DATA BRIDGE
PARTNERS

INEQUALITY ATLAS:

A MULTIFACED ANALYSIS OF WORLD INEQUALITIES

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ABSTRACT

In today's interconnected world, disparities between nations persist across various critical areas such as education, health outcomes, geographic access, social welfare. These inequalities represent challenges to achive global development goals and require targeted interventions informed by rigorous data analysis. Through fifteen distinct analyses, we delve into disparities across regions and over time in order to identify patterns.

1.1INTRODUCTION

*F*ounded with a vision to **bridge** the gap between data and actionable insights, *DataBridge Partners* is a leading consulting firm specialising in data analytics and strategic consulting services. Our mission is to empower organizations to make informed decisions and drive business success through data-driven strategies.

At *DataBridge Partners*, we collaborate closely with our clients to utilize data-driven insights and technologies. We are composed by Rita Almeida, Marco Martins, Francisca Góis and João Bernardo and we are committed to helping organizations leverage the power of data to achieve their strategic objectives.

Our consulting firm has been tasked by The World Bank to produce an interactive report using these datasets, focusing specifically on analysing disparities between countries across multiple dimensions.

This report aims to highlight the viewers on the extent and evolution of inequalities over time, providing crucial insights for policymakers, researchers, and development practitioners. Inequalities among countries in crucial domains such as education, health, geography, social services and CO2 emissions represent significant challenges to global development efforts.

Addressing these disparities requires comprehensive analysis and understanding of underlying data trends. The World Bank, alongside other international organizations like the International Monetary Fund (IMF), Eurostat, and the International Telecommunication Union (ITU), provides extensive datasets that offer valuable insights into these complex issues.

2.INDICATORS

In order to address the disparities between countries, a diverse array of indicators was selected from the World Bank Open Data, International Monetary Fund, Eurostat and ITU to highlight the varying conditions that differ within countries.

1. *Social Indicators* - Global Perspective:
   - **Number of People without electricity:** Reflects the number of individuals living without access to electricity.
   - **Marriage Same-Sex Equality:** Examines the legal status of same-sex marriage, differentiating between countries where it is legalized and those where it remains unlegalized.
   - **Human Development Index (HDI):** Provides a composite measure of a country's development level, encompassing factors such as life expectancy, education, and income.
   - **Country Development Level:** Offers insight into the overall socio-economic development status of countries, often assessed based on various indicators including HDI.
2. *Social Indicators* - European Perspective:
   - **People at Poverty Risk:** Indicates the percentage of the population living below the poverty line, highlighting economic vulnerability.
   - **Inequality in Income Distribution:** Measures the extent of income inequality within a population, serving as a gauge of social disparities.
   - **Mean Number of Depreciation Items:** Represents the average number of material possessions owned per person, reflecting living standards.
   - **Average Room per Person:** Provides insight into housing conditions and living space availability.
3. *Employment Indicators*- Global Perspective:
   - **Unemployment Rate (%):** Indicates the percentage of the labor force that is unemployed, offering insights into economic health and workforce dynamics.
4. *Employment Indicators*- European Perspective:
   - **Fatal Accidents at Work**: Quantifies the number of fatal accidents occurring in the workplace, emphasizing occupational safety concerns.
   - **Number of Weekly Hours in Main Job:** Examines the average number of hours worked per week in the primary occupation, reflecting labor market dynamics.

5. Education Indicators-Global Perspective:

- **Literacy rate**: Represents the proportion of the adult population aged 15 years and over which is literates.

6. Education Indicators-European Perspective*:*

- **Student-Teacher Ratio (%):** Measures the ratio of students to teachers in educational institutions, influencing the quality of education delivery.
- **Number of Out-of-School Children (Male/Female):** Identifies the number of children who are not enrolled in school, shedding light on educational access and equity.

7. Economic Indicators-Global Perspective*:*

- **Gross Domestic Product (GDP)**: Represents the total monetary value of goods and services produced within a country's borders, serving as a key indicator of economic output.
- **Gross National Income (GNI)**: Measures the total income earned by a country's residents, including income from abroad, providing insights into economic prosperity and wealth distribution.

8*. Gender Indicators* - Global and European Perspectives:

- **Days of Paid Leave after Childbirth (Father/Mother):** Compares the duration of paid parental leave granted to fathers and mothers, reflecting gender equality in parental responsibilities.
- **Gender Pension Gap**: Highlights disparities in pension benefits between men and women, indicating gender-based differences in retirement income security.
- **Gender Employment Gap:** Measures the difference in employment rates between men and women, illustrating gender imbalances in the workforce

9.Health Indicators -Eurupean Perspective

- **Life expectancy:** Life at birth was estimated
- **Available beds in hospitals**: Available beds in hospitals

10.Health Indicators-Global Perspective:

- **Deaths from air pollution**: Numbers of total deaths attributed to air pollution
- **Health expenditure per capita**: Health expenditure includes all financing schemes and covers all aspects of healthcare. This data is adjusted forinflation and differences in the cost of living between countries
- **Alcohol consumption per capita:** Total alcohol consumption in litres of 15 or older

12.Facts Co2 emssions- Global Prespectve:

