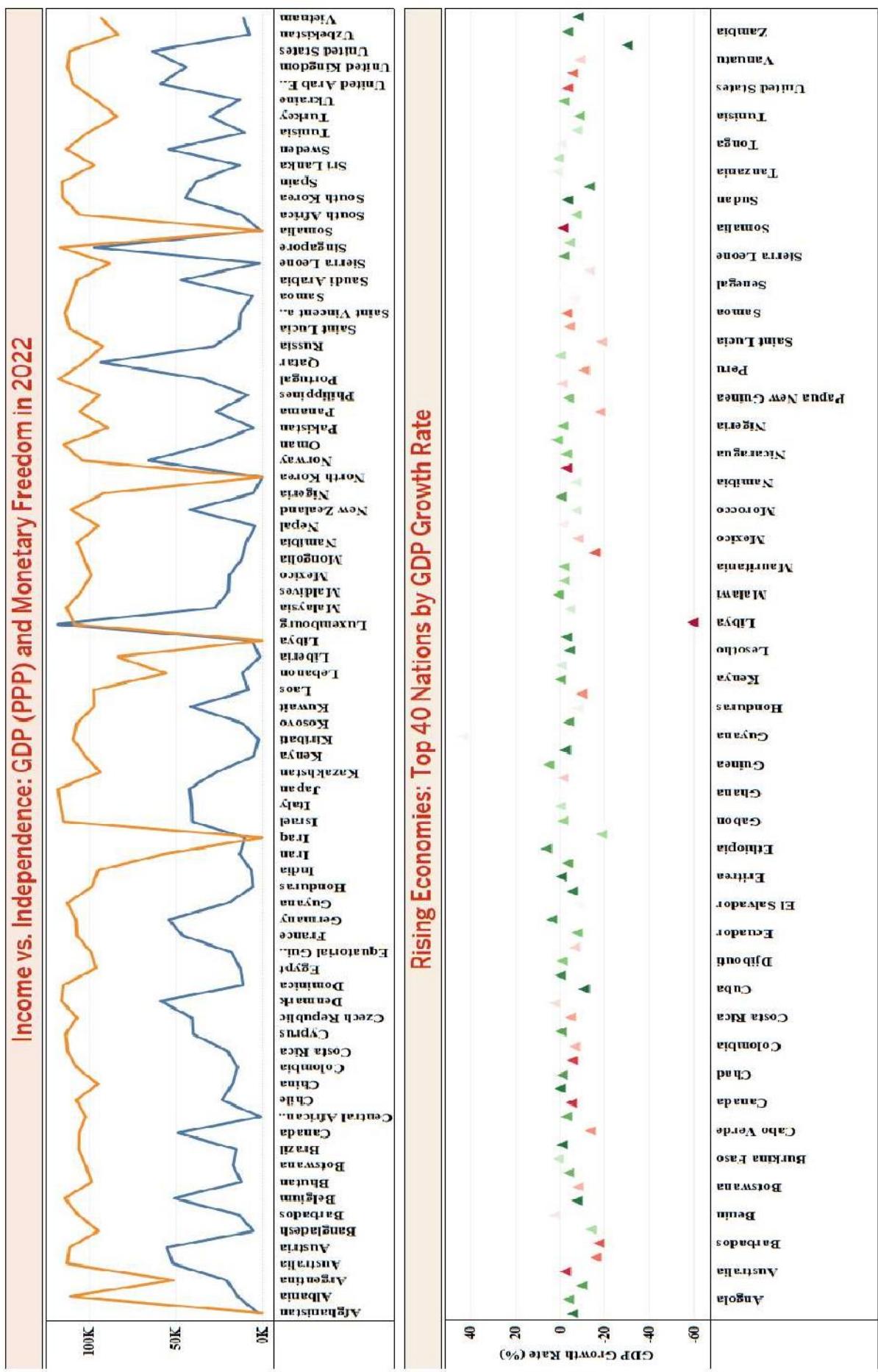
3. 6 & 7



4. 8 & 9

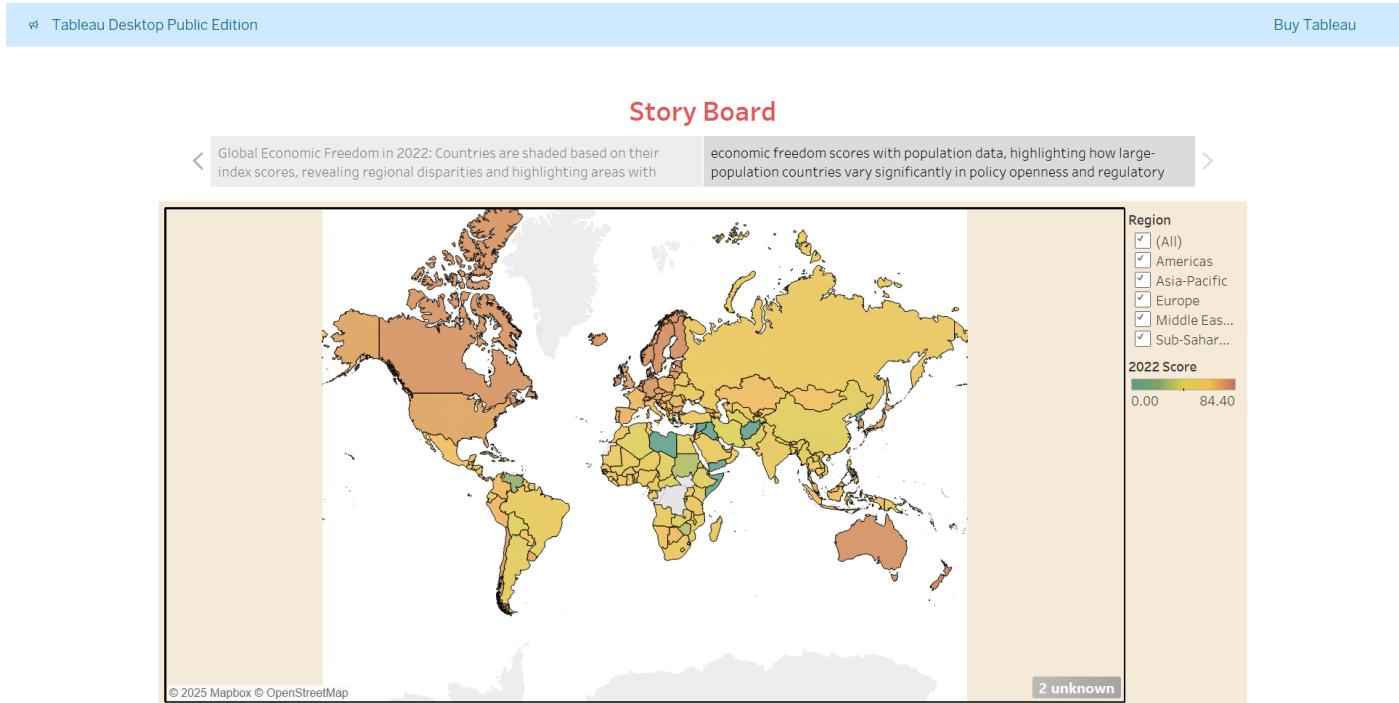


5. 10 & 11



