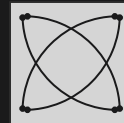
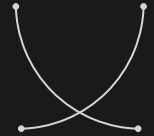
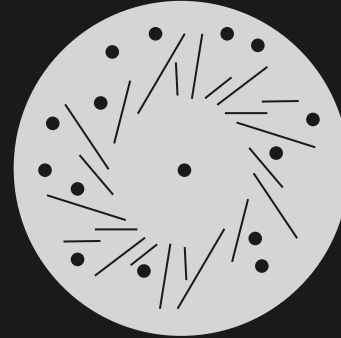
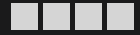
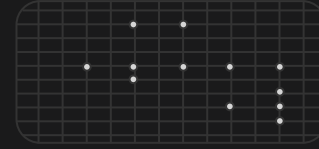




# Global Economy Indicators (1970 to 2021)

Presented by,  
Mr. Aman Mulla.



# Project contents

**1.Introduction  
to project**

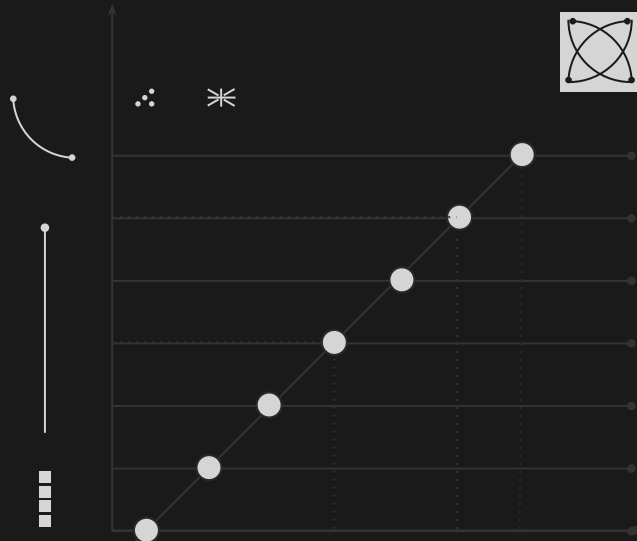
**2.Objectives**

**3.Understanding  
Variables**

**4.Analysis on  
variables**

**5.Pair and  
heatmap**

**6.Conclusion**



# Introduction to Global Economy

The goal of this project is to conduct a comprehensive economic analysis and forecasting for global and Countries using a dataset comprising various economic indicators and variables. The project will explore the relationships and trends among these variables to gain insights into the global and country's economic performance and prospects.

\*Note: intentionally added more information as most of the terms are new and not known to all in common.

# Objectives of project



- **Economic Performance Assessment:** Analyze key economic indicators such as GDP, GNI, exchange rates, and per capita GNI to evaluate Country X's overall economic performance over the years.
- **Sector-wise Contribution:** Investigate the contribution of different sectors, including agriculture, manufacturing, construction, and services, to GDP and GNI. Assess how these contributions have evolved over time.
- **Government Spending:** Study the role of government expenditure, particularly in areas like general government final consumption expenditure and gross capital formation.
- **Income Distribution:** Explore per capita GNI and its relationship with the population to assess income distribution and living standards.
- **Exchange Rate Analysis:** Evaluate the relationship between AMA exchange rates and IMF-based exchange rates and their impact on trade and GNI in USD.



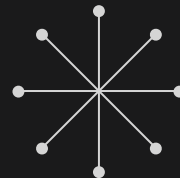
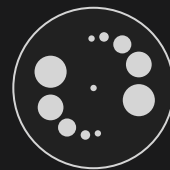
# Understanding Variables

1. **CountryID:** An identifier or code for each country.
2. **Country:** The name of the country.
3. **Year:** The year to which the data corresponds.
4. **AMA Exchange Rate:** Exchange rate determined by the Austrian National Bank (AMA).
5. **IMF Based Exchange Rate:** Exchange rate based on International Monetary Fund (IMF) data.
6. **Population:** The total population of the country.
7. **Currency:** The official currency of the country.
8. **Per Capita GNI:** Gross National Income (GNI) per capita, a measure of the average income of a country's residents.
9. **Agriculture, Hunting, Forestry, Fishing (ISIC A-B):** Economic activity related to agriculture and related sectors according to the International Standard Industrial Classification (ISIC) system.
10. **Changes in Inventories:** The change in a company's inventory over a specific time period.
11. **Construction (ISIC F):** Economic activity related to construction according to ISIC.
12. **Exports of Goods and Services:** The total value of goods and services a country exports.
13. **Final Consumption Expenditure:** Total expenditure by households and government on goods and services for final consumption.
14. **General Government Final Consumption Expenditure:** Government expenditure on goods and services for final consumption.
1. **Gross Capital Formation:** Total investment in a country, including changes in inventories.
2. **Gross Fixed Capital Formation (Including Acquisitions Less Disposals of Valuables):** Total investment in fixed assets, excluding changes in inventories.
3. **Household Consumption Expenditure (Including Non-profit Institutions Serving Households):** Household spending on goods and services for final consumption, including spending by non-profit institutions serving households.
4. **Imports of Goods and Services:** The total value of goods and services a country imports.
5. **Manufacturing (ISIC D):** Economic activity related to manufacturing according to ISIC.
6. **Mining, Manufacturing, Utilities (ISIC C-E):** Economic activities related to mining, manufacturing, and utilities according to ISIC.
7. **Other Activities (ISIC J-P):** Economic activities not covered by other specific categories, according to ISIC.
8. **Total Value Added:** The total value added to a country's economy through various economic activities.
9. **Transport, Storage, and Communication (ISIC I):** Economic activities related to transportation, storage, and communication according to ISIC.
10. **Wholesale, Retail Trade, Restaurants, and Hotels (ISIC G-H):** Economic activities related to wholesale and retail trade, restaurants, and hotels according to ISIC.
11. **Gross National Income (GNI) in USD:** The total GNI of the country expressed in U.S. dollars.
12. **Gross Domestic Product (GDP):** The total economic output of a country, often used as an indicator of a country's economic health and performance.





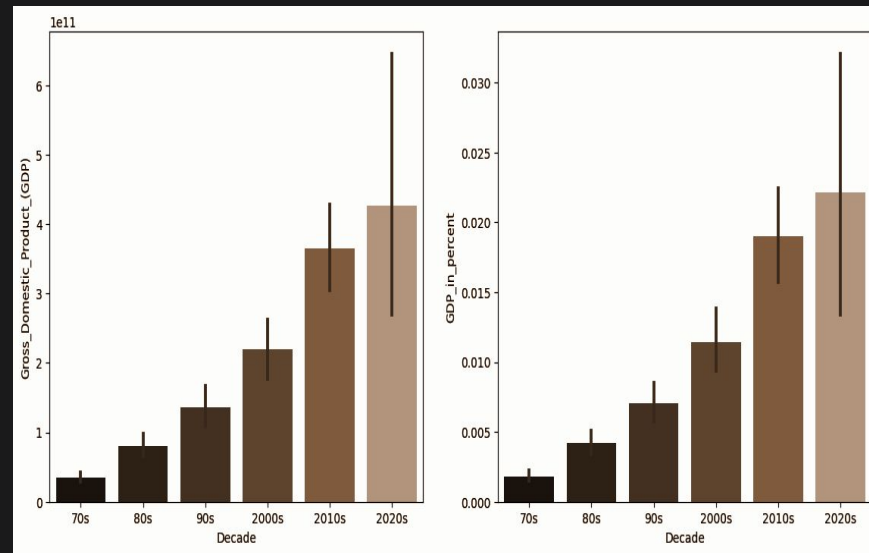
# I Analysis on Variables



# Analysis on GDP

Gross Domestic Product (GDP) is a measure of the total economic output or the total value of all goods and services produced within the borders of a country during a specific period, typically a year or a quarter. It is a key indicator of a country's economic health and is used to assess the size and performance of an economy. GDP can be calculated using three approaches: the production approach, the expenditure approach, and the income approach, all of which should yield the same result.

An adjacent graph will show us how the global GDP has performed over the decades in terms of actual value and percentage change



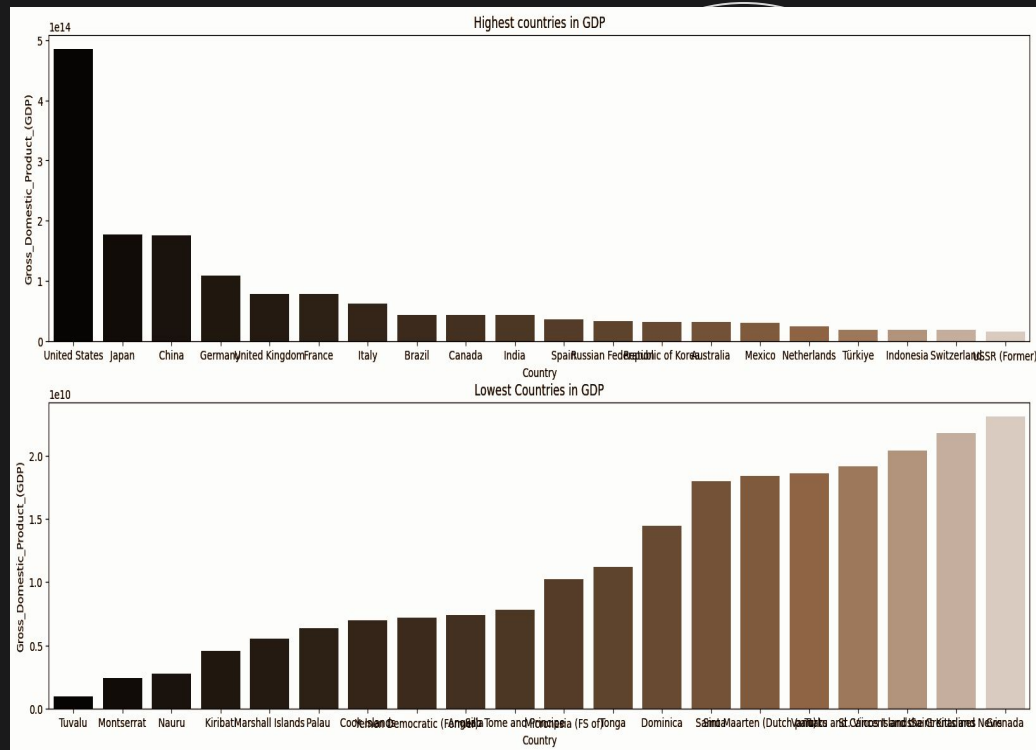
# Top 20 countries with highest and lowest GDP over the decades.