- **Co2 Emissions by sector**: From Buildings, Heat and eletricity, Industry, land use change and fforeestry, Manufactoring and construction, Fuel combustion and from transport.
- **Co2 emitions by country**

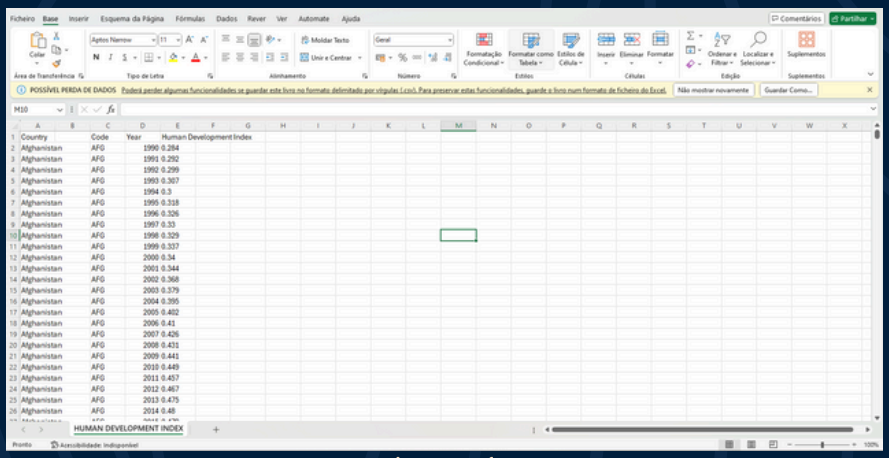
13.Demographic Indicator - Global Perspective:

- **Population:** Represents the total number of individuals residing in the countries.
- **European Population:** Represents the total number of european individuals by countries.

3.METHODOLOGY

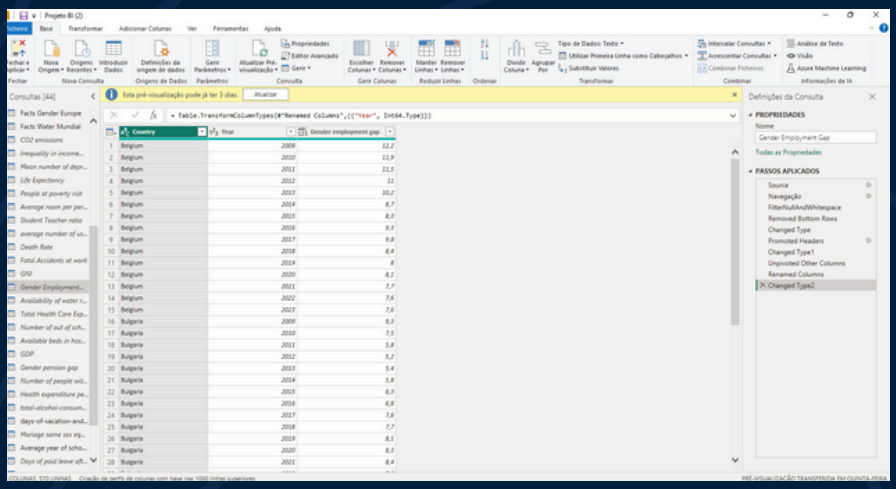
3.1. DATA PREPROCESSING

Prior to importing the datasets into Power BI, we underwent a pre-preprocessing phase to ensure the data was appropriately adjusted. To accomplish this, we utilized Microsoft Excel, where we organized the data with “Text to columns” and removed irrelevant information (Annex1).



Annex 1

Subsequently, within Power BI, we navigated to 'Get Data' and selected 'Excel Workbook' to upload our data and initialize the actual preprocessing phase. After accessing Power Query through the option Transform Data, we first promoted the first row as headers and the changed of the data types for all the variables included Then, we unpivoted other columns that were not “Year” and “Country” which allowed us to obtain a separate row for each country for the defined year range, in order to have a better visualization. By applying this transformation, the previous unpivoted columns originated two new columns, one relating to the attribute and other to the value.

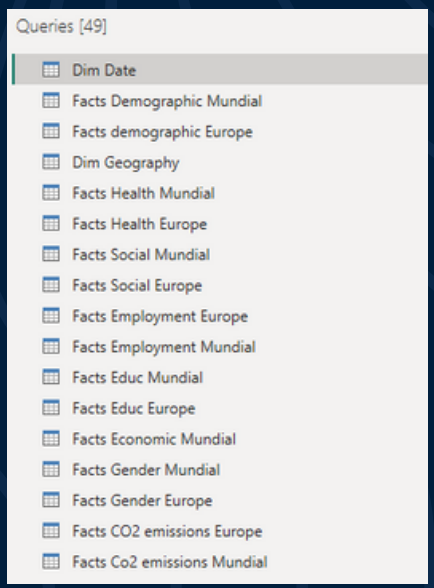


Annex 2

We defined the right data types and then named the first row as: Year and Country which is a composite key so we can then merge the queries and create tables relating different indicators.