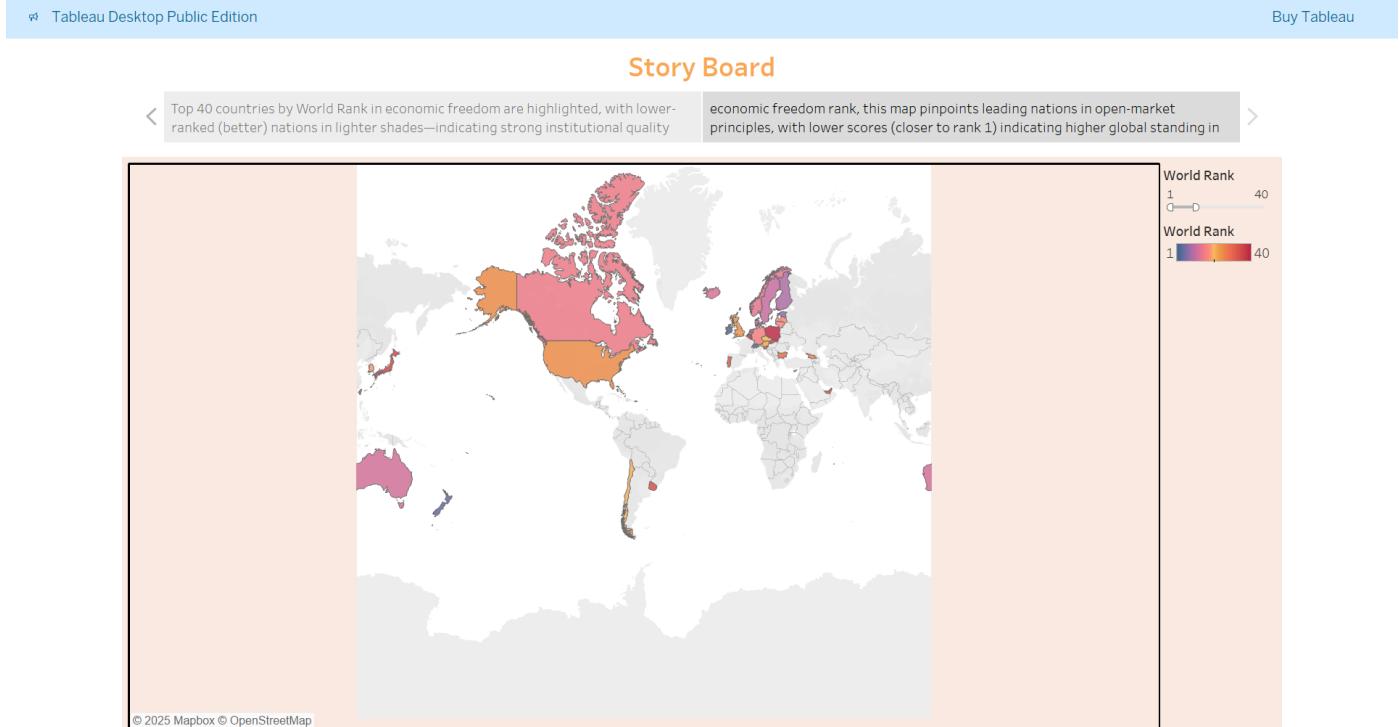
Story

1.



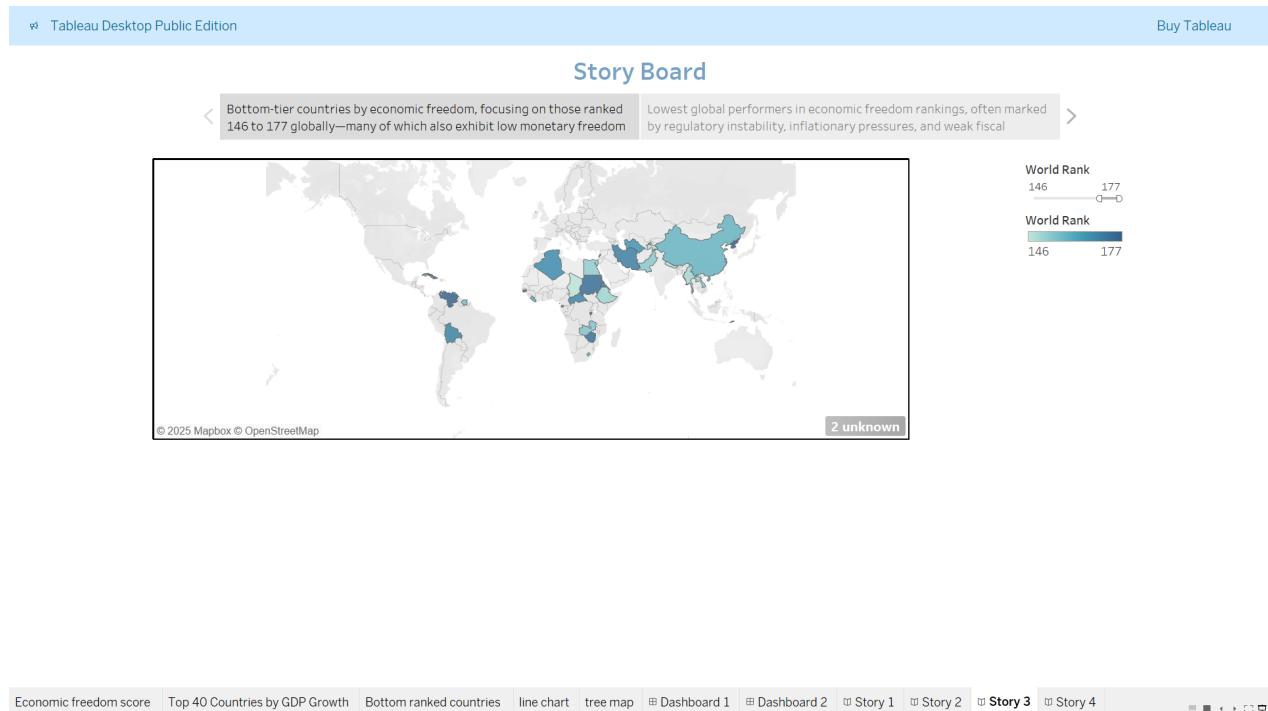
Economic freedom score Top 40 Countries by GDP Growth Bottom ranked countries line chart tree map [Dashboard 1](#) [Dashboard 2](#) [Story 1](#)