## Countries with Highest GDP :

1. United States
2. Japan
3. China
4. Germany
5. United Kingdom,
6. France
7. Italy,
8. Brazil
9. Canada
10. India
11. Spain
12. Russian Federation
13. Republic of Korea
14. Australia
15. Mexico
16. Netherlands
17. Turkey
18. Indonesia
19. Switzerland
20. USSR Former

## Countries with lowest GDP :

1. Tuvalu
2. Montserrat
3. Nauru
4. Kiribati
5. Marshall Islands
6. Palau
7. Cook Islands
8. Yemen (Democratic Formerly)
9. Anguilla
10. Sao Tome and Principe
11. Federated States of Micronesia
12. Tonga
13. Dominica
14. Samoa
15. Sint Maarten (Dutch part)
16. Vanuatu
17. Turks and Caicos Islands
18. St. Vincent and the Grenadines
19. Saint Kitts and Nevis
20. Grenada.





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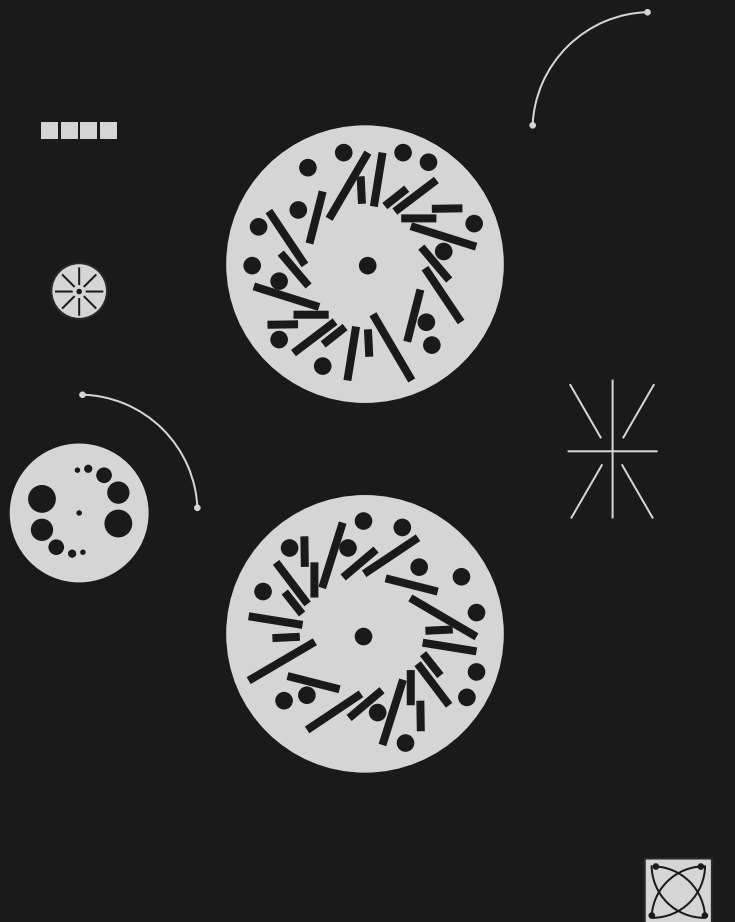
Global sum of GDP

United States

Is country with highest GDP over decades

Tuvalu

Is the country with lowest GDP over decades.



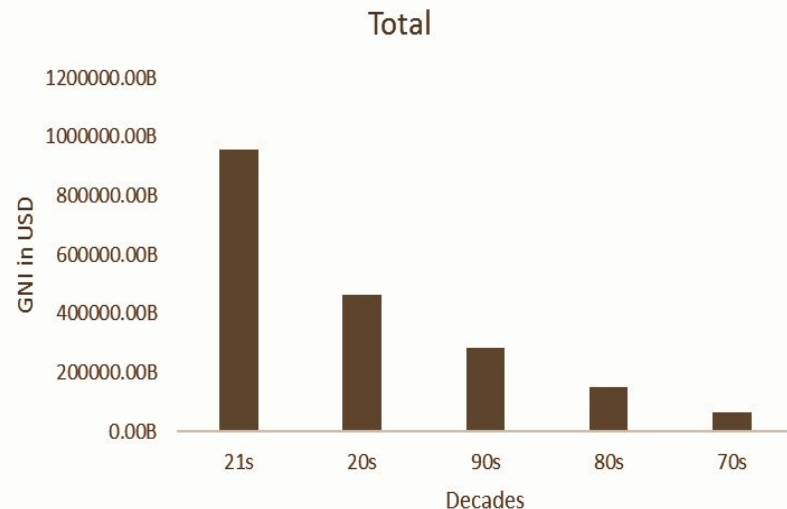
# Analysis on GNI

**Gross National Income (GNI)** is a measure of **the total income earned by a country's residents and businesses, both domestically and abroad, within a specific period**. It includes not only the country's gross domestic product (GDP), which is the value of goods and services produced within the country's borders, but also the net income earned from abroad.

**The total economic output of a country, as measured by GNI and GDP, is the most crucial factor influencing per capita GNI.** A higher GNI or GDP generally implies a larger economic pie to be distributed among the population.

**The total population of a country is another extremely influential factor.** **The size of the population affects per capita GNI directly, as the available income is divided among more or fewer people.** In countries with large populations, even a high GNI can result in a lower per capita GNI, while in countries with smaller populations, the same GNI can lead to a higher per capita GNI.

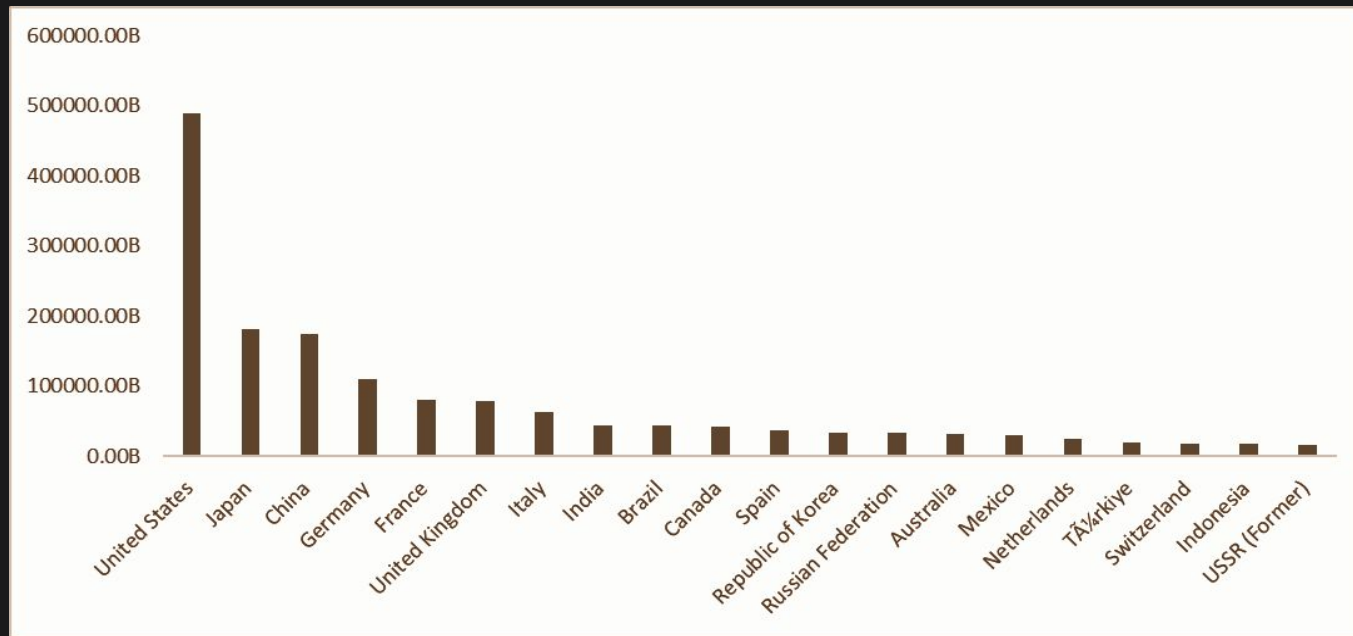
An adjacent graph will show us how the global GNI has performed over the decades in terms of actual value.