3.2.FACTS AND DIMENSIONAL TABLES

We proceeded to merge the tables based on their respective categories, distinguishing between those pertaining to Mundial and Europe. We were left with 15 fact tables and 2 dimensions table: Dim date and Dim Geography. The rationale behind dividing our tables into "Facts Europe" and "Facts Mundial" was to facilitate the use of inner joins during the merging process, thereby minimizing the occurrence of missing values.
As a result of this approach, we obtained the following merged tables:



Annex 3

Facts: Facts Social Mundial, Facts Social Europe, Facts Employment Mundial, Facts Employment Europe, Facts Educ Mundial, Facts Educ Europe, Facts Economic Mundial, Facts Gender Mundial, Facts Gender Europe, Facts Health Europe, Facts Health Mundial, Facts Economic Mundial, Facts Demographic Mundial, Facts CO2 Emissions Europe, Facts CO2 Emissions Mundial

- **Dim Date:**

We generated the Dim Date table using DAX by leveraging the CALENDAR function. This function allows us to create a contiguous date range based on the specified start and end dates. By selecting an appropriate range, we ensured comprehensive coverage of all relevant dates within our dataset. Additionally, we applied various DAX functions such as YEAR, MONTH, and DAY to extract individual components of the date (e.g., year, month, day) for enhanced analysis and filtering capabilities. Through this approach, we established a versatile Dim Date table that serves as a foundational component for time-based analysis and visualization.

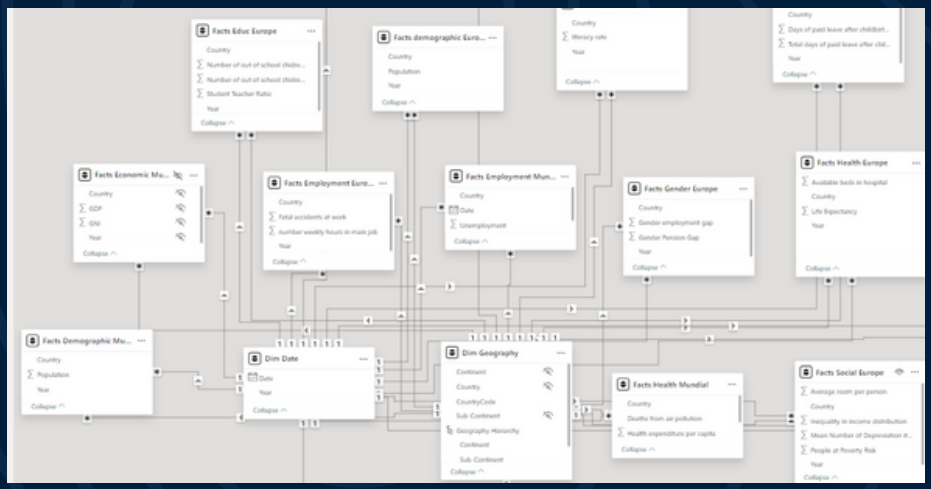
- **Dim Geography:**

As a dimensional table, "Dim Geography" organizes essential geographic data like country codes, names, continents, and subcontinents. Its hierarchical structure allows users to analyze data at many levels of granularity, from broad continental trends to specific country-level ones. This structured approach gives us ability to efficiently manage and explore geographic information within our analytics environment.

NOTE: We generated a conditional column labeled "Country Development Level" within the 'Facts Social Mundial' dataset, predicated on the Human Development Index (HDI). Through this column, we categorized countries according to their development status based on HDI metrics. This categorization facilitated subsequent analyses and comparisons, allowing for focused examination of countries grouped by their respective levels of development.

3.2. RELATIONSHIPS

After creating all requisite tables, relationships were established between all Fact and Dimensional tables, adhering to a many-to-one cardinality. The Facts table was linked to 'Dim Geography' using the 'Country' column, whereas 'Date' was employed to connect to 'Dim Date'. The resulting schema is presented below:



Annex 4

3.3 DAX MEASURES

We have developed several DAX measures to analyze and visualize our data effectively. These measures serve as calculated fields that are able to perform complex calculations, aggregations, and comparisons across different dimensions and metrics. This are the ones we considered relevant for the study of inequalities across countries:

Facts Health

Total alcohol consumption =
SUMX('Facts Health Mundial','Facts Health Mundial'[Total alcohol consumption per capita])
(Sum of alcohol consumption per country)

Difference Health expenditure on development levels =
CALCULATE([Total Health Expenditure],FILTER('Facts Social Mundial','Facts Social Mundial'[Country Development Level] = "Very High")) -
CALCULATE([Total Health Expenditure],FILTER('Facts Social Mundial','Facts Social Mundial'[Country Development Level]= "Low"))
(difference in total health expenditure between countries with very high development levels and those with low development levels)

Average Alcohol Consumption =
AVERAGEX('Facts Health Mundial', 'Facts Health Mundial'[Total alcohol consumption per capita])
(average alcohol consumption per capita across all countries)

Total Deaths from Air Polution =
SUMX('Facts Health Mundial', 'Facts Health Mundial'[Deaths from air pollution])
(total number of deaths from air pollution)

Average available beds in hospital =
AVERAGEX('Facts Health Europe', 'Facts Health Europe'[Available beds in hospital])
(average number of available hospital beds per capita in European countries)

