Global Economic Outlook — Interactive Dashboard Report (2001–2020)

1.1 Introduction

1.1.1 Scenario Summary

The scenario focuses on supporting a thinktank that aims to better understand global economic development. The organisation has access to a dataset from the International Monetary Fund's (IMF) Global Economic Outlook, which contains 44 economic indicators covering more than 180 countries over the period 2001–2020.

The purpose of the task is to explore this dataset and develop an interactive, single-screen Power BI dashboard that helps both policymakers and the general public understand patterns of economic performance at the country and country-group level.

Although the brief allows for either a single-year economic snapshot or a broader time-series perspective, the dashboard has been designed around long-term trends, as this approach provides a clearer picture of structural progress, recurring challenges, and changes in economic conditions over time.

1.1.2 Initial Data Exploration Findings and Dashboard Objectives

1.1.2.1 Initial Exploration Findings

Early exploration of the dataset highlighted several important characteristics of the dataset:

- **Strong variation across countries:** Some economies display steady, predictable behaviour, while others show significant volatility—particularly in indicators such as inflation, GDP growth and government debt.
- **Multiple versions of the same indicator:** Several indicators appear under different units or definitions (e.g., inflation as a percentage change versus index values), requiring careful cleaning and standardisation before analysis.
- **Uneven data completeness:** Certain countries have full time-series coverage, while others have missing values in particular years, especially earlier in the dataset.
- **Sensitivity of specific indicators:** Measures such as inflation and fiscal balances can be heavily influenced by extreme events, meaning long-term averages may not always reflect typical economic conditions.
- **Clear regional and income-group patterns:** Early profiling revealed noticeable differences between advanced economies, emerging markets and low-income countries, reinforcing the value of including regional and income-group comparison options.

1.1.2.2 Dashboard Objectives

Based on these observations, the dashboard has been designed with the following aims:

- Highlight long-term economic trends to give users a clearer sense of economic progress or instability.
- Provide flexible year-range filtering, allowing users to examine short-term, medium-term or long-term performance.
- Present key indicators using clear and intuitive visuals, with a focus on GDP growth, inflation, unemployment, government debt and savings or investment trends.
- Enable comparisons between countries and broader groups (such as regions or income classifications) to support quick and meaningful benchmarking.
- Ensure accessibility and ease of interpretation, making the dashboard useful not only for analysts but also for non-technical audiences.

1.2 Explanation and Justification of Dashboard Visualisations

The final dashboard brings together visuals that make it easy to understand how countries have performed economically from 2001 to 2020. The aim was to use clear, intuitive visualisations that support quick interpretation and help users explore long-term trends.

1.2.1 Cards with Mini Trendlines

The cards give an instant snapshot of key indicators such as GDP growth, inflation, unemployment and debt. Each card shows the average value for the selected years and includes a small sparkline to show whether the indicator has risen, fallen or fluctuated. Colour cues reinforce interpretation—green for improvement indicators and red for negative ones.

1.2.2 Bar Chart

The bar chart highlights countries with the strongest performance (based on GDP growth). Bar charts are straightforward—the eyes can easily compare lengths, so it's simple to see which countries are doing better.

1.2.3 Line Chart

This line chart focuses on trends over time. It shows how GDP growth (or any other chosen indicator) has changed year by year, making it easier to spot economic cycles, shocks, recoveries or slowdowns.

Line charts as discussed in the lecture notes are widely considered the best way to show time-series data. With minimal clutter, users can focus directly on the movement of the data.

1.2.4 Radar Chart

The radar chart provides a quick overview of how a country performs across multiple indicators at once, offering a balanced "economic profile" for regions, countries and income groups.

1.2.5 Indicator Selection Buttons

The indicator-selection buttons let users switch between different long-term trends without crowding the page, keeping everything accessible on a single screen.

1.2.6 Perspective Filters

Filters for country, region, income group and year range allow users to explore the data from different perspectives. The dashboard responds instantly to these inputs, supporting flexible and intuitive analysis.

Because every visual responds instantly, users can explore the data in an intuitive and flexible way.

The dashboard was built to highlight economic trends in a way that feels clear and accessible. The visuals work together to show both the big picture and more detailed patterns. Each choice was guided by well-known visual design principles—keeping things simple, making comparisons easy, emotional encoding with colours and focusing attention on what matters most.

1.3 Dashboard Layout, Formatting, and Composition

The dashboard layout follows established design principles to support quick understanding and low-effort navigation. A clear visual hierarchy is created by placing the headline indicators at the top, allowing users to grasp the overall economic picture before exploring detailed trends. Consistent colour scales, aligned axes, and standardised formatting ensure that users can scan and compare indicators without cognitive overload.

The composition uses a logical left-to-right and top-to-bottom flow, reflecting how most users naturally process information. Trend-focused visuals are positioned centrally to emphasise the dashboard's core objective—tracking changes over time—while filters for year ranges, regions, and income groups sit along the top to ensure high visibility. This supports interactive exploration without cluttering the main analytical space.

White space, restrained colour use, and repeatable visual patterns keep the design clean and readable, preventing distraction. These choices align with best practices in dashboard design theory, emphasising simplicity, consistency, and immediate interpretability – as discussed in week two of the module learning. Overall, the layout is structured to balance clarity with interactivity, ensuring policy-makers and the public can explore economic performance trends intuitively and efficiently.

1.4 Implementation

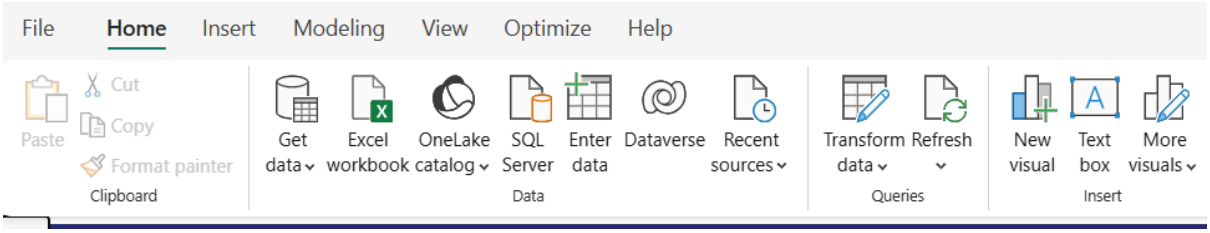
1.4.1 Data Preparation

1.4.1.1 Loading the Data

The goal here was to create a clean star schema with the datasets (tables) made available for the project. The dataset names were as follows:

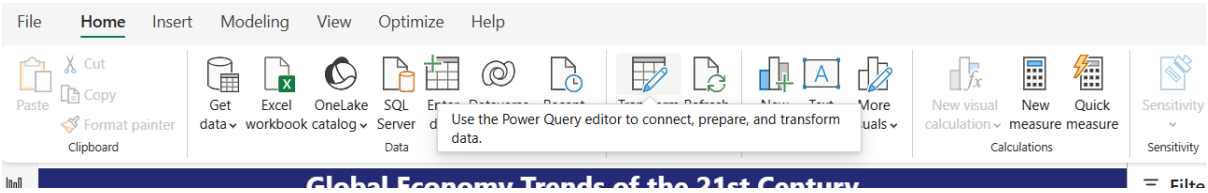
- **Data.xlsx:** Contained information about the various countries and the value of their various indicators. It had columns for WEO country code, ISO, Country, Year and the different indicators.
- **Country Groupings.xlsx:** It had information about each country considered by the IMF, their country code, region and income group.
- **Metadata.xlsx:** Contained information about all 44 indicator, their respective indicator code and description. It also had columns to describe the units of these indicators, which proved to be invaluable in choosing the indicators to power visuals.

All three datasets were loaded using the "Excel workbook" feature under the data section in the Home tab:

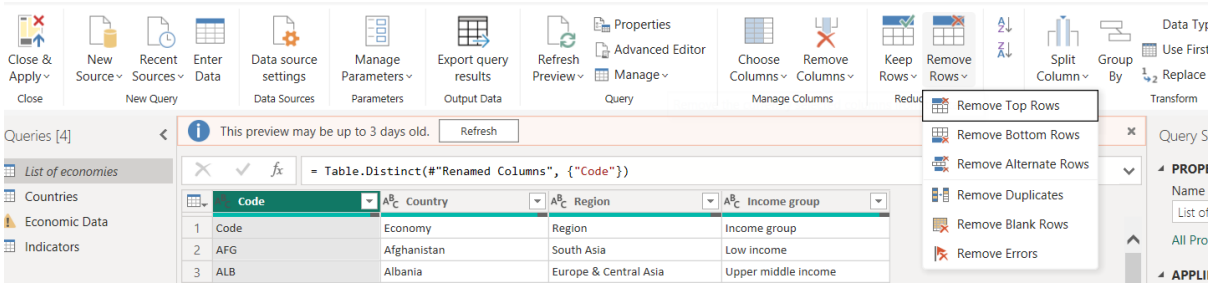


Clicking it brings up a window to upload a file and we upload the three datasets into a tables.