# Top 20 countries with highest GNI

Countries with Highest GDP :

1. United States
2. Japan
3. China
4. Germany
5. United Kingdom,
6. Italy
7. India
8. Brazil
9. Canada
10. India
11. Spain
12. Republic of Korea
13. Russian Federation
14. Australia
15. Mexico
16. Netherlands
17. Turkey
18. Indonesia
19. Switzerland
20. USSR Former



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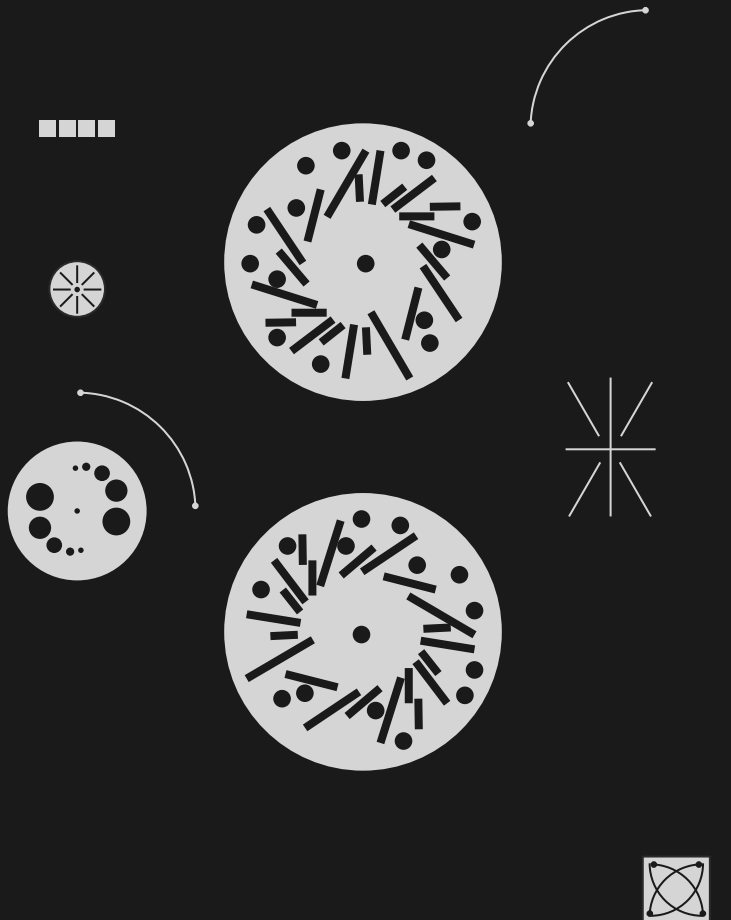
Global sum of GNI

United States

Is country with highest GNI over decades

USSR (Former)

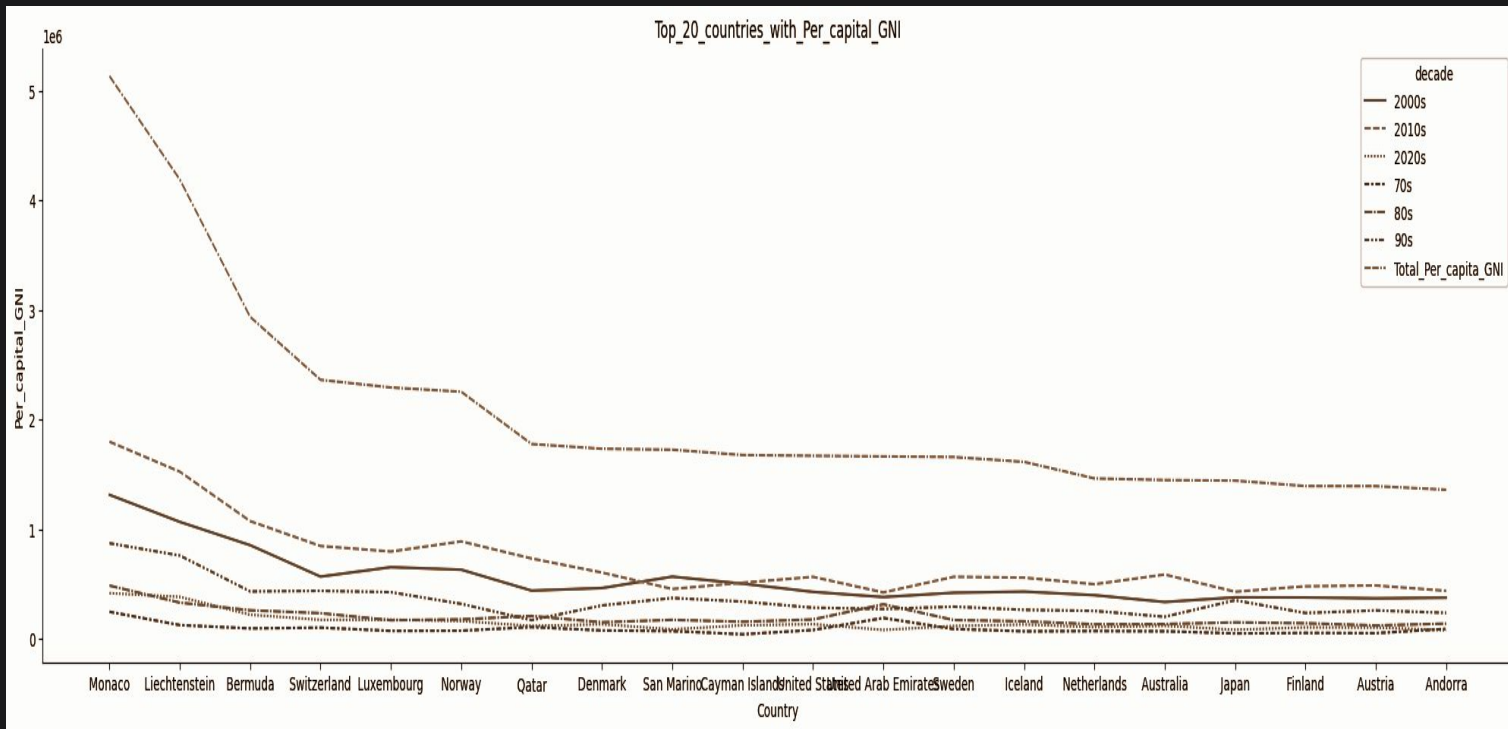
Is the country with lowest GNI over decades.



# Top 20 countries with per capita GNI

Countries with Highest GDP :

1. **Monaco**
2. Liechtenstein
3. Bermuda
4. Switzerland
5. Luxembourg
6. Norway
7. Qatar
8. Denmark
9. San Marino
10. Cayman Islands
11. United States
12. United Arab Emirates
13. Sweden
14. Iceland
15. Netherlands
16. Australia
17. Japan
18. Finland
19. Austria
20. Andorra





# Analysis on per capita GNI



From the previous chart, we can observe that over the decades, per capita GNI has consistently increased. We can identify the top 20 countries with the highest per capita GNI. In the 21st decade, 'Monaco' had the highest per capita GNI, while 'Andorra' had the lowest among the top 20 countries. Additionally, in the 19th and 20th decades, there was a sudden spike in per capita GNI for countries like Liechtenstein, Luxembourg, and Monaco.

One possible reason for the highest GNI in these countries could be:

- Monaco is a renowned international tourist destination, attracting visitors from around the world. It is famous for its luxurious casinos, high-end hotels, yacht-filled harbors, and cultural attractions. Tourism and the associated hospitality industry are major drivers of its economy, generating substantial revenues.
- Monaco has a well-developed banking and financial services sector, known for its stability and confidentiality. It serves as a tax haven, attracting businesses and individuals looking for financial services and investment opportunities. The financial industry contributes significantly to the country's GNI.
- Monaco has a favorable tax environment, with no personal income tax and low corporate taxes. This tax regime attracts wealthy individuals and businesses, further bolstering the country's GNI.
- Monaco has a relatively small but affluent population. The resident population includes a significant number of high-net-worth individuals, contributing to the country's overall high GNI.





# Analysis on Population

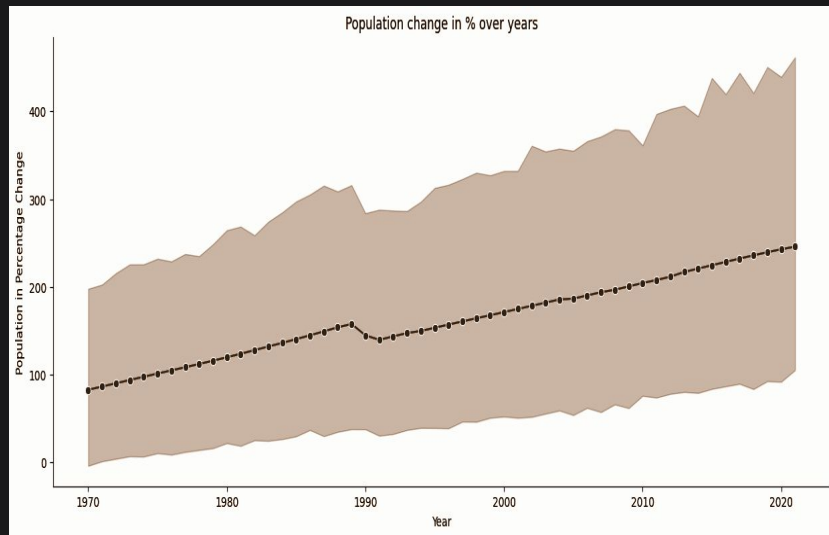
The line chart above indicates that the population has been gradually increasing at a rate of approximately 2.5% since the base year of 1970. However, a sudden decrease in population was observed in the years 1990 and 1991. The reasons for this population decrease could be as follows:

**Dissolution of the Soviet Union (1991)** - The breakup of the Soviet Union in 1991 was one of the most significant geopolitical events during this period. It led to the creation of multiple independent states, each with its own population.

**End of the Cold War (Late 1980s)** - The end of the Cold War, which began in the late 1980s and culminated in the early 1990s, had far-reaching effects on geopolitics. It resulted in geopolitical realignments, the reunification of Germany, and changes in military and economic policies that influenced population dynamics in affected regions.

**Demographic Changes in South Africa** - The early 1990s saw the end of apartheid in South Africa. This significant political transformation influenced population dynamics, including migration patterns and changes in birth and death rates.