Alcohol Consumption Difference on development level =
CALCULATE([Total Alcohol Consumption],FILTER('Facts Social Mundial','Facts Social Mundial'[Country Development Level] = "Very High")) -
CALCULATE([Total Alcohol Consumption],FILTER('Facts Social Mundial','Facts Social Mundial'[Country Development Level]= "Low"))
(difference in total alcohol consumption between countries classified as "Very High" and "Low" in terms of development level)

Health Expenditure as % of GDP =
DIVIDE(SUMx('Facts Health Mundial','Facts Health Mundial'[Health expenditure per capita]),SUMX('Facts Economic Mundial','Facts Economic Mundial'[GDP])) * 100
(percentage of GDP spent on health globally)

Total Alcohol Consumption in very high HDI countries =
CALCULATE([Total alcohol consumption],FILTER('Facts Social Mundial','Facts Social Mundial'[Country Development Level] = "Very High"))
(total alcohol consumption in countries with a Very High HDI)

Health Expenditure Low HDI countries =
CALCULATE([Total Health Expenditure],FILTER('Facts Social Mundial','Facts Social Mundial'[Country Development Level] = "Low"))
(total health expenditure specifically for countries classified as "Low" in terms of HDI)

Total Alcohol Consumption in Low HDI Countries =
CALCULATE([Total alcohol consumption], FILTER('Facts Social Mundial', 'Facts Social Mundial'[Country Development Level] = "Low"))
(total alcohol consumption in "Very High" in terms of HDI)

Health Expenditure Very High HDI countries =
CALCULATE([Total Health Expenditure],FILTER('Facts Social Mundial','Facts Social Mundial'[Country Development Level] = "Very High"))
(total health expenditure specifically for countries classified as "Very High" in terms of Human Development Index)

Sum of Health Expenditure =
SUMX('Facts Health Mundial', 'Facts Health Mundial'[Health expenditure per capita])
(Sum of health expenditure per country)

Health Expenditure Portugal =
CALCULATE(SUMX('Facts Health Mundial','Facts Health Mundial'[Health expenditure per capita]), 'Facts Health Mundial'[Country] = "Portugal")
(total health expenditure per capita specifically for Portugal)

Total Health Expenditure =
SUMX('Facts Health Mundial', 'Facts Health Mundial'[Health expenditure per capita])
(total health expenditur)

Sum of Health Expenditure =
SUMX('Facts Health Mundial', 'Facts Health Mundial'[Health expenditure per capita])
(Sum of health expenditure)

Health Expenditure as % of GDP (Low/Medium HDI) =
VAR LowMediumHDICountries = CALCULATETABLE(VALUES('Facts Social Mundial'[Country]), 'Facts Social Mundial'[Country Development Level] IN { "Low", "Medium" })
RETURN DIVIDE(SUMX(FILTER('Facts Health Mundial','Facts Health Mundial'[Country] IN LowMediumHDICountries),'Facts Health Mundial'[Health expenditure per capita]), SUMX('Facts Economic Mundial', 'Facts Economic Mundial'[GDP])) * 100
(health expenditure as a percentage of GDP specifically for countries classified as "Low" or "Medium" in terms of HDI)

Health Expenditure as % of GDP (High/Very High HDI) =
VAR HighVeryHighHDICountries = CALCULATETABLE(VALUES('Facts Social Mundial'[Country]), 'Facts Social Mundial'[Country Development Level] IN { "High", "Very High" })RETURN
DIVIDE(SUMX(FILTER('Facts Health Mundial','Facts Health Mundial'[Country] IN HighVeryHighHDICountries),'Facts Health Mundial'[Health expenditure per capita]),SUMX('Facts Economic Mundial', 'Facts Economic Mundial'[GDP])) * 100
(percentage of GDP spent on health in countries with High or Very High HDI).

Difference Health expenditure on development levels =
CALCULATE([Total Health Expenditure],FILTER('Facts Social Mundial','Facts Social Mundial'[Country Development Level] = "Very High")) -
CALCULATE([Total Health Expenditure],FILTER('Facts Social Mundial','Facts Social Mundial'[Country Development Level]= "Low"))
(difference in total health expenditure between countries categorized as "Very High" in terms of development level and those categorized as "Low" in terms of development level)

Average Health Expenditure =
AVERAGEX('Facts Health Mundial', 'Facts Health Mundial'[Health expenditure per capita])
(average expenditure in health per person)

Facts Economic

GNI per Capita =
DIVIDE(SUMX('Facts Economic Mundial','Facts Economic Mundial'[GNI]), SUMX('Facts Demographic', 'Facts Demographic'[Population]))
(Gross National Income (GNI) per capita)

GDP Growth Rate =
VAR SelectedYear = MAX('Dim Date'[Year])
VAR PreviousYearr = SelectedYear - 1
VAR GDP_CurrentYear = CALCULATE(SUM('Facts Economic Mundial'[GDP]), 'Dim Date'[Year] = SelectedYear)
VAR GDP_PreviousYear = CALCULATE(SUM('Facts Economic Mundial'[GDP]), 'Dim Date'[Year] = PreviousYearr)
VAR Growth_Rate = DIVIDE(GDP_CurrentYear - GDP_PreviousYear, GDP_PreviousYear) * 100
RETURN IF(ISBLANK(GDP_PreviousYear), BLANK(), Growth_Rate)
(GDP growth rate between the selected year and the previous year)