The next task was to remove duplicates from the datasets. The Power Query tool was useful for this. In the Home tab (under query section), clicking on Transform Data automatically opens this tool.



Then using the Remove rows button, one can remove duplicates as shown below:

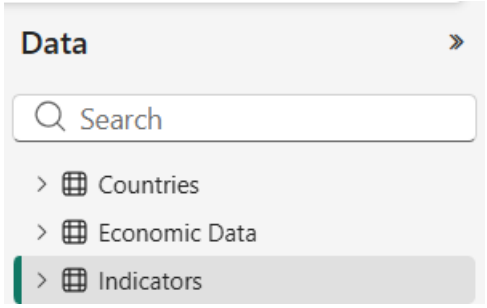


When this was done, we moved on to create relationships between the loaded tables but not before giving the tables more descriptive names to reflect the information they hold.

Data table changed to **Economic Data**

Metadata changed to **Indicators**

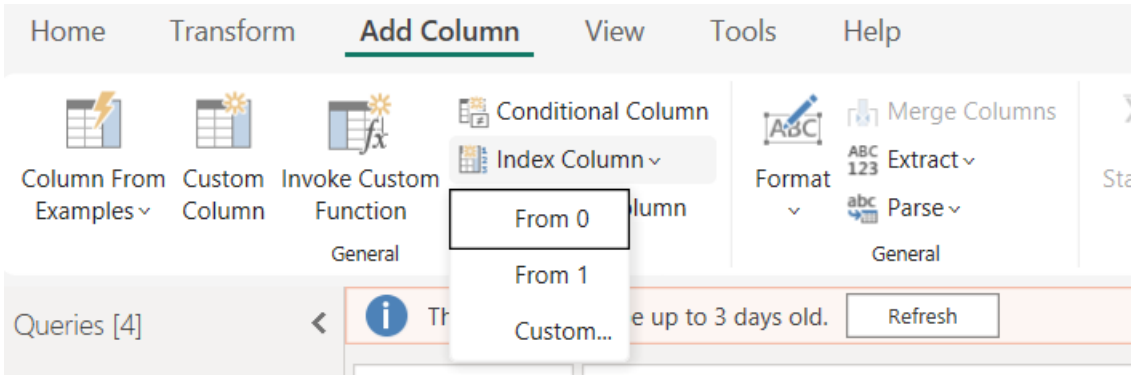
Country Groupings changed to **Countries**



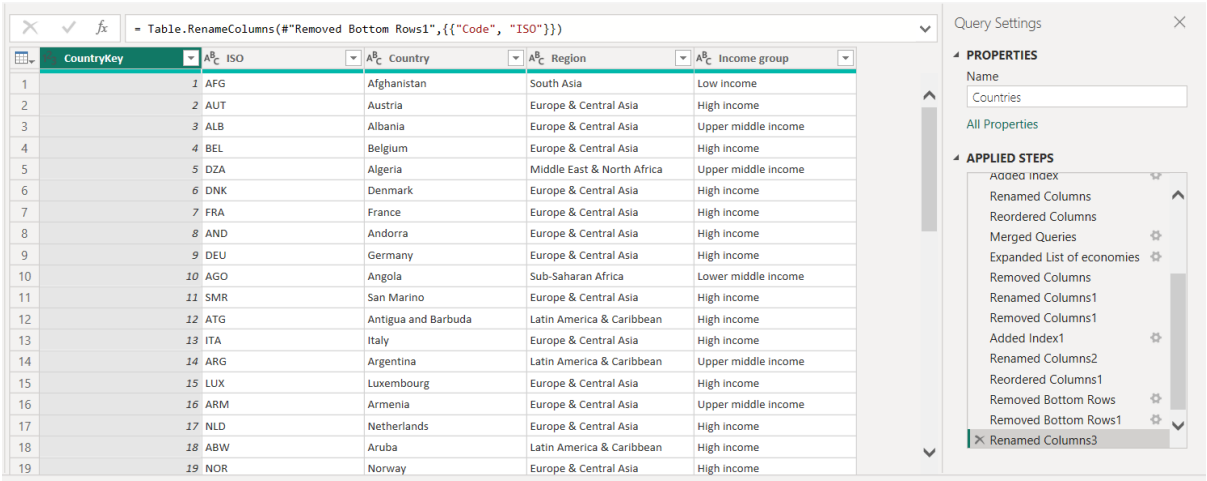
1.4.1.2 Creating Relationships

The task was a bit tricky because of the structure of the fact table (Economic Data). The Country and Code columns for the Countries table are similar to the Country and ISO columns in the Economic Data columns respectively. The ISO column was used to create the first relationship between ***Countries*** and ***Economic Data*****.**

The Code column in Countries was renamed to ISO for consistency. Also, a countrykey column was added to the table to aid effective cross filtering. To add the countrykey column in the power query tool, click on index column in the Add Column tab. 'From 1' option was used.

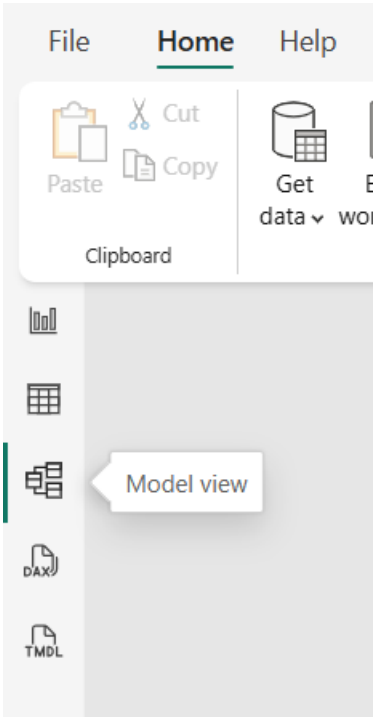


The final table had this output:

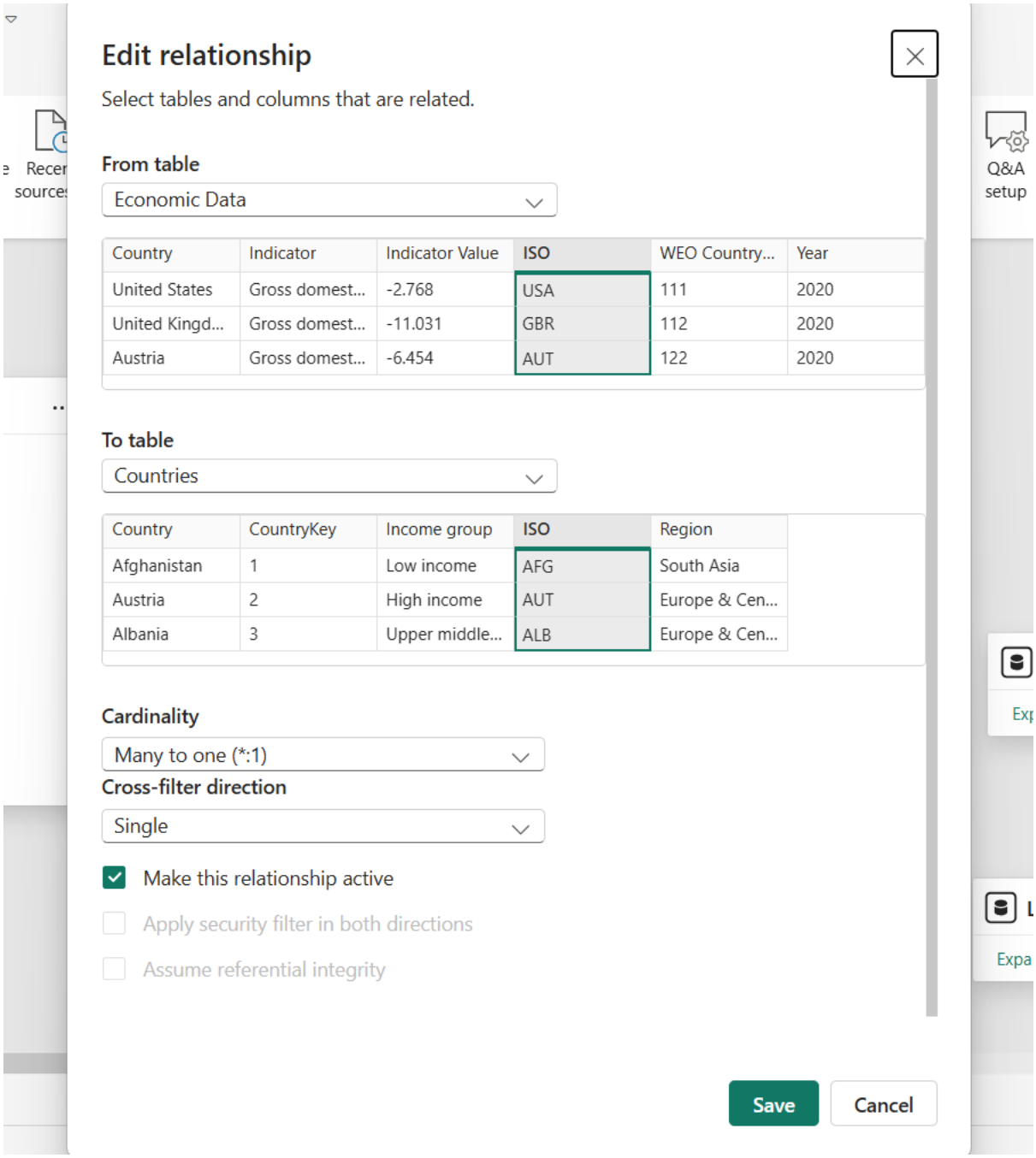


	CountryKey	ISO	Country	Region	Income group
1	1	AFG	Afghanistan	South Asia	Low income
2	2	AUT	Austria	Europe & Central Asia	High income
3	3	ALB	Albania	Europe & Central Asia	Upper middle income
4	4	BEL	Belgium	Europe & Central Asia	High income
5	5	DZA	Algeria	Middle East & North Africa	Upper middle income
6	6	DNK	Denmark	Europe & Central Asia	High income
7	7	FRA	France	Europe & Central Asia	High income
8	8	AND	Andorra	Europe & Central Asia	High income
9	9	DEU	Germany	Europe & Central Asia	High income
10	10	AGO	Angola	Sub-Saharan Africa	Lower middle income
11	11	SMR	San Marino	Europe & Central Asia	High income
12	12	ATG	Antigua and Barbuda	Latin America & Caribbean	High income
13	13	ITA	Italy	Europe & Central Asia	High income
14	14	ARG	Argentina	Latin America & Caribbean	Upper middle income
15	15	LUX	Luxembourg	Europe & Central Asia	High income
16	16	ARM	Armenia	Europe & Central Asia	Upper middle income
17	17	NLD	Netherlands	Europe & Central Asia	High income
18	18	ABW	Aruba	Latin America & Caribbean	High income
19	19	NOR	Norway	Europe & Central Asia	High income

The Model view was accessed by clicking on the Model view button on the left side of the view pane.

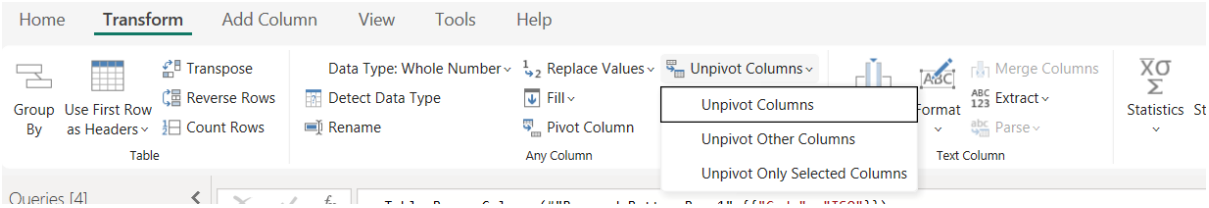


Clicking and dragging ISO from the Countries table to the ISO column in the Economic Data table will form a one to many relationship with this pop-up:

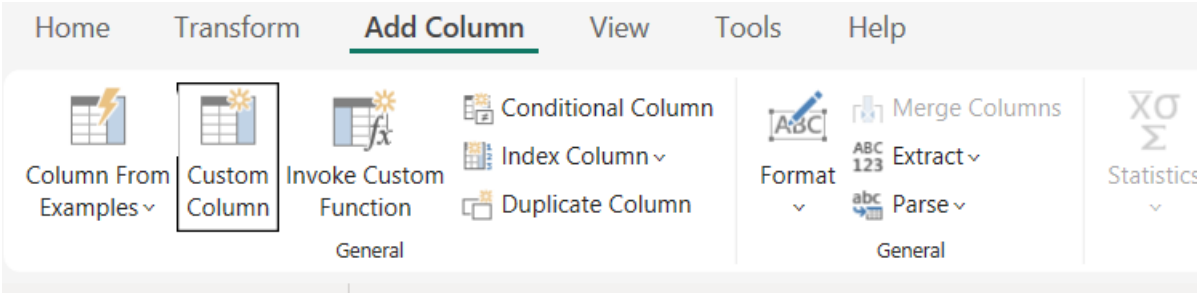


Ensure to tick the checkbox that says '*Make this relationship active'*. Afterwards, click Save.

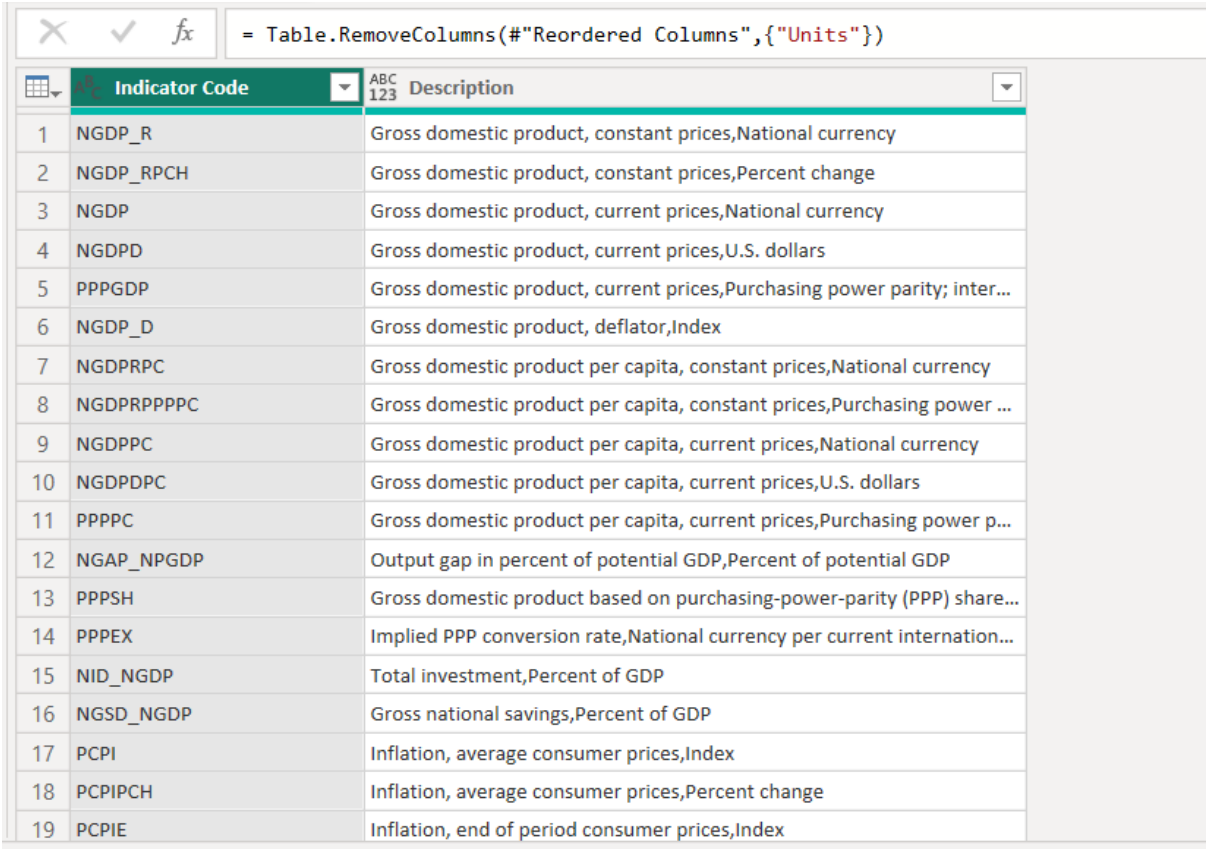
For the second relationship, we first needed to unpivot the fact table. To achieve this, we selected the Id columns (Country, ISO, Year) in the power query editor tool and clicked on Unpivot other Columns in the Transform tab. Next, we renamed Attribute to Indicator and Indicator Value.