**Environmental Disasters** - The late 1980s and early 1990s witnessed environmental disasters, such as the Chernobyl nuclear disaster in 1986 and the Exxon Valdez oil spill in 1989. These events had health and environmental consequences that could have affected populations in affected regions.



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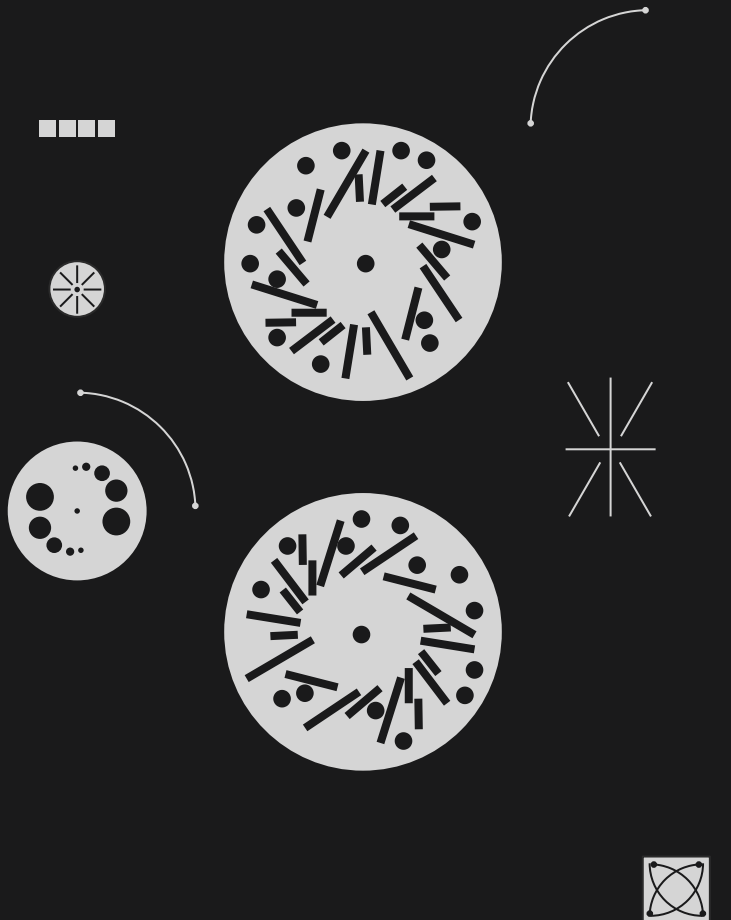
Global population till 2021

China

Is country with highest population with 61.41B

Montserrat

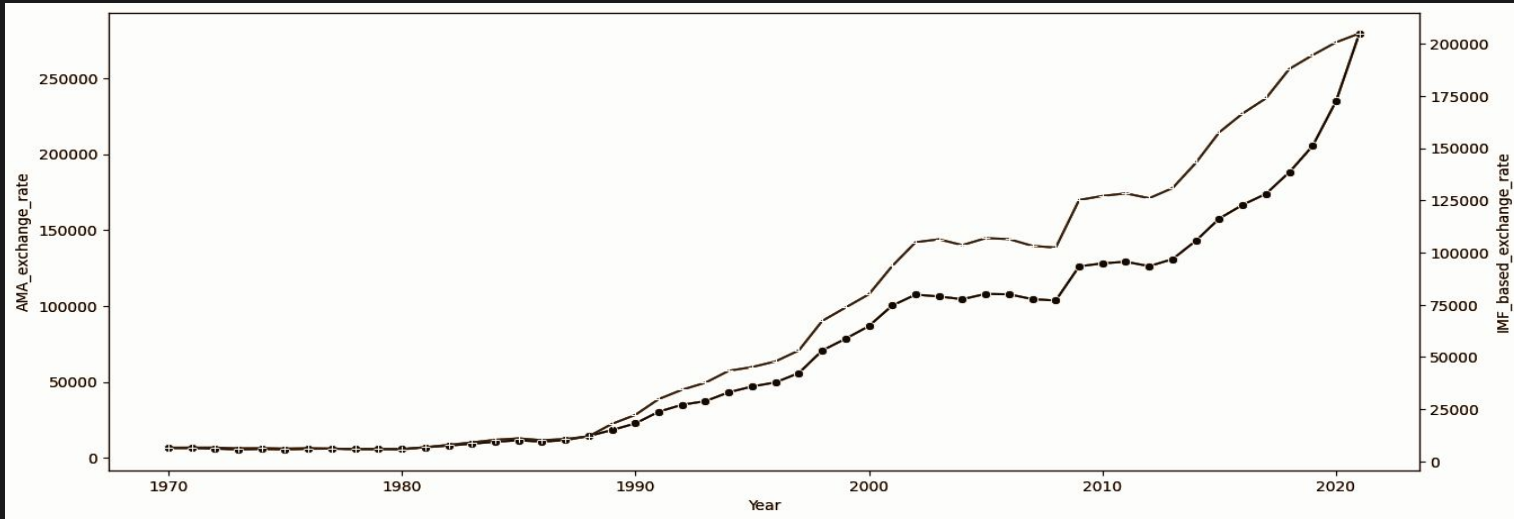
Is the country with lowest population with  
416970





# Analysis on AMA and IMF based exchange rate

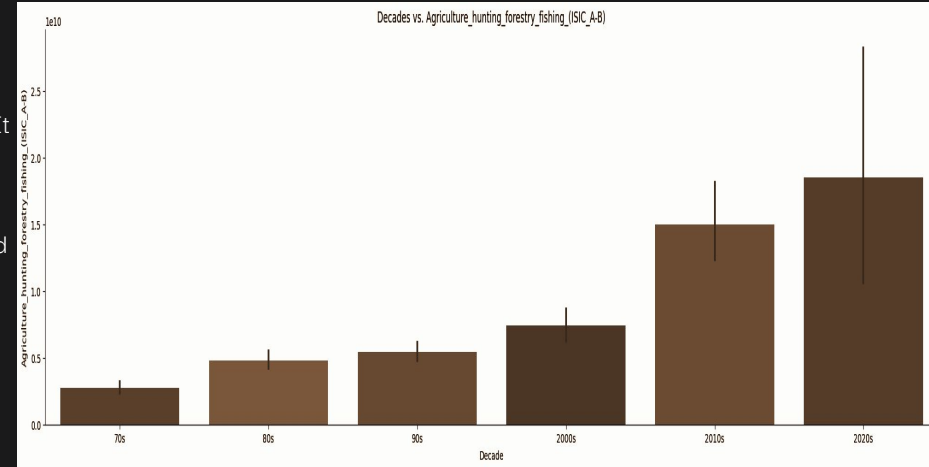
- The "National Accounts Main Aggregates" refer to a set of key economic indicators that provide a comprehensive overview of a country's economic performance and structure. The main aggregates typically include with GDP, GNI, Net National Income (NNI), Total Income, Population.
- IMF-based exchange rates refer to the exchange rate policies and practices of member countries in coordination with the IMF's (International Monetary Fund) guidance, which can include fixed, floating, or managed exchange rate systems, depending on the country's circumstances. It works with member countries to develop and manage their exchange rate policies based on their unique economic conditions and needs.



# Analysis on Agriculture, Hunting, forestry, fishing

- ✧ Agriculture, hunting, forestry, and fishing (ISIC A-B)" refers to a specific sector or category within the International Standard Industrial Classification (ISIC). The
- ✧ ISIC is a standardized classification system for economic activities used by various countries and organizations for statistical and analytical purposes.

1. Agriculture (ISIC A): This sub sector includes activities related to cultivating crops, raising livestock, and producing agricultural products. It covers activities such as farming, crop production, horticulture, and animal production.
2. Hunting and Trapping (ISIC B): This sub sector involves activities related to the hunting and trapping of wildlife, typically for food, fur, or other products.
3. Forestry and Logging (ISIC B): This sub sector includes activities related to the management and extraction of timber and non-timber forest products, as well as activities related to forest conservation and reforestation.
4. Fishing (ISIC B): This sub sector encompasses activities related to capturing or farming fish, shellfish, and other aquatic life. It can include both marine and freshwater fishing.

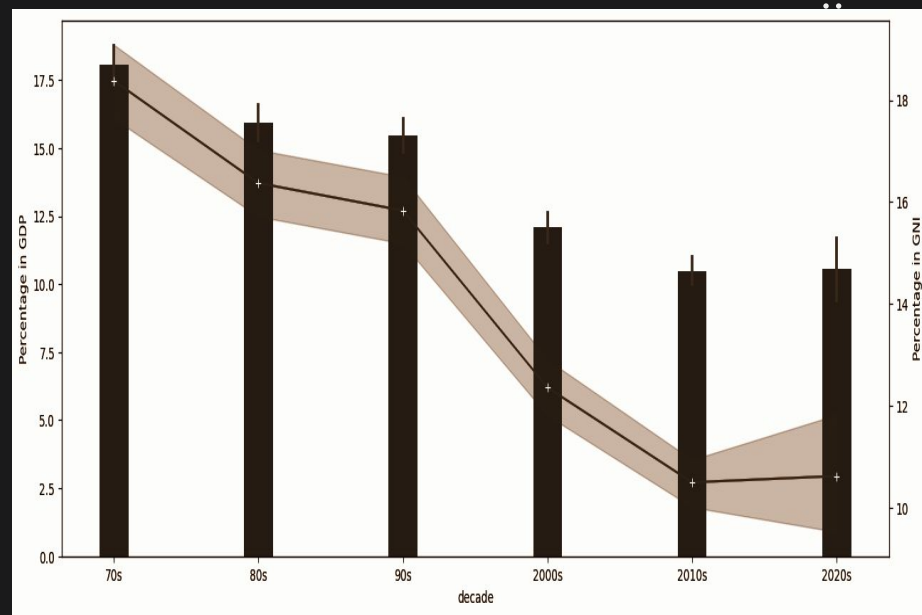


An adjacent graph will show us how the agriculture, hunting, forestry and fishing sector performed over the decades.