2.

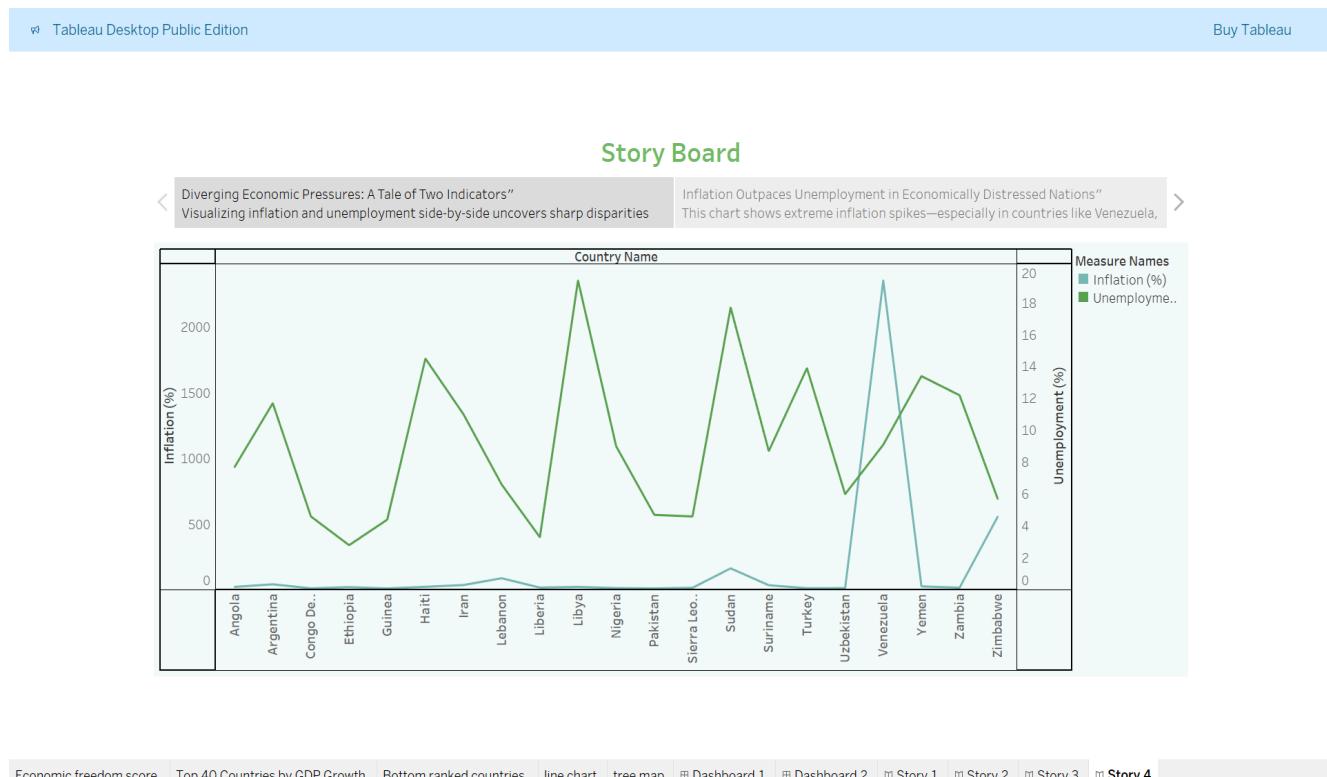


Economic freedom score Top 40 Countries by GDP Growth Bottom ranked countries line