Average GNI per capita =
AVERAGEX('Measures Tab','Measures Tab'[GNI per Capita])
(average GNI per capita)

GDP High and Very High HDI =
CALCULATE(AVERAGE('Facts Economic Mundial'[GDP]), FILTER('Facts Social Mundial', 'Facts Social Mundial'[Country Development Level] = "Very High" || 'Facts Social Mundial'[Country Development Level] = "High"))
(average GDP for countries categorized as "Very High" or "High")

GDP Low and Medium HDI =
CALCULATE(AVERAGE('Facts Economic Mundial'[GDP]), FILTER('Facts Social Mundial','Facts Social Mundial'[Country Development Level] = "Low" || 'Facts Social Mundial'[Country Development Level] = "Medium"))
(average GDP for countries classified as "Low" or "Medium")

Facts Gender

Paid Leave Difference =
AVERAGEX('Facts Gender Mundial','Facts Gender Mundial'[Days of paid leave after childbirth for the father]) - AVERAGEX('Facts Gender Mundial','Facts Gender Mundial'[Total days of paid leave after childbirth for mother])
(difference between the average number of days of paid leave after childbirth for fathers and mothers.)

Total gender employment gap = SUMX('Facts Gender Europe','Facts Gender Europe'[Gender employment gap])
(calculates the total gender employment gap)

Facts Social

Not Legalized Same sex marriage % Low hdi =
DIVIDE(CALCULATE(COUNTROWS('Facts Social Mundial'), 'Facts Social Mundial'[Country Development Level] = "Low" && 'Facts Social Mundial'[Marriage same sex equality] = "Unlegalized"),CALCULATE(COUNTROWS('Facts Social Mundial'),'Facts Social Mundial'[Country Development Level] = "Low"),0)*100
(percentage of countries with same-sex marriage not legalized among those classified as "Low" in terms of Human Development Index)

Average room per person =
AVERAGE('Facts Social Europe'[Average room per person])
(average number of rooms per person)

Poverty Risk in Portugal =
CALCULATE(SUMX('Facts Social Europe','Facts Social Europe'[People at Poverty Risk]), 'Facts Social Europe'[Country] = "Portugal")
(number of people at risk of poverty in Portugal)

Average Room per Person Portugal =
CALCULATE(AVERAGEx('Facts Social Europe','Facts Social Europe'[Average room per person]), 'Facts Social Europe'[Country] = "Portugal")
(average number of rooms per person specifically for Portugal)

Average Number of People in Poverty Risk =
CALCULATE(AVERAGEX('Facts Social Europe','Facts Social Europe'[People at Poverty Risk]))
(average number of people at risk of poverty in European countries)

Sum of Population =
CALCULATE(SUMX('Facts Demographic','Facts Demographic'[Population]))
(sum of the population)

Total number of people without eletricity =
SUMX('Facts Social Mundial','Facts Social Mundial'[Number of people without access to electricity])
(total number of people without access to electricity globally)

Total number of people without eletricity =
SUMX('Facts Social Mundial','Facts Social Mundial'[Number of people without access to electricity])
(total number of people without access to electricity)

Legalized Same sex marriage % very high hdi =
DIVIDE(CALCULATE(COUNTROWS('Facts Social Mundial'),'Facts Social Mundial'[Country Development Level] = "Very High" && 'Facts Social Mundial'[Marriage same sex equality] = "Legalized"),CALCULATE(COUNTROWS('Facts Social Mundial'),'Facts Social Mundial'[Country Development Level] = "Very High"),0) * 100
(percentage of countries with legalized same-sex marriage among those classified as "Very High" in terms of HDI)

