Global GDP Growth Explorer: Tableau Dashboard Development

Author: Sai Kumar Murarishetti

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Introduction

This document provides step-by-step guidance on the development of an interactive Tableau dashboard visual. It outlines every phase of the workflow, from data import and modeling through visualization creation dashboard.

About the Project

The primary goal of this project was to empower analysts and stakeholders with an intuitive, interactive dashboard. Leveraging IMF's Real GDP per capita growth data, the dashboard enables users to animate country-level by combining temporal animations, top-performer rankings and detailed trend analyses, this tool reveals is Developed for it was published on Tableau Public to ensure broad.

Content

I began by connecting Tableau directly to the raw IMF Data.xlsx, choosing the single sheet that listed each country across 35 "Year_####" columns. Rather than leave the data in its wide format, I used Tableau's Pivot feature to turn all the "Year" columns into two fields—Year (as an integer) and GDP Growth % (as a decimal)—so that every row represented one country in one year. Next, I brought in a small lookup file mapping each country to its IMF region and defined a many-to-one relationship (many GDP records per country to one region entry) so I could color and compare data at both the country and regional level without physically joining or denormalizing my dataset.

With the data properly structured, I created key calculated fields to surface deeper insights: a Year-over-Year Change formula that subtracts each year's growth from the prior year and a 3-Year Moving Average using a window function to smooth out volatility. I also filtered out any nulls or placeholders, converted Year to a true date or integer, and ensured my region names were consistent (no trailing spaces or mismatched spellings).

On the Map worksheet, I dragged Country (set to its geographic role) onto the view and colored each shape by GDP Growth %, then added Year as a Pages control so viewers could animate the world's growth rates through time. In a separate Line Trend sheet, Year went on Columns and GDP Growth % on Rows; I layered all country lines in low-opacity gray, then used a parameter to let users highlight up to five countries in vivid blue. A zero-

percent reference line immediately shows positive vs. negative growth. For the Bar Chart, I built a Top N filter driven by a parameter so that at any selected year, the fastest (or slowest) growing economies rise to the top.

Bringing those three views together on a floating, two-column dashboard, I placed Year and Region filters at the top, anchored the map on the left, and stacked the trend and bar charts on the right. I added both filter actions (clicking a region on the map filters the charts) and highlight actions (hovering a line in the trend view emphasizes that country on the map). I fine-tuned tooltips to include each country's 3-year average, its rank for the chosen year, and its growth volatility, so users get context without extra clicks.

Finally, I polished the design—choosing a clean sans-serif font, hiding gridlines, and applying a coherent diverging color palette: blues for growth, reds for contraction. After verifying everything, I published the workbook to Tableau Public (or our internal Tableau Server), scheduled daily refreshes in case the IMF data updates, and embedded the live dashboard link in my internship assignment. This end-to-end process—from Excel imports through pivot, relationships, calculated fields, chart building, interactivity, and publication—ensures both data integrity and a compelling, user-friendly exploration of global GDP growth dynamics.

1. Project Overview

Q: What was the goal of your Tableau workbook?
A: To visualize IMF Real GDP per capita growth from 1990–2024 for 190+ countries, allowing users to explore trends over time, compare regions, and pinpoint outliers.

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2. Data Connection & Model

Q: How did you bring the raw Excel into Tableau?
A:

1. In Tableau's "Data" pane, clicked **Connect → Microsoft Excel** and selected the provided IMF Data.xlsx.
2. Tableau showed a single sheet with columns for Country and Year_1990…Year_2024.

Q: How did you model relationships between tables (or within this sheet)?
A:

- **Pivot to tall format**: In the Data Source tab, I selected all "Year_####" columns, right-clicked → **Pivot**, yielding three fields: Country, Pivot Field Names (renamed **Year**), and Pivot Field Values (renamed **GDP Growth %**).
- **Country lookup**: To add region metadata, I brought in a small "Country-to-Region" lookup CSV and defined a relationship (Tableau 2020.2+ relationships) between Country in the GDP sheet and Country in the lookup.
- **Cardinality**:
    - GDP → CountryLookup = **many-to-one** (many GDP rows per country to one region record).
    - If you had multiple fact tables (e.g. Inflation), you'd define many-to-many relationships; accordingly, in this case it remained many-to-one.

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3. Data Transformation & Calculations

Q: What cleaning/transforms did you perform?
A:

1. **Data types**: Converted **Year** to integer, **GDP Growth %** to decimal.
2. **Filters**: Excluded nulls or anomalous entries (e.g. missing country codes).
3. **Calculated fields**:
    - *YoY Change* = ZN([GDP Growth %]) - LOOKUP (ZN([GDP Growth %]), -1)
    - *3-Year MA* = WINDOW_AVG ([GDP Growth %], -2, 0)

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4. Building Visuals

Q: Which worksheets did you create?
A:

- **Map**:
    - Dragged **Country** to Detail (set geo-role), **GDP Growth %** to Color, **Year** to Pages for animation.

- **Line Trend**:
    - **Year** → Columns, **GDP Growth %** → Rows, **Country** → Color (opacity 20%), plus a parameter to highlight up to 5 selected countries. Added reference line at 0%.
- **Bar Chart**:
    - **Country** (filtered Top N by GDP Growth) → Rows, **GDP Growth %** → Columns. Used a parameter-driven Top N filter.
- **Table KPIs**:
    - Created a simple table showing each region's average growth and standard deviation for the selected year.

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5. Dashboard Assembly

Q: How did you combine these into a dashboard?
A:

1. **Canvas layout**: Two-column floating layout—Map on the left, Trend above Bar Chart on the right.
2. **Filters & Parameters**:
    - Placed a **Year** slider and **Region** multi-select dropdown at the top.
    - Added a **Top N** parameter control for the bar chart.
3. **Actions**:
    - **Filter Action**: Clicking a region on the map filters the Trend and Bar.
    - **Highlight Action**: Hovering a line in the Trend highlights that country on the map.
4. **Styling**:
    - Applied a consistent blue/red diverging palette, hid gridlines, used a sans-serif font, and added clear titles/subtitles with data source attribution.

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6. Interactivity & UX Enhancements

Q: What extra features improve user engagement?
A:

- **Dynamic tooltips** showing each country's 3-year MA, rank, and stability metric.
- **Parameter controls**: Let users switch between absolute % growth and rank position.
- **Annotations** on the Trend view marking the 2008 Financial Crisis and 2020 COVID shock.

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7. Deployment & Sharing

Q: How did you publish and share this dashboard?
A:

1. **Publish to Tableau Public/Server** under "Project Country by Sai Kumar Murarishetti."
2. Set data refresh schedule (if connected to live data).
3. Embedded the Dashboard Link Below. Project Country | Tableau Public