# Contribution of Agriculture, Hunting, forestry, fishing in GDP and GNI.



- We can observe from the adjacent graph that the contribution of 'Agriculture, Hunting, Forestry, and Fishing (ISIC A-B)' has been on a downward trend over the decades in Global GDP and in GNI. The possible reason could be:
1. **Economic Diversification:** As countries develop, they tend to diversify their economies. This means that other sectors, such as manufacturing, services, and technology, grow in importance and contribute more to GDP. Agriculture and related sectors can become a smaller part of the economy in this process.
  2. **Technological Advancements:** The adoption of modern agricultural techniques, machinery, and technology can increase agricultural productivity. While this is beneficial for food production and efficiency, it often reduces the labor force needed in agriculture, leading to a smaller share of GDP from these sectors.
  3. **Urbanization:** As populations shift from rural areas to urban centers, the share of the labor force engaged in agriculture typically decreases. This urbanization is driven by factors such as improved living standards and the availability of non-agricultural job opportunities in cities.
  4. **Changing Consumer Preferences:** With rising incomes and urbanization, consumers often shift their preferences towards processed and value-added products, leading to a relative decline in the primary production sectors.



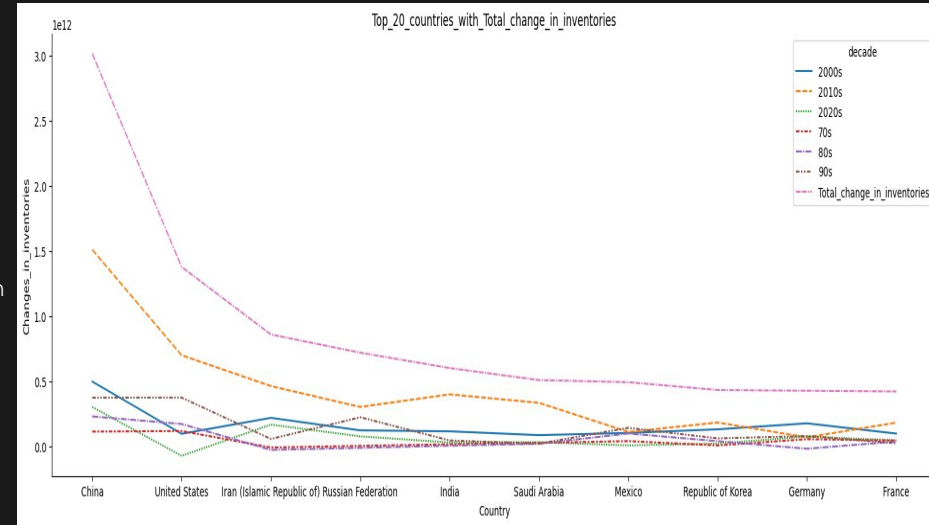
# Analysis on Changes in inventories

'Changes in inventories' refer to a component of a country's or company's

- economic accounts that tracks variations in the level of inventories or stockpiles of goods. This term is often used in the context of national accounts and
- economic statistics, particularly in the calculation of Gross Domestic Product (GDP).

1. In the calculation of GDP, "Changes in Inventories" represent the change in the value of unsold goods or inventories held by businesses over a specific time period, typically a year.
2. If a country increases its inventory, it is counted as a positive contribution to GDP, indicating that more goods were produced than sold. Conversely, if a country decreases its inventory, it is counted as a negative contribution to GDP, indicating that more goods were sold than produced.
3. Changes in inventories are often considered an important indicator of the business cycle. An increase in inventories may suggest that businesses are more optimistic about future sales, while a decrease in inventories could indicate that businesses are scaling back production due to weaker demand.

With respect to the second point, we will check for countries that increase or decrease their inventories.



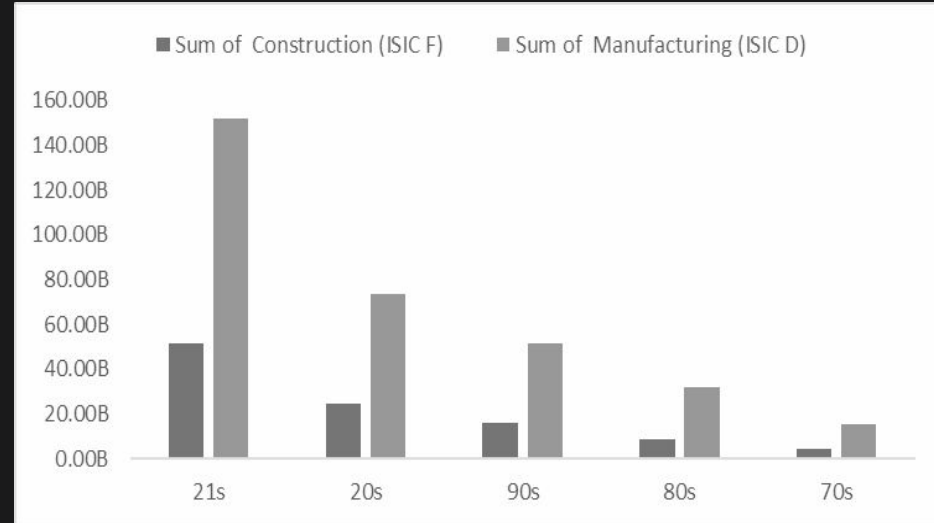
# Analysis on Construction(ISIC-F) & Manufacturing(ISIC-D)



**Construction (ISIC F)** refers to the economic sector classified under the International Standard Industrial Classification (ISIC) system as sector F. This sector includes economic activities related to the construction industry. Construction encompasses the building, maintenance, repair, and development of physical structures and infrastructure. This can involve the construction of residential, commercial, and industrial buildings, as well as infrastructure projects like roads, bridges, and utilities. The construction sector plays a crucial role in the growth and development of an economy and is typically a significant contributor to employment and economic output.

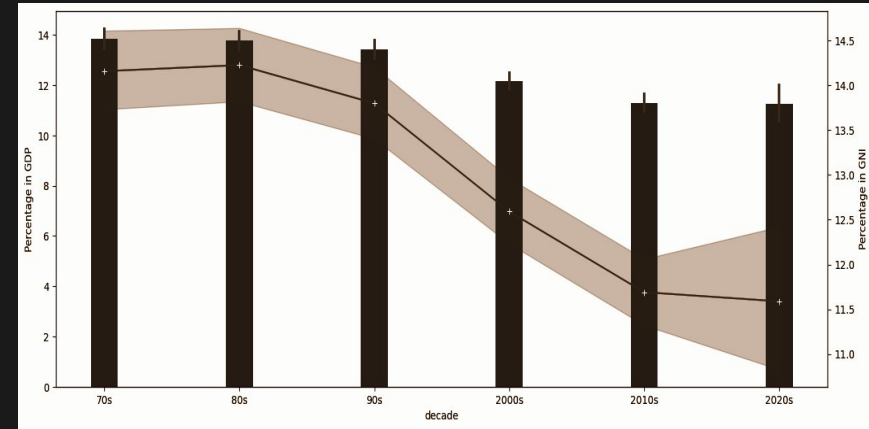
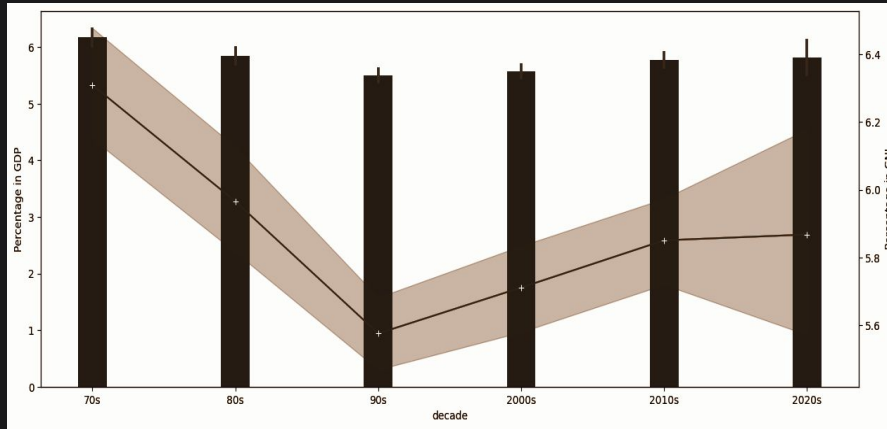
**Manufacturing (ISIC D)** refers to the sector of the economy involved in the production, processing, and assembly of tangible goods, typically using machinery, equipment, and labor. It encompasses a wide range of activities, including the transformation of raw materials into finished products, such as automobiles, electronics, textiles, and machinery. Manufacturing plays a crucial role in economic development and contributes to the production of a wide variety of goods for consumption and export. This sector often includes activities like production plants, factories, and industrial processes aimed at creating products for both domestic and international markets.

An adjacent graph will show us how the construction and manufacturing sector performed over the decades.