chart tree map [Dashboard 1](#) [Dashboard 2](#) [Story 1](#) [Story 2](#)

3.



4.

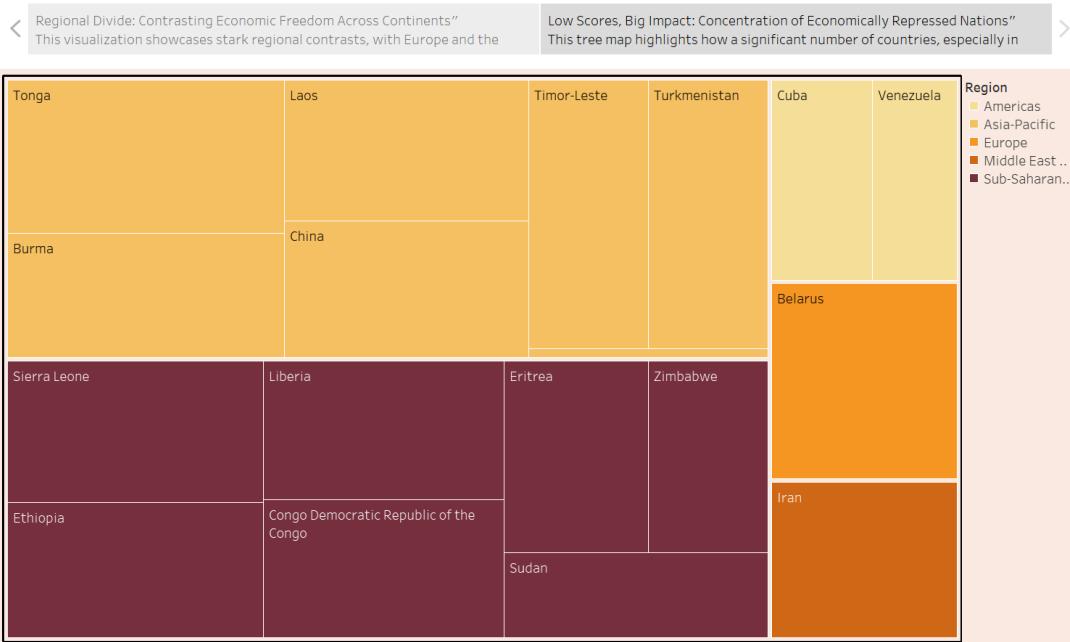


5.