Moreover, one will quickly notice that the indicator field for the Economic Data column is derived from merging the Descriptor and Units columns of the indicators table. So, we added a new custom column in the Indicators table with formula to merge the two columns (Description and Units) together separated by ‘,’.

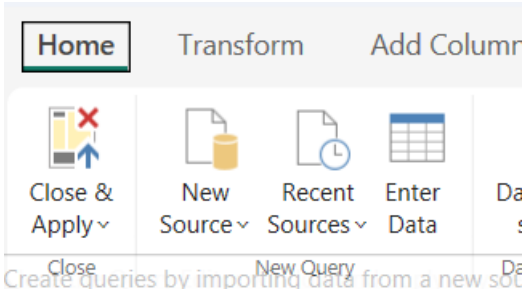


We renamed this column to Description and deleted all unnecessary columns therein. The final Indicators table looked like this:

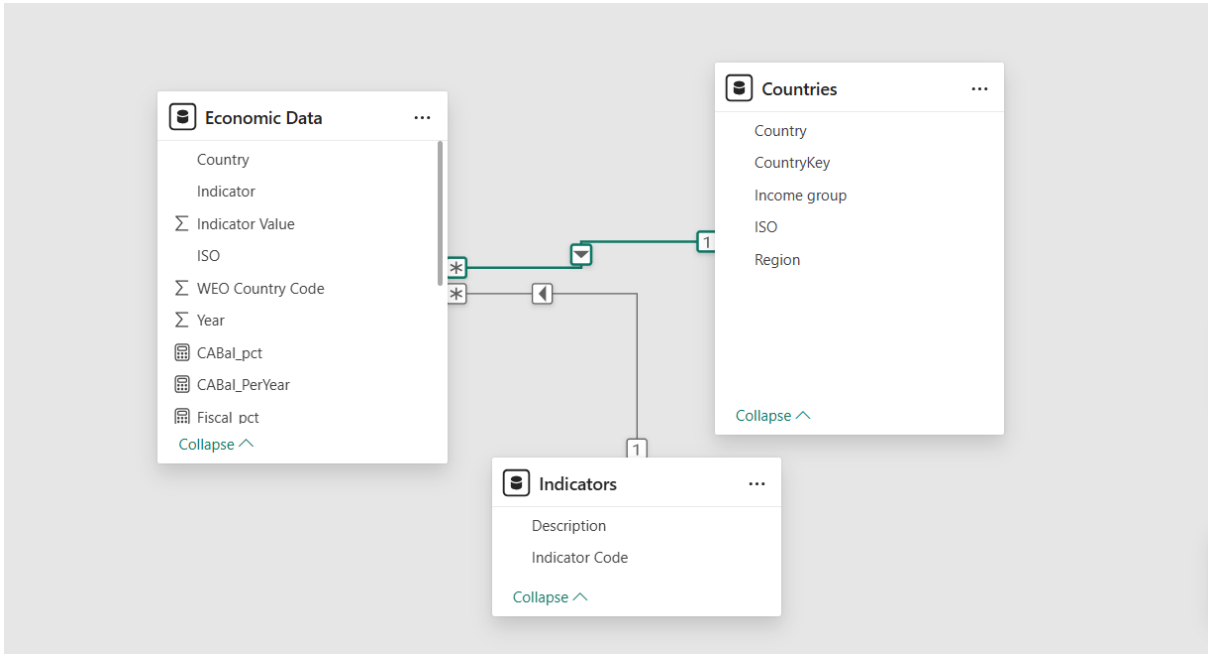


	Indicator Code	Description
1	NGDP_R	Gross domestic product, constant prices,National currency
2	NGDP_RPCH	Gross domestic product, constant prices,Percent change
3	NGDP	Gross domestic product, current prices,National currency
4	NGDPD	Gross domestic product, current prices,U.S. dollars
5	PPPGDP	Gross domestic product, current prices,Purchasing power parity; inter...
6	NGDP_D	Gross domestic product, deflator,Index
7	NGDPRPC	Gross domestic product per capita, constant prices,National currency
8	NGDPRPPPPC	Gross domestic product per capita, constant prices,Purchasing power ...
9	NGDPPC	Gross domestic product per capita, current prices,National currency
10	NGDPDPC	Gross domestic product per capita, current prices,U.S. dollars
11	PPPPC	Gross domestic product per capita, current prices,Purchasing power p...
12	NGAP_NPGDP	Output gap in percent of potential GDP,Percent of potential GDP
13	PPPSH	Gross domestic product based on purchasing-power-parity (PPP) share...
14	PPPEX	Implied PPP conversion rate,National currency per current internation...
15	NID_NGDP	Total investment,Percent of GDP
16	NGSD_NGDP	Gross national savings,Percent of GDP
17	PCPI	Inflation, average consumer prices,Index
18	PCPIPCH	Inflation, average consumer prices,Percent change
19	PCPIE	Inflation, end of period consumer prices,Index

After this, all queries in our query tool closed and applied. The button is found in the far left of our Home tab.



Returning to the Model View, the second relationship was created for the star schema using Indicator from Economic Data and Description from the Indicators table. This would also establish a one-to-many relationship. The final ERD looked something like this:



1.4.2 Key DAX Measures

1.4.2.1 Cards Measures

Measures were created here for both the callout value and the mini trendlines. 12 measures were created with this in mind:

```
CABal_pct =
CALCULATE(
    DIVIDE(AVERAGE('Economic Data'[Indicator Value]), 100),
    KEEPFILTERS('Economic Data'[Indicator] =
        "Current account balance,Percent of GDP"
    )
)
```

```
CABal_PerYear =
CALCULATE(
    AVERAGE('Economic Data'[Indicator Value]),
    'Economic Data'[Indicator] = "Current account balance,Percent of GDP"
)
```

```
Fiscal_pct =
CALCULATE(
    DIVIDE(AVERAGE('Economic Data'[Indicator Value]), 100),
    KEEPFILTERS('Economic Data'[Indicator] =
            "General government net lending/borrowing,Percent of GDP"
    )
)
```

```
FiscalBal_PerYear =
CALCULATE(
    AVERAGE('Economic Data'[Indicator Value]),
    'Economic Data'[Indicator] = "General government net lending/borrowing,Percent of GDP"
)
```

```
GDPGrowth =
CALCULATE(
    DIVIDE(AVERAGE('Economic Data'[Indicator Value]), 100),
    KEEPFILTERS('Economic Data'[Indicator] =
        "Gross domestic product, constant prices,Percent change"
    )
)
```

```
GDPGrowth_PerYear =
CALCULATE(
    AVERAGE('Economic Data'[Indicator Value]),
    'Economic Data'[Indicator] = "Gross domestic product, constant prices,Percent change"
)
```

```
GovtDebt_pct =
CALCULATE(
    DIVIDE(AVERAGE('Economic Data'[Indicator Value]), 100),
    KEEPFILTERS('Economic Data'[Indicator] =
        "General government gross debt,Percent of GDP"
    )
)
```

```
GovtDebt_PerYear =
CALCULATE(
    AVERAGE('Economic Data'[Indicator Value]),
    'Economic Data'[Indicator] = "General government gross debt,Percent of GDP"
)
```

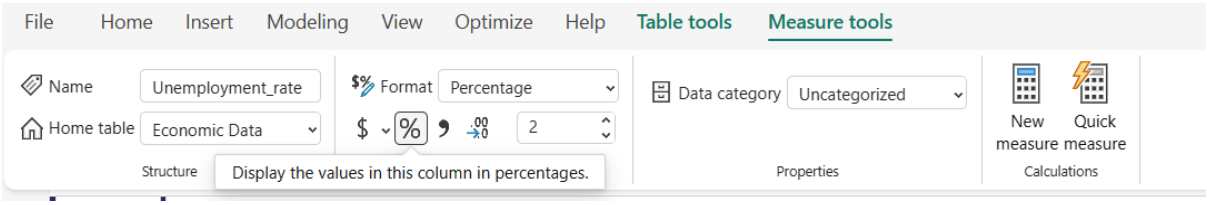
```
Inflation_PerYear =
CALCULATE(
    AVERAGE('Economic Data'[Indicator Value]),
    'Economic Data'[Indicator] = "Inflation, average consumer prices,Percent change"
)
```

```
Inflation_rate =
CALCULATE(
    DIVIDE(AVERAGE('Economic Data'[Indicator Value]), 100),
    KEEPFILTERS('Economic Data'[Indicator] =
        "Inflation, average consumer prices,Percent change"
    )
)
```

```
Unemployment_PerYear =
CALCULATE(
    AVERAGE('Economic Data'[Indicator Value]),
    'Economic Data'[Indicator] = "Unemployment rate,Percent of total labor force"
)
```

```
Unemployment_rate =
CALCULATE(
    DIVIDE(AVERAGE('Economic Data'[Indicator Value]), 100),
    KEEPFILTERS('Economic Data'[Indicator] =
        "Unemployment rate,Percent of total labor force"
    )
)
```

