Global Health Expenditure Analysis

Overview: In this Power BI project, we will analyse global health expenditure data to gain insights into different aspects of health spending across countries and regions. The dataset used in this project will contain information on health expenditure, GDP, population, and other relevant metrics.

Objective: The objective of this Power BI project is to analyse global health expenditure data to gain valuable insights into various aspects of health spending across countries and regions. The primary goal is to provide a comprehensive and data-driven view of health expenditure trends, its relationships, and identify key patterns. The analysis aims to answer critical questions and support decision-making in the field of global healthcare

Data Source: We will use a dataset that includes the following key columns:

- **CountryID:** It contains unique identifiers to different countries
- **Country:** Name of the country or region.
- **YearID:** It contains unique identifiers to different years
- **Year**: Year of the data record.
- **Health Expenditure:** Total health expenditure in US dollars.
- **GDP:** Gross Domestic Product in US dollars.
- **Population:** Total population of the country or region

Project Steps:

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Data Loading and Data Modelling:

1. We did some preliminary analysis and found a sample dataset for Global Health Expenditure on Kaggle
2. The dataset was in csv format, the dataset was imported on power BI through Get Data.
3. Delete all the NULL values and empty rows or columns in the dataset.
4. Create a summarized table that are having CountryName, Year, Sum of GDP Amount, Sum of Health Expenditure, and Sum of Population.
5. Create Data Modelling to connect all the five tables namely: Year, Country, Population, Health Expenditure and GDP.

Data Analysis using DAX Functions:

- Create a new table that consolidates information from multiple tables using DAX

  Create a summarized table that are having CountryName, Year, Sum of GDP Amount, Sum of Health Expenditure, and Sum of Population.

- Find the countries/regions with the highest and lowest health expenditure for all years.

  The country with the highest health expenditure for all years is Monacco.

  The country with the highest health expenditure for all years is Democratic Republic of the Congo

- Determine the percentage of health expenditure as a share of GDP for each country.

  Percentage of health expenditure as a share of GDP for each country is 38.93

- Calculate the average health expenditure per capita for each country/region.

  We plot a graph for average health expenditure from which we find Luxembourg and Monoco are having the avg. highest expenditure.

Visualisations:

We conducted a comprehensive analysis of health expenditure across multiple countries/regions, employing various data visualization techniques to gain insights into trends and relationships.

- Calculate the year-to-year percentage change in health expenditure.

Firstly, we calculated the year-to-year percentage change in health expenditure for the selected countries/regions, revealing fluctuations and growth patterns in healthcare spending over time. This analysis highlighted the dynamic nature of healthcare funding.

- Calculate the average annual growth rate of health expenditure over a selected period.

Next, we determined the average annual growth rate of health expenditure over a specified period, providing a quantitative measure of how healthcare spending evolved over time for our chosen regions.

- Create a line chart to visualise the trend of health expenditure over the years for selected countries/regions.

To visually represent these trends, we created a line chart illustrating the trajectory of health expenditure across the years, allowing for easy comparison and identification of trends.

- Create a bar chart to compare health expenditure across different countries/regions for a 2020 year.

For a snapshot of healthcare spending in 2020, we designed a bar chart comparing health expenditure across different countries/regions. This visualization provided a clear picture of the disparities in healthcare funding among nations.

- Use a scatter plot to explore the relationship between health expenditure and GDP.

In exploring the relationship between health expenditure and GDP, we used a scatter plot, revealing potential correlations or divergences between economic prosperity and healthcare investment.

- Utilise a map visualisation to show health expenditure distribution geographically.

To showcase the geographical distribution of health expenditure, we employed a map visualization, offering a spatial understanding of healthcare financing across regions.

Key Findings:

1. Identification of Countries/Regions with Varied Health Expenditure: We have identified countries and regions with the highest and lowest health expenditures over multiple years, shedding light on disparities in healthcare funding.

2. Assessment of Healthcare Economic Burden: We have determined the percentage of health expenditure relative to GDP for each country, helping in assessing the economic burden of healthcare.

3. Evaluation of Average Health Expenditure Per Person: We have calculated the average health expenditure per capita for different countries and regions, indicating the average healthcare spending per individual.

4. Analysis of Year-to-Year Percentage Change: We have analyzed the year-to-year percentage change in health expenditure, highlighting fluctuations and growth patterns over time.

5. Computation of Average Annual Growth Rate: We have computed the average annual growth rate of health expenditure, providing a measure of how healthcare spending has evolved over a specific period.

6. Visualization of Health Expenditure Trends: We have illustrated trends in health expenditure over the years using line charts for selected countries and regions, aiding in trend identification.

7. Comparison of Health Expenditure in 2020: We have created bar charts to compare health expenditure across countries and regions in the year 2020, showcasing disparities in healthcare funding during a crucial year.

8. Exploration of Health Expenditure vs. GDP Relationship: We have explored the relationship between health expenditure and GDP using scatter plots, revealing potential correlations or deviations between the two.

9. Geographic Representation of Health Expenditure Distribution: We have utilized map visualizations to geographically represent the distribution of health expenditure, enhancing our understanding of how healthcare funding is distributed across different regions.

Summary:

We conducted a comprehensive analysis of global health expenditure data, identifying countries with varying healthcare funding levels. We assessed the economic burden of healthcare by comparing expenditure to GDP and evaluated average per capita spending. Year-to-year changes and annual growth rates were analyzed, and trends were visualized using charts. A special focus was placed on 2020 for comparative analysis. We also explored the relationship between health expenditure and GDP using scatter plots and presented geographic distribution through maps, offering insights into global healthcare funding disparities and trends.