Facts Education	
Literacy Rate Portugal = CALCULATE(AVERAGEx('Facts Educ Mundial','Facts Educ Mundial'[literacy rate]), 'Facts Educ Mundial'[Country] = "Portugal") *(average literacy rate in Portugal)*	**Literacy Rate Low =** CALCULATE(AVERAGE('Facts Educ Mundial'[literacy rate]), FILTER('Facts Social Mundial', 'Facts Social Mundial'[Country Development Level] = "Low")) *(average literacy rate specifically for countries classified as "Low" in terms of development level)*
Max Literacy Rate Portugal = MAXX(FILTER('Facts Educ Mundial','Facts Educ Mundial'[Country] = "Portugal"),'Facts Educ Mundial'[literacy rate]) *(maximum literacy rate recorded in Portugal)*	**Literacy Rate Portugal =** CALCULATE(AVERAGEx('Facts Educ Mundial','Facts Educ Mundial'[literacy rate]), 'Facts Educ Mundial'[Country] = "Portugal") *(average literacy rate specifically for Portugal)*
Overall Literacy Rate with Last Date = **CALCULATE(AVERAGEX('Facts Educ Mundial','Facts Educ Mundial'[literacy rate]), LASTDATE('Facts Educ Mundial'[Year]))** *(overall average literacy rate across all countries, in years)*	**Literacy Rate Very High =** CALCULATE(AVERAGE('Facts Educ Mundial'[literacy rate]), FILTER('Facts Social Mundial','Facts Social Mundial'[Country Development Level] = "Very High")) *(average literacy rate specifically for countries classified as "Very High" in terms of development level)*
Facts Employment	
Average Fatal Accidents Very High Development = CALCULATE(AVERAGE('Facts Employment Europe'[Fatal accidents at work]),'Facts Social Mundial'[Country Development Level]="Very High") *(average number of fatal workplace accidents in European countries with a Very High HDI)*	**Total number of weekly hours in main job =** AVERAGEX('Facts Employment Europe','Facts Employment Europe'[number weekly hours in main job]) *(average number of weekly hours worked in the main job)*
Average Fatal Accidents Very High Development = CALCULATE(AVERAGE('Facts Employment Europe'[Fatal accidents at work]),'Facts Social Mundial'[Country Development Level]="Very High") *(average number of fatal workplace accidents in countries with a Very High HDI)*	**Overall Unemployment Rate =** AVERAGEX('Facts Employment Mundial', 'Facts Employment Mundial'[Unemployment]) *(overall average unemployment rate across all countries)*
Facts Co2 Emitions	
Total CO2 emissions = SUMX('Facts CO2 emissions Europe', 'Facts CO2 emissions Europe'[C02 emissions]) *(total CO2 emissions in European countries)*	**Average Co2 emissions =** AVERAGE('Facts CO2 emissions Europe'[C02 emissions]) *(average CO2 emissions)*

3.4. VISUALIZATIONS AND CONCLUSIONS

Portugal Dashboard: Overtime trends in Portugal

In recent years, Portugal has made notable strides in both workplace safety and educational attainment with a constant decline in fatal accidents since 2013, interrupted only by a minor increase in 2021. In the other hand, literacy rates have shown consistent improvement since 1991.

Portugal Evolution in demonstrative indicators poverty and health Dashboard:

To add to this, the second dashboard was more into poverty and social disparities, comparing Portugal's poverty risk to the European average in a line chart with year as the x-axis. Additionally, we included three KPI cards: Maximum Literacy Rate in Portugal, People at Poverty Risk in Europe, and Average Room per Person in Portugal.
With these we uncovered some trends: Since 2015, the number of people at risk of poverty in Portugal has shown a consistent downward evolution, with a minor increase observed in 2021 quickly returning to baseline levels the following year. Notably, this figure consistently remains lower than the European average, showing Portugal's efforts in decresing poverty risks. Moreover, Portugal's literacy rate in 2021 stands at 0.76, reflecting ongoing efforts in educational attainment. In terms of healthcare, Portugal's average health expenditure over the years totals 6 million, indicative of the countrie's commitment to robust healthcare systems. Lastly, the average room per person in the country is 2, demonstrating the country's capacity on mantaining housing conditions and living standards.
We made three dashboards, each offering different points of view of health and environmental well-being.

Air Pollution Dashboard:

In the first dashboard, our focus was on air pollution, a critical environmental issue. The treemap provided a visually representation of CO2 emissions by sector, allowing viewers to grasp the relative contributions of various pollution sources at the same time. The donut charts highlighted the top 10 European countries with the highest CO2 emissions and the top 7 countries with the most air pollution-related deaths, giving an understanding of the global impact of air pollution, and with the slicer for year selection, users can explore temporal trends and identify patterns over time.
The conclusions we came accross where firstly, the notable change observed between 2005 and 2010, where the sector contributing the second-most CO2 emissions changed from land use change and forestry to manufacturing and construction. This scenario shows the evolution of industrial landscapes and their environmental implications. Our analysis also revealed Germany as the largest emitter of CO2 during the 15-year period. The top five emitters, comprising Germany, Ukraine, Italy, and France, highlights the regional concentration of emissions. Additionally, we can conclude the China's maintenance with the highest number of deaths attributed to air pollution. We also want to give atention to India's growth as the second-highest position in air pollution-related deaths by 2015 .

Health Expenditure Dashboard:

Moving on to health dashboard, we explored health expenditure trends across different levels of human development. The 100% stacked bar chart have the goal of contrasting health expenditure as a percentage of GDP between low and medium HDI countries with high and very high HDI countries, letting viewers see disparities in healthcare investment. The clustered column chart highligted this understanding by providing a detailed breakdown of health expenditure in very high HDI countries by country, showing the leading contributors and outliers.
The slicer feature added a layer of interactivity, allowing the user to use specific time intervals for closer examination. With these we can say that the majority of healthcare expenditure, as a percentage of GDP, comes from high and very high HDI countries, consistently accounting for nearly 100% over the analyzed 15-year period.

This demonstrates the significant contribution of these nations to healthcare financing. Inside the Very High HDI countries we see a prevalense of developded european countries in Health Expenditure in almost every possible time interval with Luxembourg emarging as the countries that spends the most in health.