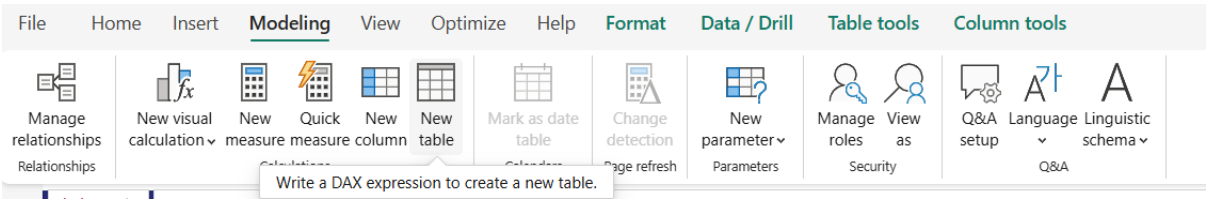
The results of all these measures were already percentages (Percentages of indicators were chosen to cater for normalization concerns especially with bigger values like current account balance as opposed to unemployment figures). Hence, the division by 100 so that formatting as percentage can be consistent. This can be done in the Measure tools section:



1.4.2.2 Radar Chart Measures

Here we needed to create a new table measure as the radar chart category could only take table fields and not calculated ones. This is how it was achieved:

First in the Modeling tab, the new table button was clicked:



And then the DAX expression was added.

```
RadarTable =
DATATABLE(
    "Indicator", STRING,
    {
        {"GDP Growth"},
        {"Inflation"},
        {"Unemployment"},
        {"Fiscal Balance"},
        {"Debt"},
        {"Current Account"}
    }
)
```

After which, it was populated with values dynamically:

```
Indicator Value =
VAR SelectedIndicator =
    SELECTEDVALUE(RadarTable[Indicator])
RETURN
SWITCH(
    SelectedIndicator,
    "GDP Growth",        [GDPGrowth],
    "Inflation",         [Inflation_rate],
    "Unemployment",      [Unemployment_rate],
    "Fiscal Balance",    [Fiscal_pct],
    "Debt",              [GovtDebt_pct],
    "Current Account",   [CABal_pct],
    BLANK()
)
```

1.4.2.3 Line Chart Measures

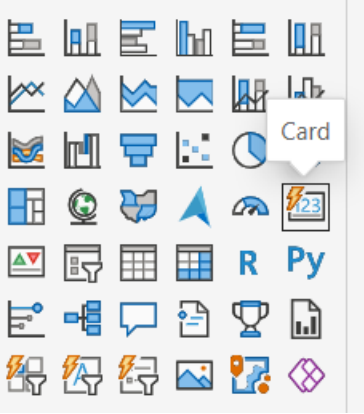
The envisioned goal was to make the Line chart interactive and sensitive to user indicator selection. Thus, a new field measure to handle this.

```
Line Trend Indicators = {
    ("GDP Growth", NAMEOF('Economic Data'[GDPGrowth]), 0),
    ("Current Account Balance", NAMEOF('Economic Data'[CABal_pct]), 1),
    ("Fiscal Balance", NAMEOF('Economic Data'[Fiscal_pct]), 2),
    ("Government Debt", NAMEOF('Economic Data'[GovtDebt_pct]), 3),
    ("Inflation Rate", NAMEOF('Economic Data'[Inflation_rate]), 4),
    ("Unemployment Rate", NAMEOF('Economic Data'[Unemployment_rate]), 5)
}
```

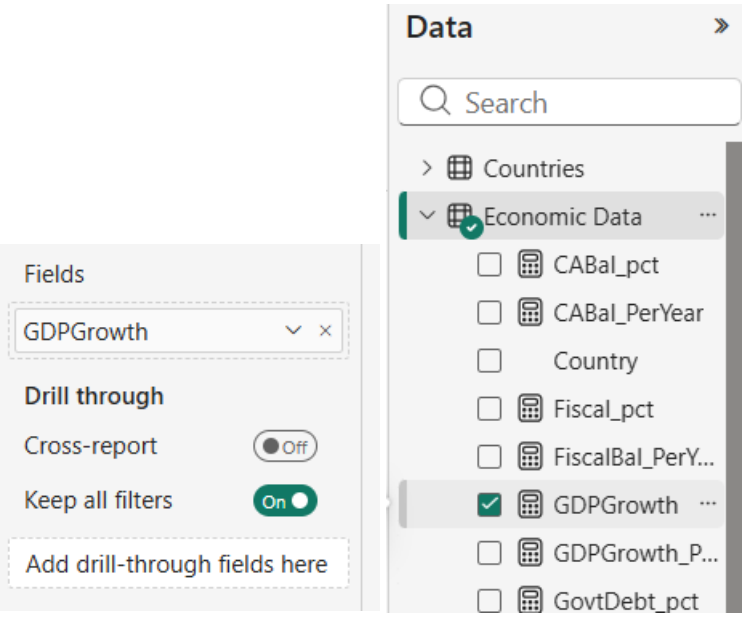
1.4.3 Building the Dashboard

1.4.3.1 Visual 1 – Cards with Mini Trendlines

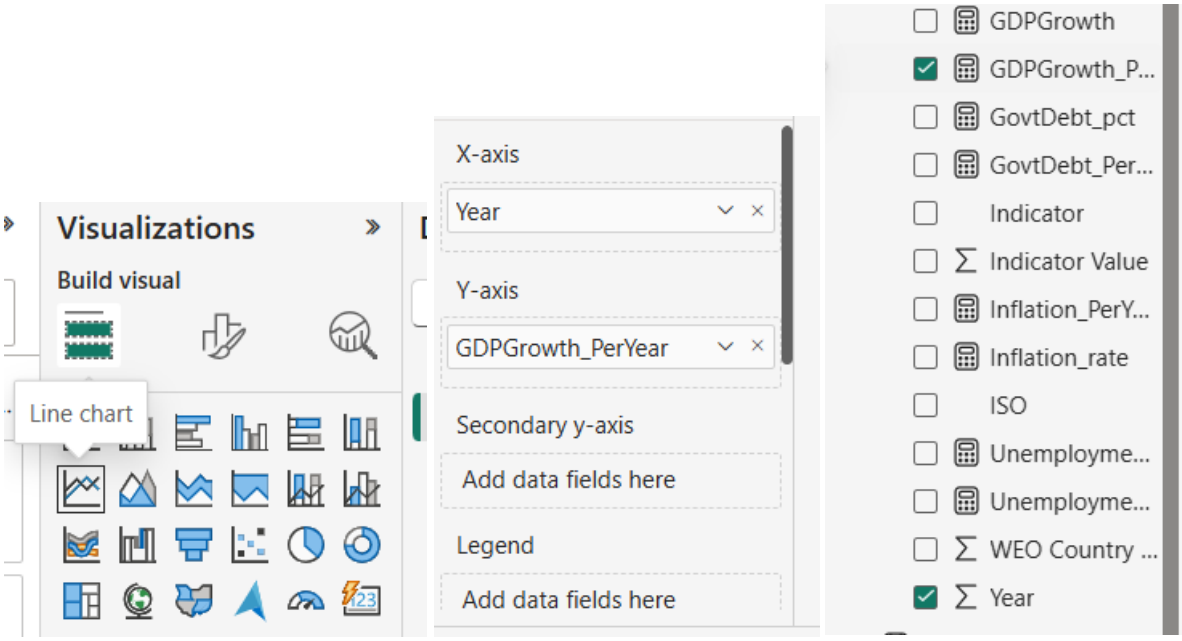
A card visual was added to the top section of the canvas.