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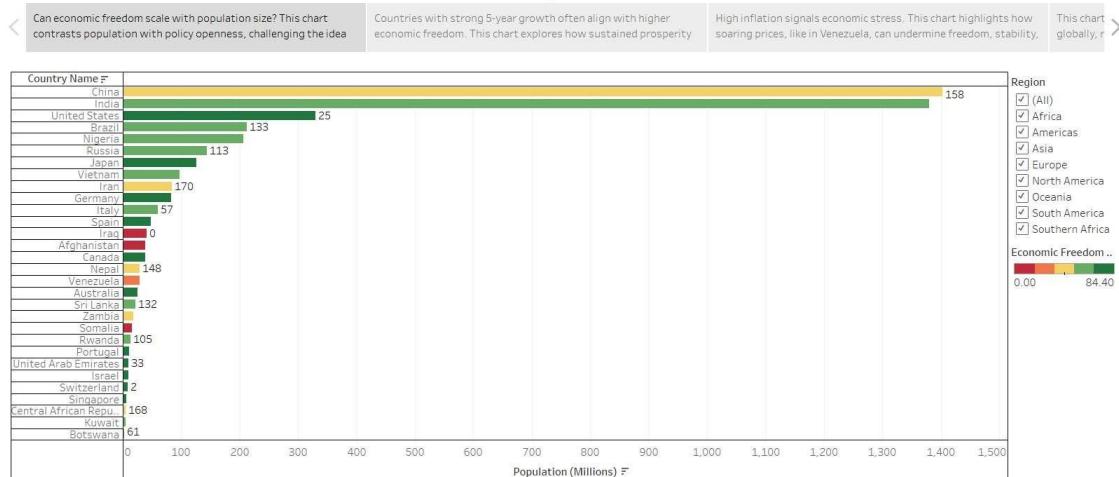
Economic freedom score | Top 40 Countries by GDP Growth | Bottom ranked countries | line chart | tree map | Dashboard 1 | Dashboard 2 | Story 1 | Story 2 | Story 3 | Story 4 | Story 5 | Navigation icons

6.

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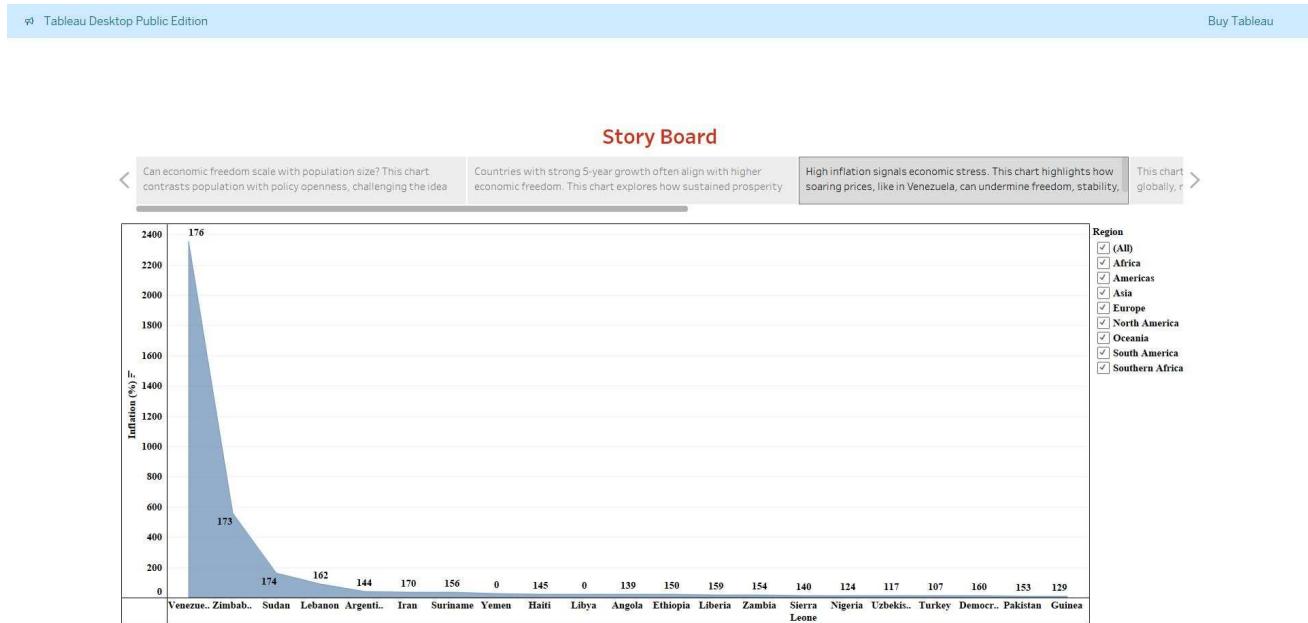


01 11 10 09 08 07 06 | Dashboard 1 | Dashboard 2 | Dashboard 3 | Story 1 | Navigation icons

7.



8.