# Contribution of Construction(ISIC-F) & Manufacturing(ISIC-D) GDP and GNI.



- From the chart above, we can observe that the contribution of 'Construction\_(ISIC\_F)' to the GDP remains approximately the same over the decades, at around 6%. There is a slight drop in the 90s decade. However, when it comes to the contribution of 'Construction\_(ISIC\_F)' to the GNI, it varies throughout the decades. We notice the lowest contribution in the 90s around 1%, while the highest contribution is in the 70s around 5.5%. This indicates that in recent decades, 'Construction\_(ISIC\_F)' has not been contributing to countries' GNI to the same extent.
- From the chart above, we can observe that the contribution of Manufacturing (ISIC\_D) to the GDP has been on a slight downtrend. In the 1970s, it accounted for around 13.5%, but in the 2020s, it has decreased to around 10.5%. Similarly, the contribution of Manufacturing (ISIC\_D) to the GNI has also been on a downtrend, decreasing from approximately 14% to around 11.5%. **Possible reason could be:**

**Economic Recession:** During an economic recession, consumer demand for manufactured goods often decreases. This can lead to reduced production and factory closures.  
**Supply Chain Disruptions:** Disruptions in the supply chain, such as shortages of raw materials or components, can slow down manufacturing processes.  
**Exchange Rates:** Fluctuations in exchange rates can affect the cost of exports, which can impact the competitiveness of domestically manufactured goods in the global market.  
**Labor Strikes:** Labor strikes or disputes can disrupt production and lead to reduced manufacturing output.

# Analysis on Mining, Manufacturing & Utilities (ISIC-C-E) and Other activities (ISIC-J-P)



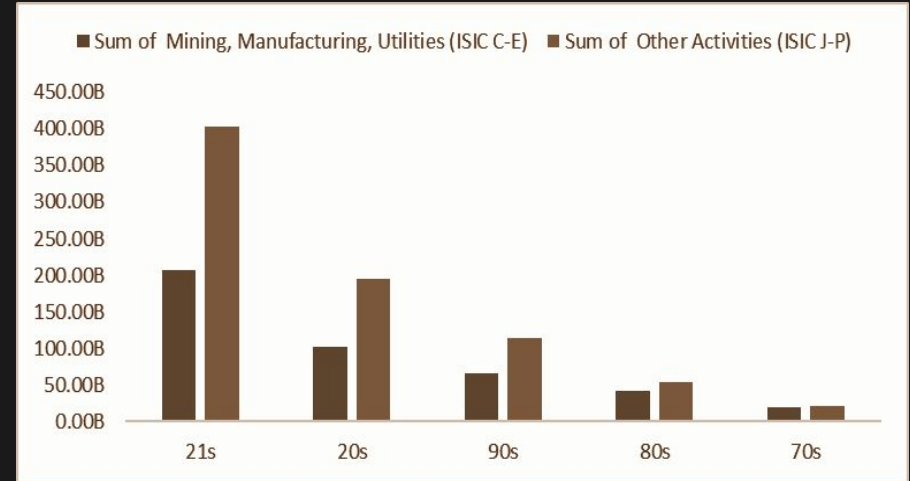
**Mining (ISIC C):** This sector includes activities related to the extraction of minerals, metals, and other natural resources from the Earth. It encompasses activities like mining of coal, oil, natural gas, ores, and quarrying. The extracted materials can be used for various industrial processes.

**Manufacturing (ISIC D):** Manufacturing involves the transformation of raw materials, components, or parts into finished goods on a large scale. It covers a wide range of industries, including the production of consumer goods, machinery, chemicals, and more. Manufacturing is a crucial part of the industrial sector.

**Utilities (ISIC E):** Utilities are services that provide essential infrastructure and resources to society. This includes the generation and distribution of electricity, the supply of water, and the provision of gas and heat. Utilities are vital for households, businesses, and industries.

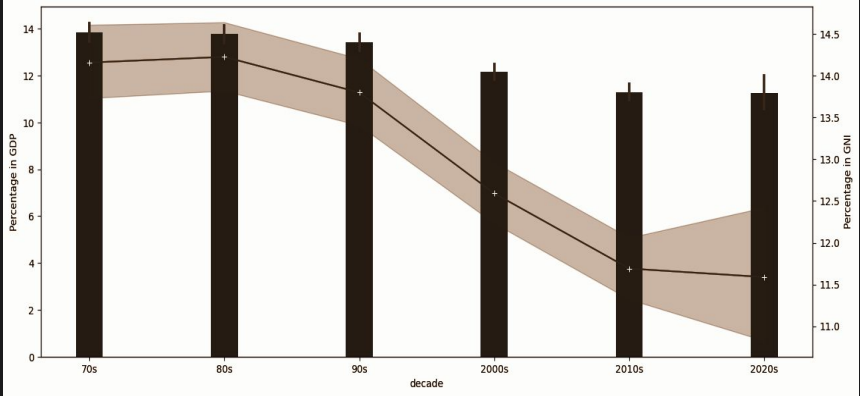
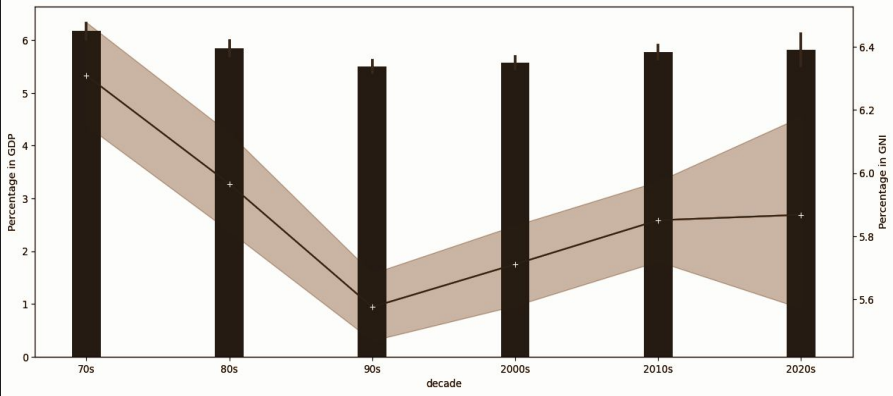
**Other Activities (ISIC J-P)** typically refers to a broad category of economic activities that don't fall into more specific industry classifications. It encompasses a variety of miscellaneous or residual activities that are not explicitly categorized elsewhere. These activities can vary widely and may include services, production, or businesses that don't fit neatly into predefined sectors.

An adjacent graph will show us how the Mining, Manufacturing and Utilities and Other activities sector performed over the decades.





# Contribution of Mining, Manufacturing & Utilities(ISIC-C-E) and Other activities (ISIC-J-P)



From the chart above, we can observe that the contribution of Mining, Manufacturing, and Utilities (ISIC C-E) to the GDP has shown a slight downtrend over the decades. In the 1970s, its contribution was approximately 23%, whereas in the 2020s, it has decreased to 18%. It appears that there hasn't been a significant drop in the contribution of Mining, Manufacturing, and Utilities (ISIC C-E) to the GDP. Additionally, there has been a major downtrend in the contribution of Mining, Manufacturing, and Utilities (ISIC C-E) to the GNI. In the 1970s, its contribution to GNI was approximately 22.8%, while in the 2020s, it has declined to 18%.

The chart above appears to show a changing trend, as we are observing a consistent pattern in the data. From the chart, it is evident that there is an upward trend in the contribution of 'Other Activities (ISIC J-P)' to both GDP and GNI. In the 70s, its contribution to GDP was 27%, which has now increased to around 36% in the 2020s. Similarly, for GNI, in the 70s there was only a 0.3% contribution from 'Other Activities (ISIC J-P),' while in the 2020s, it has increased to 35%.

**Economic Diversification:** As economies develop, they tend to diversify. This means that the services sector, technology, and other industries may become more prominent, leading to a relative decline in the share of traditional industries like manufacturing and mining in GDP. **Technological Advances:** Automation and technological advancements in manufacturing and mining have led to increased productivity. While this is positive for efficiency, it may result in reduced labor force requirements and a smaller share of GDP for these sectors. **Outsourcing and Globalization:** Many countries have seen a shift of manufacturing and even some mining activities to countries with lower labor and production costs. This globalization trend can reduce the share of these sectors in a country's GDP. **Economic Crises:** Economic crises can lead to contractions in manufacturing and mining activities



# Analysis on Transport, storage and communication (ISIC-I) & Wholesale retail trade restaurants and hotels (ISIC-G-H)

**Transport:** This includes activities related to the physical movement of goods and people from one place to another. It involves various modes of transportation, such as road transport, rail transport, air transport, maritime transport, and others. It covers the logistics and infrastructure necessary for the transportation of goods and passengers.

**Storage:** This refers to the management and storage of goods and materials. It includes warehousing, distribution centers, and facilities for storing products before distribution or sale. Proper storage is essential for efficient supply chain management.

**Communication:** This involves the transmission of information, data, and messages between individuals, businesses, and organizations. It encompasses a wide range of services, including telecommunications, broadcasting, postal services, internet services, and other forms of communication infrastructure.

**Wholesale Trade (ISIC G):** This sector includes businesses engaged in the resale of goods to retailers, professional, industrial, and commercial users, as well as other wholesalers. Wholesale trade involves buying products in bulk from manufacturers or other wholesalers and selling them to retailers or other businesses.