The GDPGrowth measure was then dragged to the field section to generate the callout value:

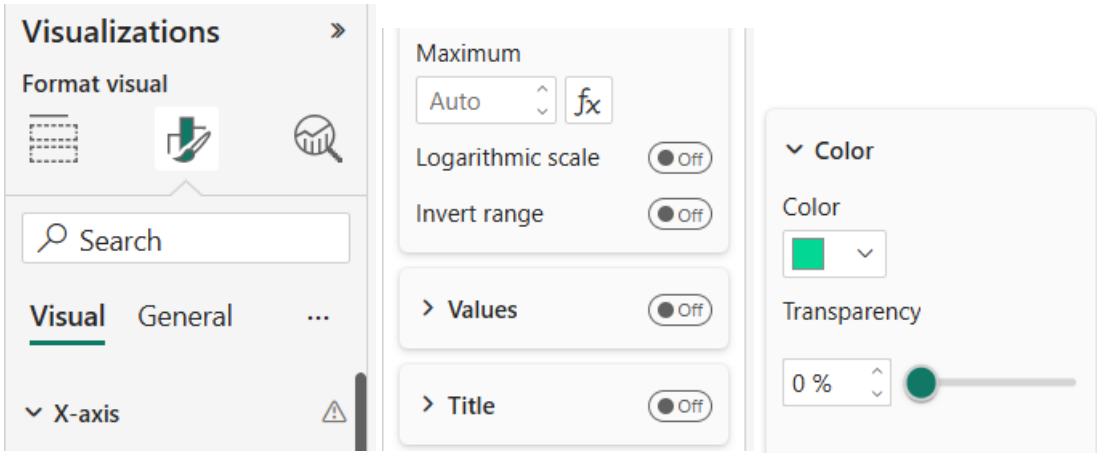


This was repeated six times, for each indicator to be shown. For the mini trendlines, a simple line chart was used and the appropriate measure specific to each indicator dragged to the Y-axis and the Year field populating the X-axis.

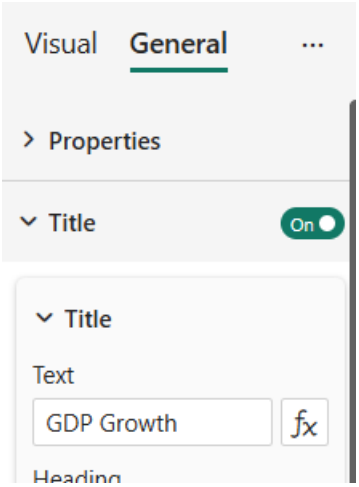


GDPGrowth_PerYear & Year checked

Next the line chart was decluttered by turning all labels off including titles for the axes. It was also encoded for emotional cues by changing the color (In the Visual tab under Lines -> Color).

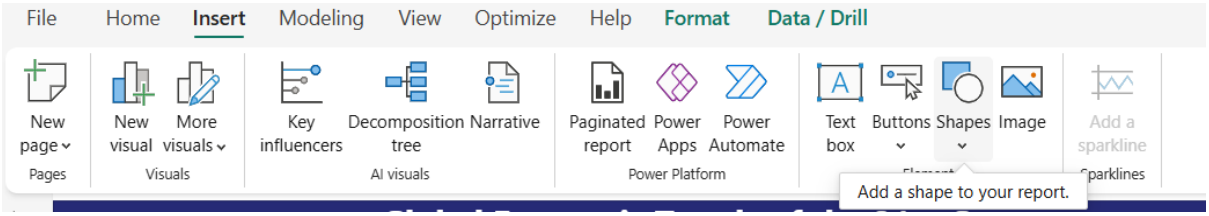


Also the title of the card was added for descriptive context. This was done clicking the Title dropdown in the General section after highlighting the card visual.

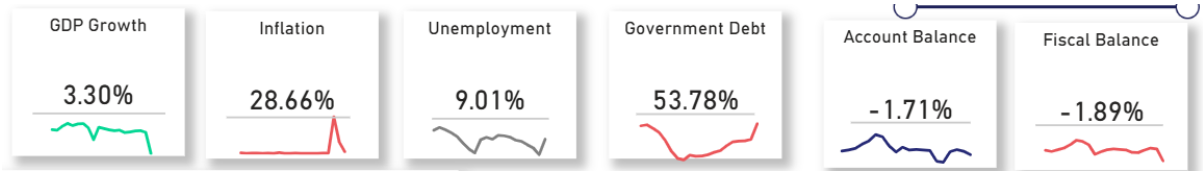


The trendline was then dragged and placed beneath the card callout value.

Finally, a divider line ws added between the two entities. This was achieved using the shape feature in the Insert tab:

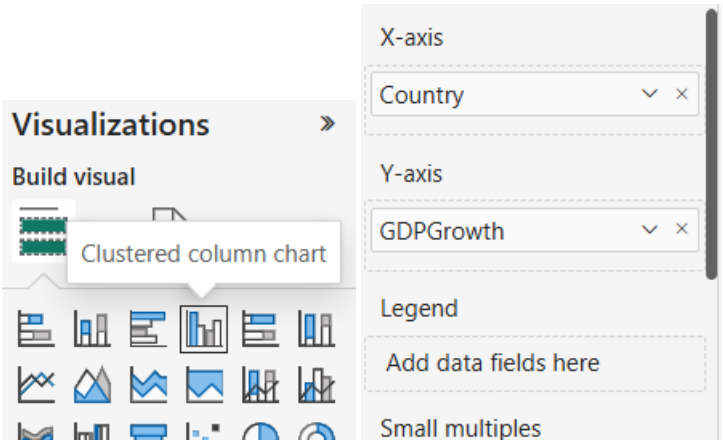


The final output is shown below:

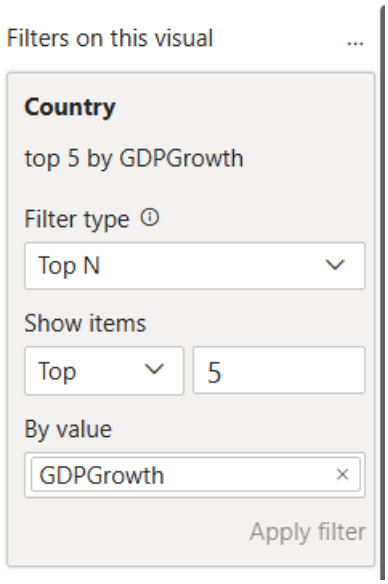


1.4.3.2 Visual 2 – Bar Chart

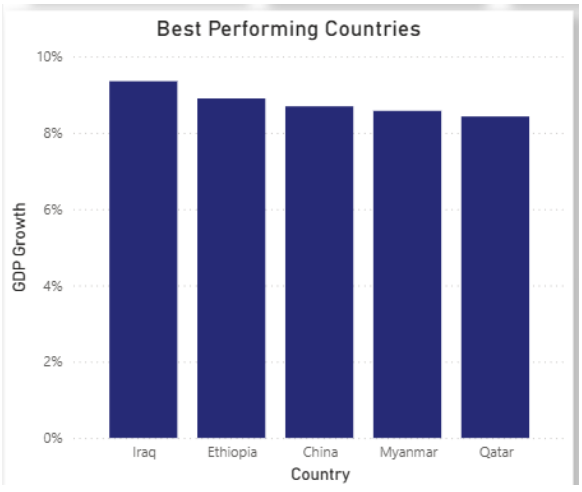
The first step was selection of the clustered column chart from the Build visual pane. After which it was populated with Country (in Economic Data) and GDPGrowth measure on the X-axis and Y-axis respectively.



Next course of action was to filter it to contain the top 5 countries for any selected year range or perspective chosen by the user. This was done using the Top N feature in the Filters pane. This action should be carried out only in the 'Filters on this visual' section.

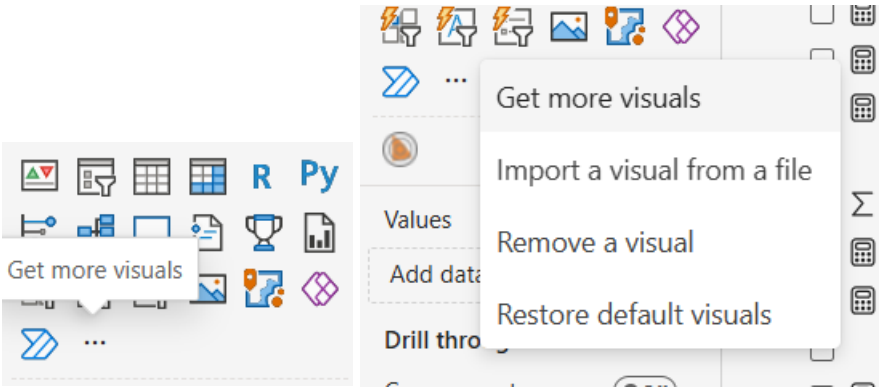


For formatting, the format visual in the Visualization pane was used accordingly to format the title (general tab), X-axis and Y-axis (visual tab) to produce the desired output below.