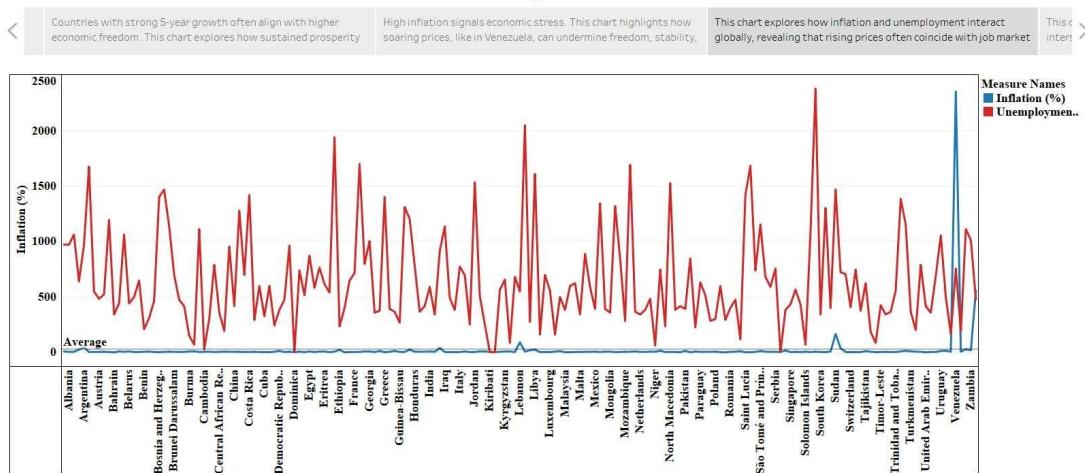


9.

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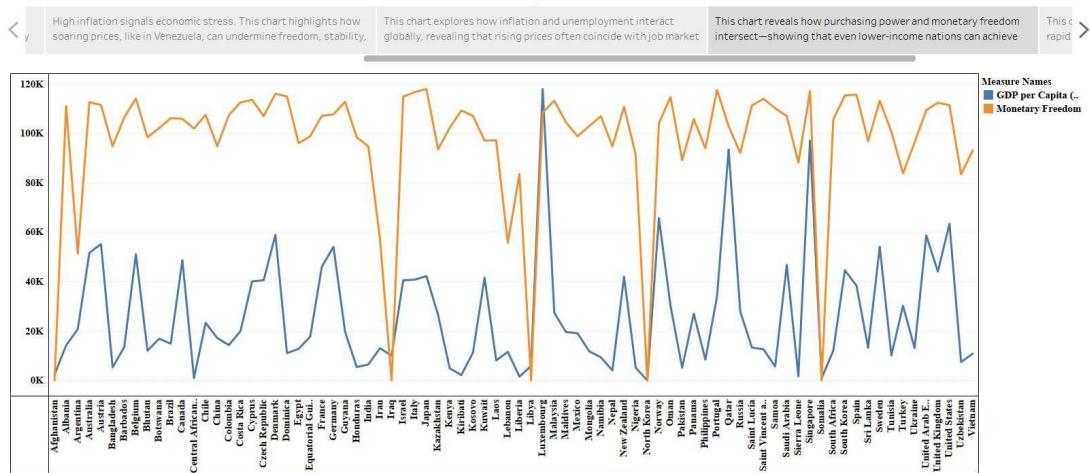
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10.