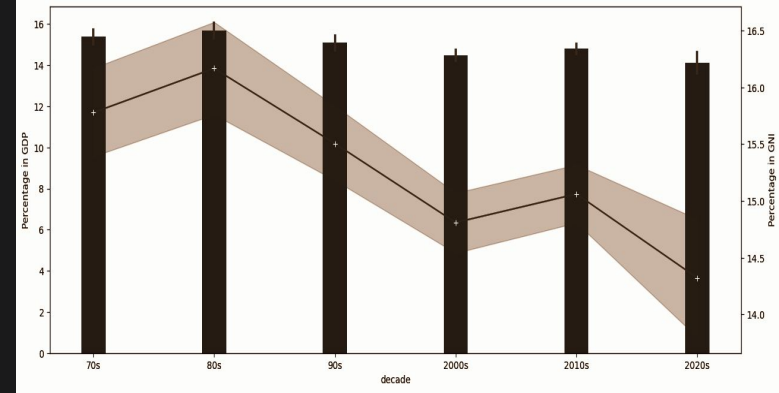
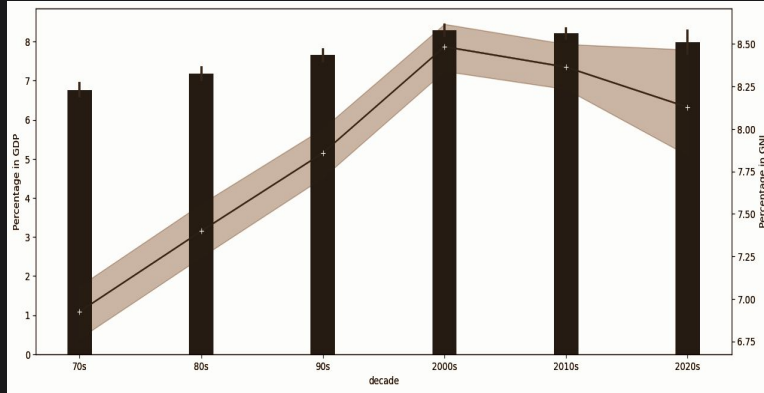
**Retail Trade (ISIC H):** Retail trade comprises businesses that sell goods and services directly to consumers. It includes a wide variety of establishments, such as department stores, supermarkets, specialty shops, and online retailers. Retailers are the final link in the distribution chain before products reach consumers.

**Restaurants and Hotels (ISIC G-H):** This subcategory within ISIC combines businesses involved in the hospitality and food service industries. It encompasses restaurants, cafes, hotels, motels, and other establishments that provide accommodation and food services to the public.

An adjacent graph will show us how the Mining, Manufacturing and Utilities and Other activities sector performed over the decades.



# Contribution of Transport, storage and communication (ISIC-I) & Wholesale retail trade restaurants and hotels (ISIC-G-H)



From the chart above, we can observe both an uptrend and a slight downturn in the contribution of 'Transport, Storage, and Communication (ISIC\_I)' to GDP and GNI. In the 1970s, its contribution to GDP was approximately 6.8%, and it increased to around 8.2% by the 2000s. However, it slightly declined to about 7.9% in the 2020s. Similarly, for GNI, its contribution was only 6.8% in the 1970s, but it rose to 8

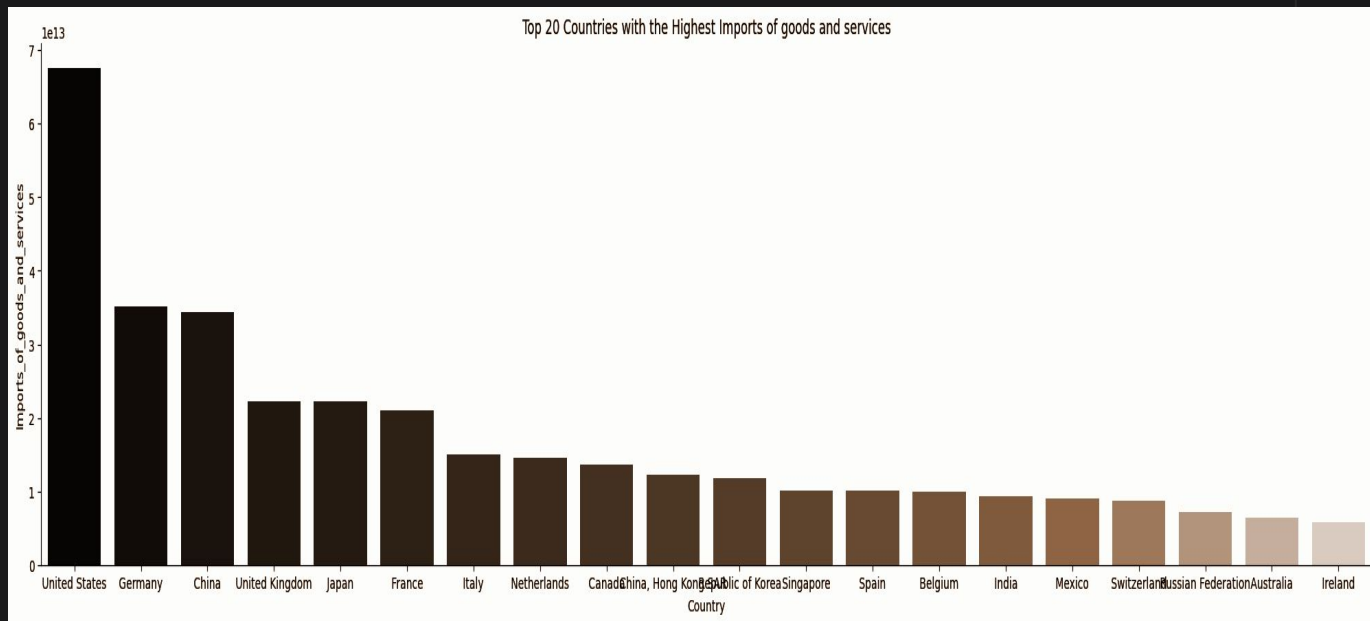
From the chart above, we can observe that the contribution of 'Wholesale, Retail Trade, Restaurants, and Hotels (ISIC G-H)' to the GDP was around 15% in the 1970s, while in the 2020s, it is around 14%. There doesn't seem to be much movement over the decades. As for GNI, in the 1970s, its contribution was 15.7%, which has come down to 14.3% in the 2020s. Possible reasons for this change could be:

**Economic Growth:** As a country's overall economy grows, there is typically an increase in consumer spending, which can boost the retail trade sector. Higher consumer incomes lead to increased spending on goods and services provided by these sectors, contributing to GDP and GNI. **Urbanization:** The growth of cities and urban areas often leads to increased demand for retail, restaurants, and hotels, as urban populations have greater access to a wide range of goods and services. This urbanization trend can drive up the contribution of these sectors to GDP. **Consumer Preferences:** Changes in consumer preferences and lifestyles can impact the types of goods and services people spend money on. For example, a shift towards online shopping or a preference for dining out rather than cooking at home can influence the retail and restaurant sectors. **Government Policies:** Government policies, such as tax incentives, regulations, and trade policies, can influence the performance of these sectors. Changes in regulations affecting the retail, restaurant, and hotel industries can have significant economic effects.

# Analysis on Export & Import of Goods and Services

## Top 20 Countries with highest Import of goods and services

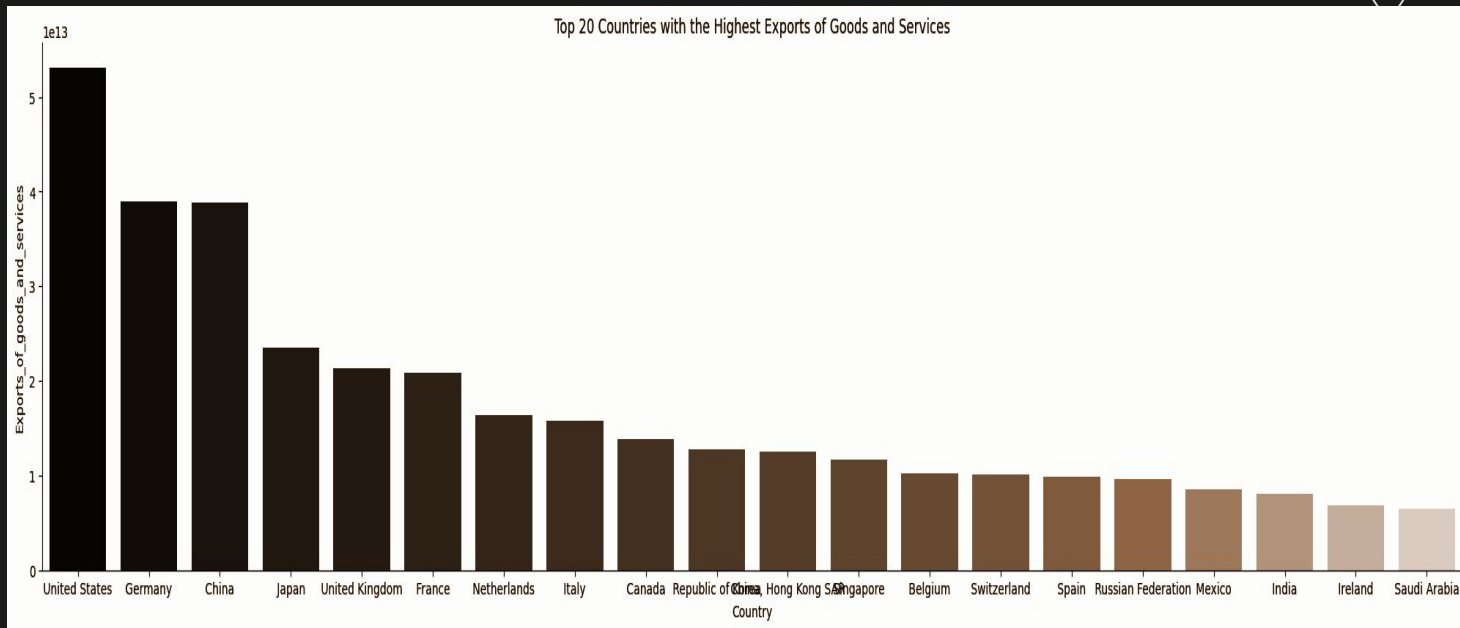
1. United States
2. Germany
3. China
4. United Kingdom
5. Japan
6. France
7. Italy
8. Netherlands
9. Canada
10. China
11. Hong Kong SAR
12. Republic of Korea
13. Singapore
14. Spain
15. Belgium
16. India
17. Mexico
18. Switzerland
19. Russian Federation
20. Australia
21. Ireland





## Top 20 Countries with highest Export of goods and services:

1. United States
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8. Italy
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12. Hong Kong SAR
13. Singapore
14. Belgium
15. Switzerland
16. Spain
17. Russian Federation
18. Mexico
19. India
20. Ireland
21. Saudi Arabia