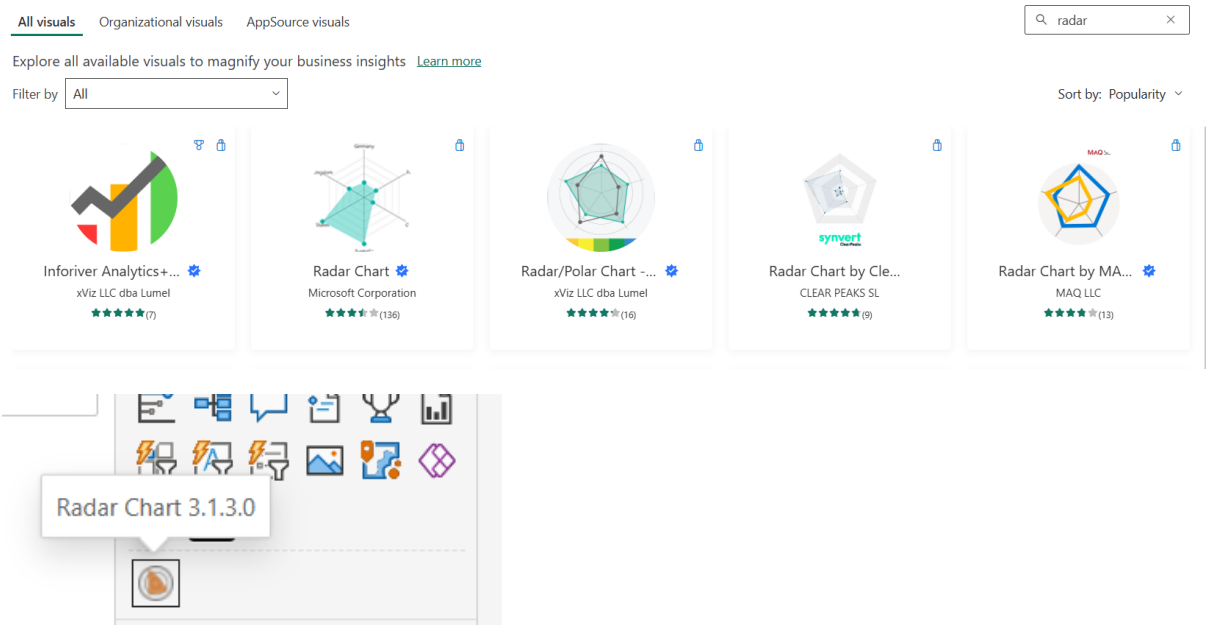


1.4.3.3 Visual 3 – Radar Chart

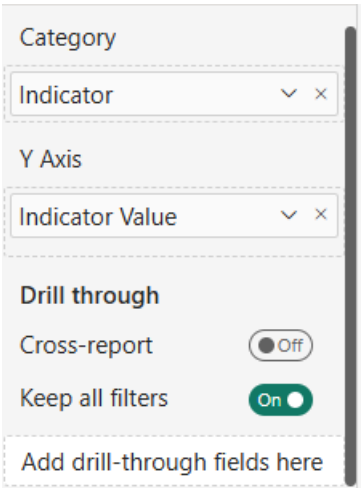
The radar chart does not come in-built with the Power Bi desktop. It however, can be added by accessing the *Get more visuals* feature in the Visualization pane.



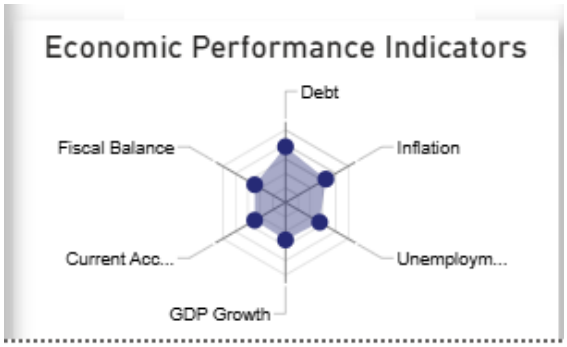
Imputing the keyword radar will bring the radar chart visualization add-on which can be added to the visualization pane.



Clicking on this added a Radar chart visual to the dashboard canvas. Next, the Indicator and Indicator value columns from the previously calculated radar table measure can be dragged onto the Category and Y-axis fields.

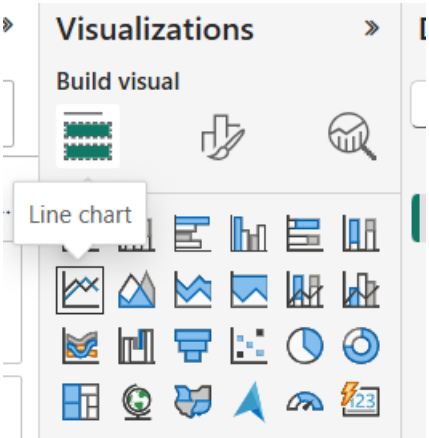


This will populate the visual appropriately and then the visual can be formatted using the format tab in the same pane. Ensure that the Data labels are switched on. The title (in the general tab) should be formatted to produce the desired output.

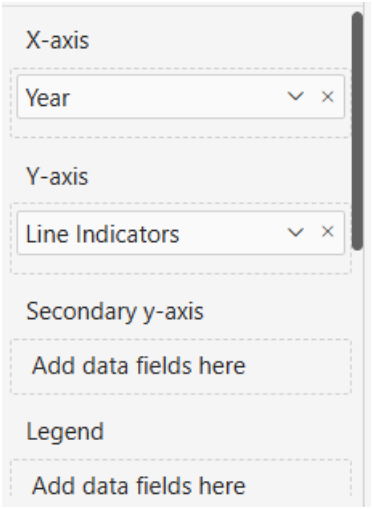


1.4.3.4 Visual 4 – Line Chart

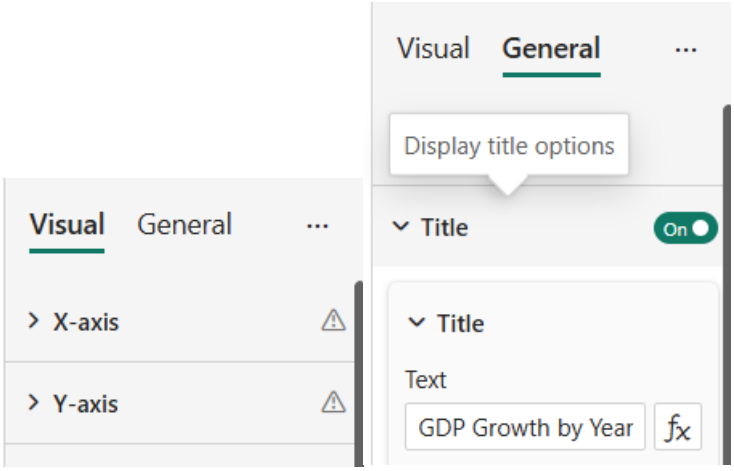
The line chart visual can be added by clicking the line chart icon in the build visual pane.