Healthcare access and outcomes Dashboard:

Finally, in the second health dashboard, we got into healthcare access and outcomes in Europe. The line charts tracking the evolution of average life expectancy and available hospital beds over the year as the x-axis offered visualizations of key health indicators.
Viewers could easily indentify trends, see anomalies, and look for potential correlations between healthcare infrastructure and population health. The inclusion of a card displaying average life expectancy provided a good summary of this vital metric, while the country selection slicer enabled users to move the analysis to specific regions of interest.
We can conclude the constant increase of life expenctancy in the old continent until 2020, caracterized by the covid complications. Despite this, the beds available in hospital has decreased through the years, making it obvious the increase of vulnerable population in the continent.

Education Exploring Literacy Rates and Gender Dropout Disparities dashboard:

In our education dashboard we have a line chart that lets us compare Literacy rate per development level very high vs low vs overall literacy rate this way we were able to conclude that in 1998, there was a global disruption resulting in decreased literacy rates across countries, likely influenced by various socio-economic factors,since then, literacy rates have shown a relatively consistent trajectory with periodic fluctuations but overall stability,
Countries with higher Human Development Index (HDI) rankings tend to have higher literacy rates, reflecting the positive correlation between development level and educational outcomes and countries with lower Human Development Index (HDI) rankings tend to have bellow literacy rates, reflecting the negative correlation between development level and educational outcomes
In this dashboard we also have another line chart that shows us the Gender dropout difference through the years we saw that the gender difference in dropout rates increased substantially in the early 2000s, indicating disparities in educational opportunities between genders during that period.
However, in recent years, there has been a significant decline in this disparity, suggesting progress towards gender equality in education and improved retention rates among both boys and girls.

Humans Rights Dashboard:

In this dashboard, we utilized measures involving human rights indicators. Specifically, a stacked bar chart with countries on the y-axis and the number of people with electricity in the x-axis, which offers insights into disparities in housing conditions worldwide. Additionally, we incorporated a filled map of countries where same-gender marriage is legal. Both visuals are linked to a slicer for years, allowing an evaluation of these indicators over time.
With all these we noted a significant shift in the legal recognition of same-gender marriage over the past few decades. In the 1990's, few countries had legalized same-gender marriage, but this began to change in the end of the 2000's. By the 2010's, Europe emerged as a leader in legalizing same-gender marriage, with the rest of most developed countries following by 2020. In contrast, access to electricity remains a concern, particularly in African countries and some parts of the Americas.

Human Developmetn Level and Inequality Dashboard:

In the following one, we used a filled map to display the distribution of Low, Medium, High, and Very High HDI countries in the world. Additionally, we included a stacked column chart depicting countries and their average inequality in income distribution. This graphics have an year selection slicer to deepen the conclusions. We found that the majority of high and very high development countries are concentrated in Europe, Asia, America, and North Africa, while the lowest ones are primarily located in Africa.
Adding to this, when examining European countries, those in Eastern Europe, such as Serbia, Bulgaria, and Romania, exhibit the greatest average inequality in income distribution. These findings highlight regional disparities in human development and income equality.

Workplace Safety and Social Well-being Dashboard:

This dashboard offers insights into workplace safety and social well-being across European countries. Visualizations include a clustered column chart displaying average deprivation items and a stacked column chart showcasing average fatal accidents at work, both with countries. Users can utilize the slicer to explore the graphics across different years. After analyzing them we conclude that Bulgaria emerges with the higher average deprivation items, indicating prevalent socio-economic challenges or deficiencies. In contrast, more developed European nations, including France, Italy, Germany, and Spain, demonstrate great rates of fatal accidents at work. This disparity suggests potential workplace safety issues in these countries, likely attributed to their diverse and advanced industrial sectors. These sectors, characterized by heavy machinery, hazardous materials, and complex processes, inherently pose higher risks of workplace accidents despite their safety measures.
Conversely, Switzerland's comparatively lower values suggest a more equitable distribution of employment opportunities between genders. These observations prompt further exploration into the societal, economic, and policy dynamics shaping gender employment differentials in these respective countries."

Hours of work dashboard:

Among the countries examined, Greece, Bulgaria, and Poland exihibit the highest averages in terms of both weekly and daily work hours compared to their counterparts. Specifically, Greece stands out as the most prominent outlier, consistently demonstrating the highest number of weekly and daily working hours across all countries and years analyzed.

Unemployment dashboard:

Over the past decade, the landscape of unemployment in Europe has been characterized by fluctuations, reflecting the region's economic dynamics and external pressures. Unemployment rates in 2008 had a downturn; however, the onset of the European financial crisis in the early 2010s triggered a significant uptick in unemployment levels across many European countries. Subsequently, the economic fallout from the crisis, coupled with austerity measures and sluggish recovery efforts, prolonged the unemployment challenge for several years.
More recently,in 2020, the outbreak of the COVID-19 pandemic introduced another downturn. The pandemic-induced recession further strained labor markets, resulting in job losses across various sectors and contributing to the overall instability in employment.