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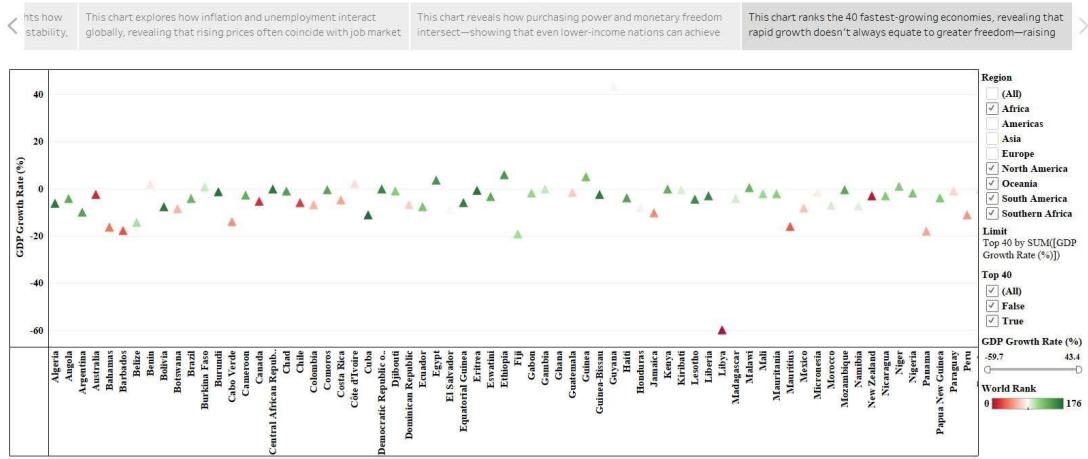
01 11 10 09 08 07 06 Dashboard 1 Dashboard 2 Dashboard 3 Story 1

11.

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What We Learned

- We gained hands-on experience working with real-world economic data
 - Developed skills in Tableau: calculated fields, trend lines, filters, and parameters
 - Learned how to tell stories with data—not just show charts
 - Understood how policy, economics, and data visualization intersect
-

What We're Submitting

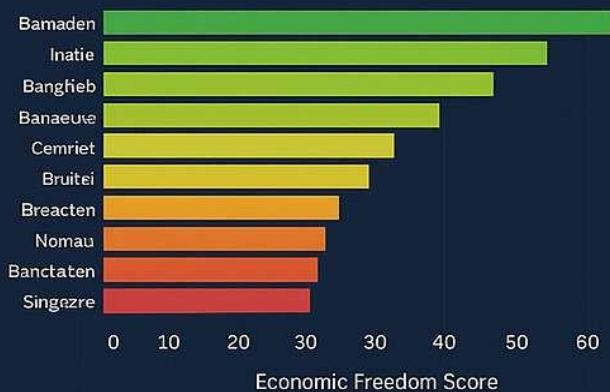
- **Public Dashboard Link:**
 - **GitHub Repo Link:**
 - **Dataset Used:** 2022 Economic Freedom Index
 - **Project Demo Video:**
-

Cover Poster (3D Visual):

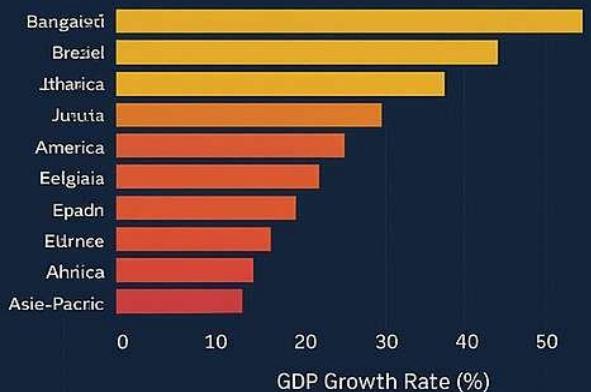
Measuring the Pulse of Prosperity:

An Index of Economic Freedom Analysis

Index Score Based on Population



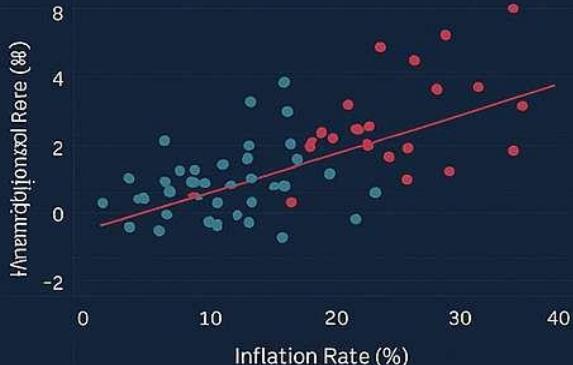
Top 40 Countries by GDP Growth Rate



Correlation Between GDP (PPP) and Monetary Freedom



Correlation Between Inflation and Unemployment



Inflation Rate in Different Countries



This document is part of our final submission for the SmartInternz & APSCHE internship program. It reflects our effort, learning, and commitment to data-driven insights.