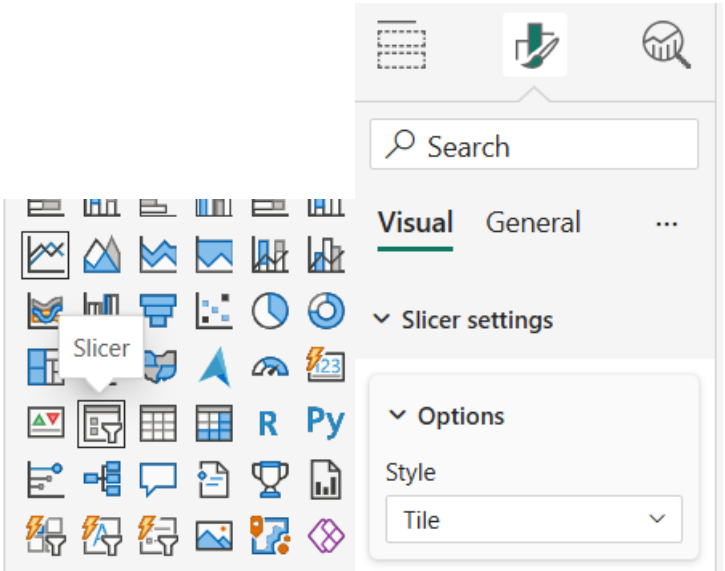
Next is to populate the X-axis and Y-axis. This was done accordingly using the Year and Line indicators field as shown below:



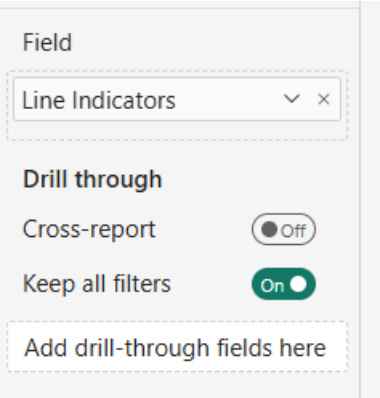
Formatting can be done in the visual tab for X-axis and Y-axis under title, while Title of the visual can be done in the general tab



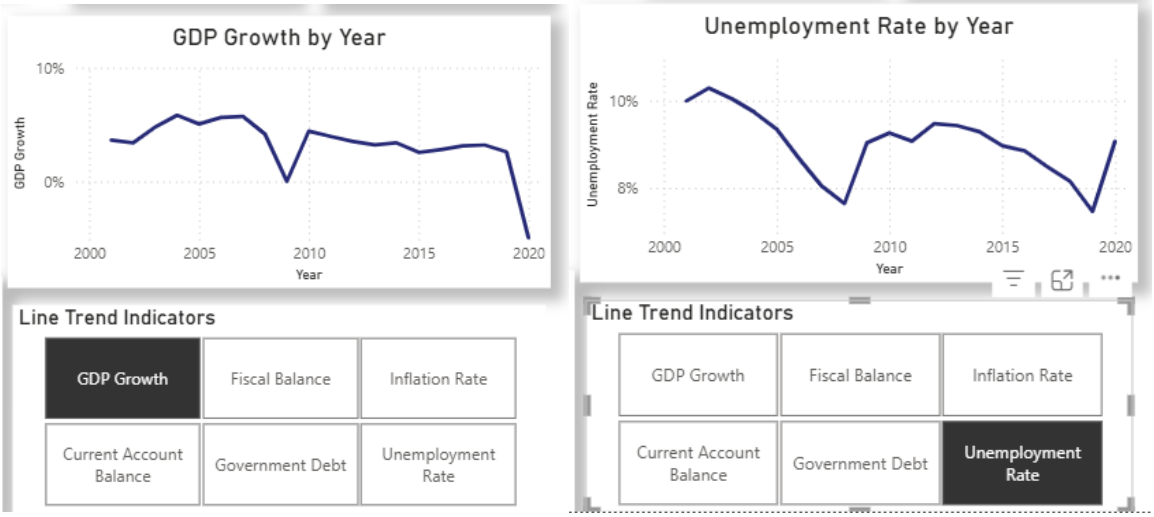
To make the Line chart more interactive and dynamic, a tile slicer was added. This can be achieved following the images below:



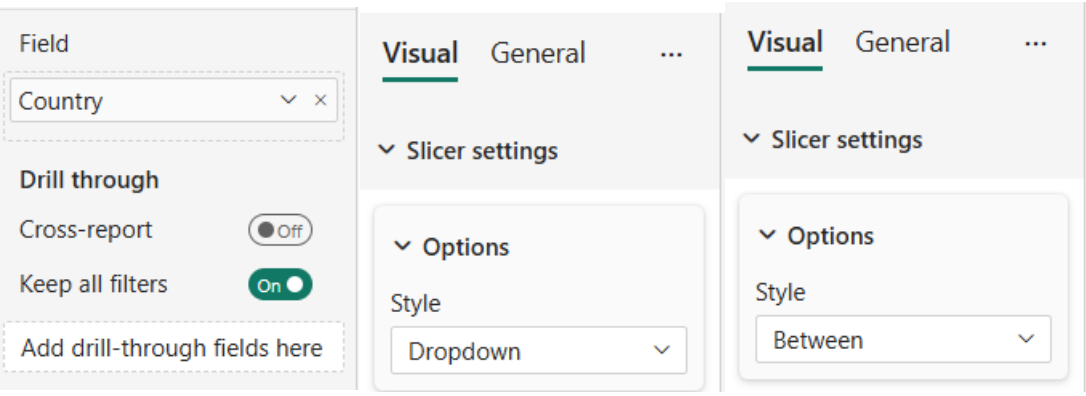
Finally, to populate the slicer filter, the line indicator field from the line trend indicator parameter was added to the Field section:



The tile slicer was placed under the Line chart for ease of reach. This was the desired output.



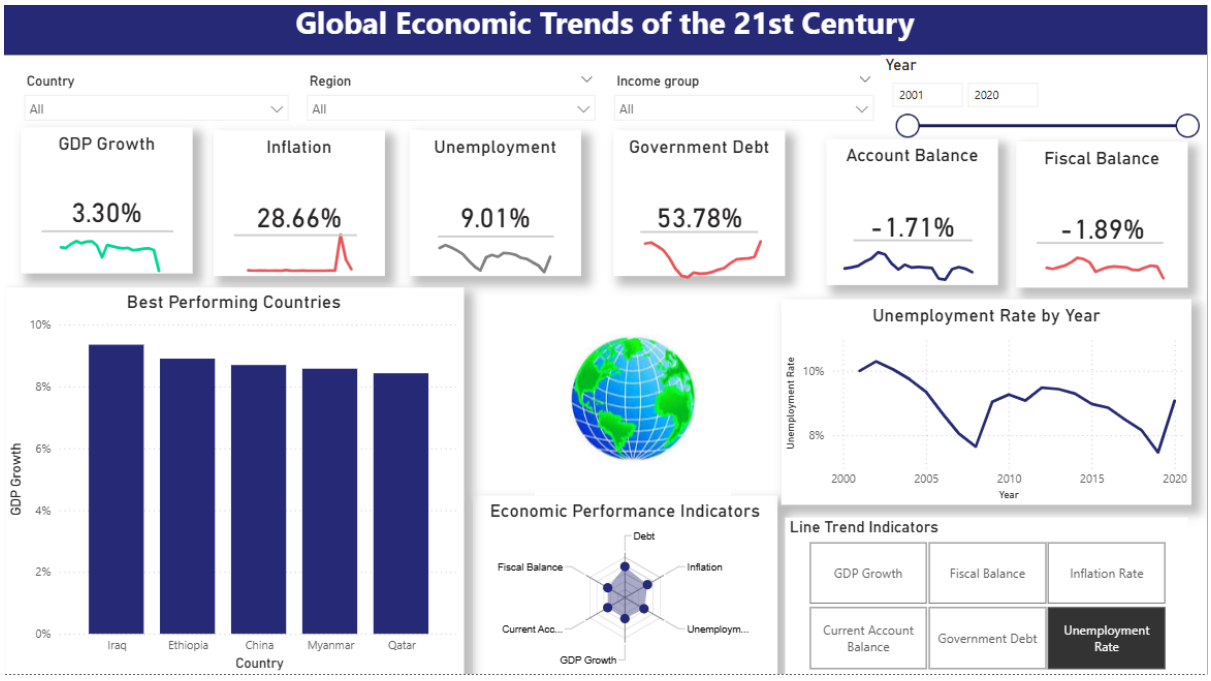
To also improve interactivity, four slicers were added at the top of the canvas. Each slicer had the relevant column in the field section. Country, Region and income group were all dropdowns to help save space. The year slicer was the 'Between' styling



Lastly, A descriptive Dashboard title was added to the top and the Executive theme was applied to convey a corporate feel to the report. A globe image was also added to the centre of the dashboard for aesthetics.

1.5 Final Dashboard

This was the final dashboard output with all layout designs implemented.



1.6 Critical Evaluation of Dashboard

The dashboard effectively provides a clear and interactive view of global economic trends. The combination of KPI cards, sparklines, bar charts, and line trends allows users to quickly understand headline performance while exploring deeper patterns across countries, regions, income groups, and time ranges. The use of responsive slicers and DAX measures ensures that insights update smoothly, making the dashboard easy to navigate and aligned with the goal of supporting high-level policy understanding.

However, the solution has limitations. The reliance on averaged values can sometimes smooth out important year-to-year volatility, and data gaps in the IMF dataset may affect accuracy for certain countries. Some visualisations—such as the radar chart—simplify complex economic relationships and may overstate differences. In addition, the dashboard is descriptive rather than analytical; it highlights trends but cannot explain underlying causes or policy effects. This could be incorporated in future enhancements.