The analysis of fatal accident rates in Europe reveals that nations such as Germany, Italy, and France consistently report higher average fatal accident rates. This indicates potential lack of safety in workplace, which my be due to diverse and advanced industrial sectors that characterize developed countries and inherently carry higher risks of workplace accidents compared to less developed economies with predominantly agrarian or service-based industries. The presence of heavy machinery, hazardous materials, and complex processes in these sectors increases the likelihood of accidents occurring, despite stringent safety measures.

GDP Analysis Dashboard:

Our GDP dashboard offers a comprehensive view of global economic trends.
It has an area chart comparing the GDP value between high and very high HDI countries and low and medium HDI countries over time. This visually highlights economic disparities and growth patterns.
Complementing the area chart there is a line chart with GDP Growth Rate by Year, which gives some insights about economic performance and trends.
To provide a greater analysis, there is a slicer that allows users to explore individual country data, making possible comparative analysis in specific economic trajectories.
Our GDP analysis unveils intriguing variation across different human development tiers. Notable downturns in 1996-1997 and 2010-2011 highlight economic vulnerability in diferent eras. Analyzing GDP growth rates, we see peaks in 1961 and 1980, contrast with the unprecedented -100% downturn in 2020, mostly due to Covid-19. These trends is a mirror of the dynamic nature of global economies and the impact of external shocks.

GNI Analysis Dashboard:

Our GNI dashboard offers a analysis of economic performance on the national income of countries through .
A line chart illustrates GNI per capita alongside total population evolution over time, giving insights about economic prosperity relative to population size.
Besides that, we have a card displaying the Average GNI per capita for reference.
For more analysis, a slicer allows users to select specific countries, enabling comparative analysis and tailored insights.
These visualizations reveals a consistent upward trajectory, marked by minor decreases in 2015 and 2020. Moreover, the total population has experienced constant significant growth across all regions, with the exceptions of Eastern and Southern Europe. Back to GNI, Africa, Oceania, and Central Asia, as well as Eastern Europe, had a considerable fall in 2016. We can also see that Northem Europe comes with the highest GNI per capita, reflecting a strong economic performance in this region.

Gender gaps Dashboard:

In analyzing the gender employment gap across available data sets, Austria emerges as a focal point, exhibiting a notable disparity in employment rates between genders persisting over the years. In contrast, Switzerland stands out for maintaining relatively lower values of the employment gap compared to other nations. Austria's consistent prevalence of a substantial gender employment gap underscores ongoing challenges in achieving gender parity in the workforce within the country. Conversely, Switzerland's comparatively lower values suggest a more equitable distribution of employment opportunities between genders. These observations prompt further exploration into the societal, economic, and policy dynamics shaping gender employment differentials in these respective countries."

In examining the gender pension gap across European nations, Cyprus emerges as a standout case, exhibiting a substantial disparity in employment rates between genders. Despite witnessing a gradual reduction over the years, Cyprus continues to grapple with a pronounced gap in pension coverage, a trend echoed in similar patterns observed in Malta and Luxembourg. This observation underscores the persistent challenges faced by these countries in achieving gender equity in pension provision, despite efforts to address disparities over time. The notable presence of Cyprus, Malta, and Luxembourg in this context warrants further investigation into the socioeconomic factors contributing to the gender pension gap and the efficacy of policy interventions aimed at narrowing this divide.

Gender dashboard: Paid Leave differences

Throughout the years considered, Europe always exibihits higher paid leave number of compared to other regions, indicating a potential prioritization of family welfare and work-life balance. One possible reason for this disparity could be due to the progressive social policies and labor regulations implemented in many European countries, which emphasize the importance of parental leave and gender equality in the workplace.

A closer examination of the data for the year 1970 shows disparities in paid leave allocation between genders, with the majority of countries offering significantly more leave days for mothers than fathers. This disparity underscores traditional gender roles very usual during that period, where caregiving responsibilities were often associated primarily with women.

However, as we progress through the years, we start to understand an evolution in paid leave policies, with a gradual reduction in the gender disparity. Countries such as Sweden, Hungary, Germany, and Norway emerge as early adopters of more equitable parental leave policies, with a noticeable trend towards equalizing leave entitlements for both men and women.

Hungary, in particular, stands out among the early adopters, showcasing relatively fewer disparities in parental leave entitlements even during the earlier years which suggests proactive efforts in Hungary to address gender imbalances.

4. CONCLUSION

In our comprehensive analysis of global inequalities, we've uncovered significant disparities and trends. From examining workplace safety dynamics and socio-economic challenges in countries like Bulgaria and France to highlighting persistent gender disparities in employment rates and pension coverage in Cyprus, Malta, and Luxembourg, our findings emphasize the ongoing challenges in achieving equitable development. Austria's notable gender employment gap underscores persistent workforce gender disparities. Additionally, insights into education outcomes reveal global disruptions in literacy rates influenced by socio-economic factors and recent progress towards gender equality in education. Developed European countries dominate healthcare expenditure within very high HDI tiers, showcasing strong economic performance and investment in healthcare. Despite progress, disparities in healthcare access persist, particularly in Africa and parts of the Americas. Our analysis underscores the importance of targeted policies and interventions to address these disparities and promote inclusive development worldwide.