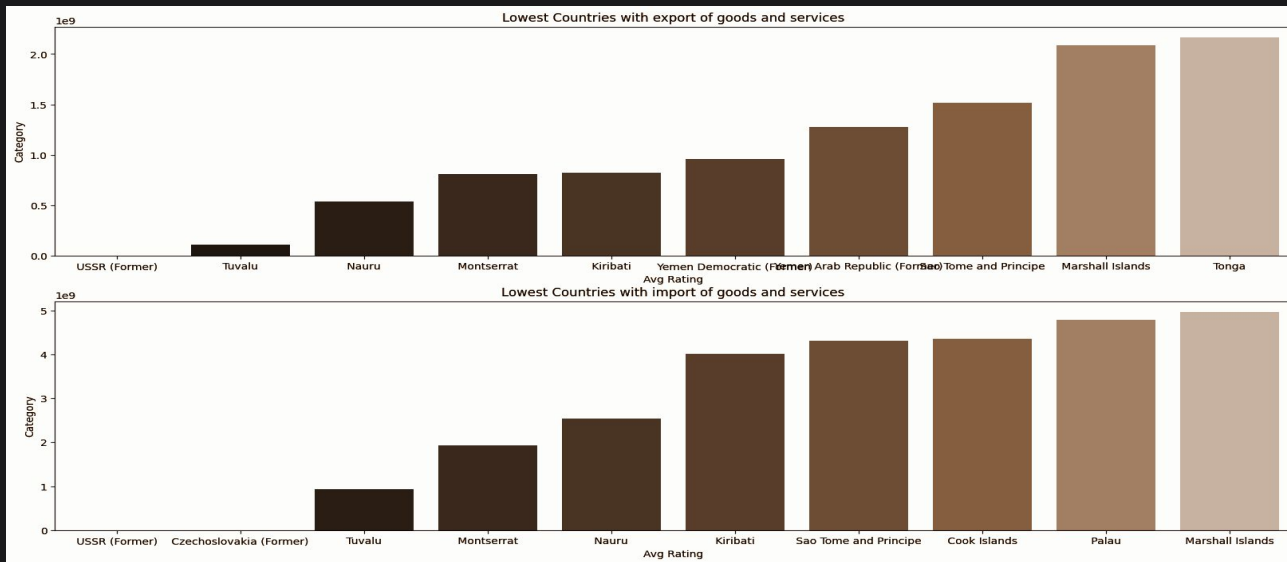


# Countries with lowest export and import of Goods and services



From the graph above, we can observe that the ten countries with the lowest exports of goods and services are: **USSR (Former)**, **Tuvalu**, **Nauru**, **Montserrat**, **Kiribati**, **Yemen Democratic Arab Republic**, **Sao Tome and Principe**, **Marshall Islands**, and **Tonga**.

Similarly, the ten countries with the lowest imports of goods and services are: **USSR (Former)**, **Czechoslovakia (Former)**, **Tuvalu**, **Montserrat**, **Nauru**, **Kiribati**, **Sao Tome and Principe**, **Cook Islands**, **Palau**, and **Marshall Islands**.



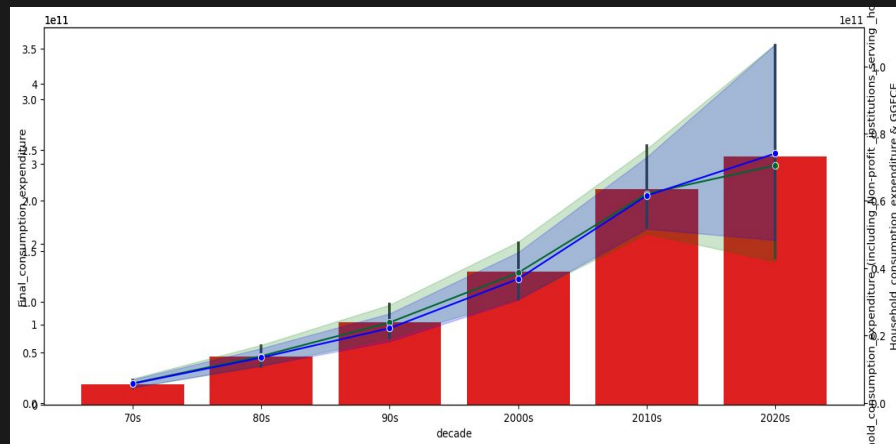
# Analysis on FCE and GGFCE



**Final consumption expenditure (FCE)** is a key economic indicator that represents the total value of goods and services purchased by households and the government for their direct consumption. In other words, it measures the total spending on goods and services that are used by individuals and government entities for their immediate satisfaction of needs and wants. **FCE is a significant component of a country's Gross Domestic Product (GDP)** and is often broken down into categories such as spending on food, clothing, housing, healthcare, education, and other items that contribute to the well-being and consumption of the population. It does not include spending on investments, such as machinery or infrastructure, as those are classified under a different category called Gross Capital Formation. FCE provides insights into the overall economic well-being and consumption patterns of a country's residents.

**General government final consumption expenditure (GGFCE)** is a component of a country's national accounts that represents the total expenditure by the government on goods and services for current use by the general government. **It includes government spending on items such as public administration, defense, education, healthcare, social security, and other services aimed at meeting the needs of the general population.**

GGFCE is an important indicator within the national accounts, as it reflects the government's role in providing public services and maintaining public infrastructure. It does not include government investments in long-term assets like infrastructure development or capital expenditure, which are recorded separately.



The bar chart in red represents Final\_consumption\_expenditure. we can observe how this metric changes over the decades. The bars are consistently rising, it indicate an overall increase in consumer spending. The two line charts, one in green and the other in blue, represent Household\_consumption\_expenditure and General\_government\_final\_consumption\_expenditure. These lines show how household consumption and government consumption change over time.



# Top 10 Countries with Highest FCE

The plot compares three components of FCE for the top 10 countries:

"Final\_consumption\_expenditure," "Household\_consumption\_expenditure (including Non-profit institutions serving households)," and "General\_government\_final\_consumption\_expenditure." This allows you to see how these components contribute to the overall FCE in each country.

**Total Consumption Expenditure: The blue line represents**

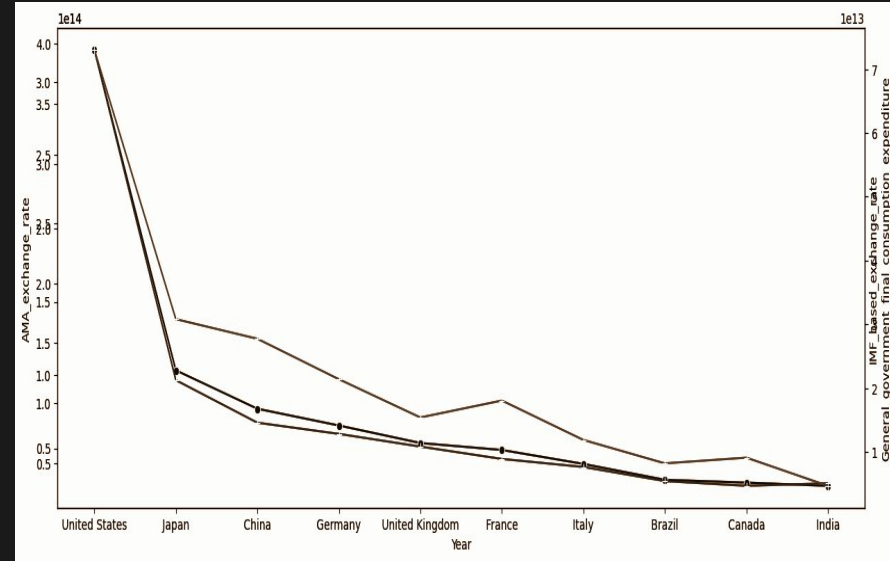
**Final\_consumption\_expenditure**, which is the total consumption expenditure for the top 10 countries. The graph shows the trends in total consumption spending by these countries over the given time period.

**The red line represents Household\_consumption\_expenditure (including Non-profit institutions serving households).** It indicates the consumption expenditure by households, including non-profit institutions serving households. The graph helps identify the trends in household consumption patterns among these countries.

**The green line represents**

**General\_government\_final\_consumption\_expenditure**, which is the consumption expenditure by the general government. It shows how government consumption spending has evolved over time in these top 10 countries.

**The blue line, representing total consumption expenditure, generally follows an increasing trend over time. This suggests that, collectively, the top 10 countries have been increasing their overall consumption spending.**



# Gross Capital formation & Gross Fixed capital formation

- **Gross\_capital\_formation:**

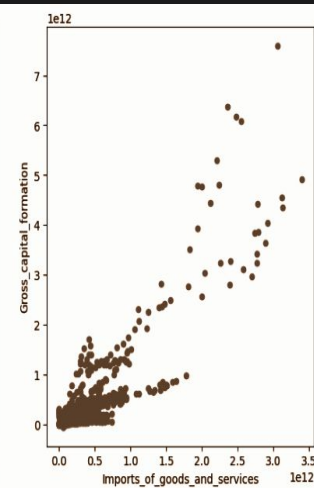
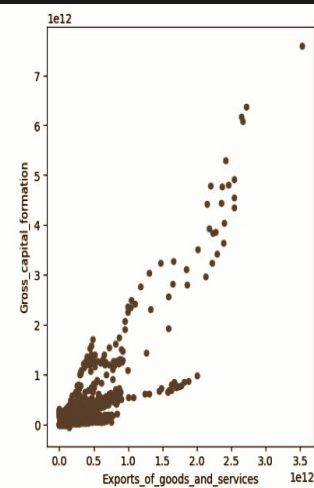
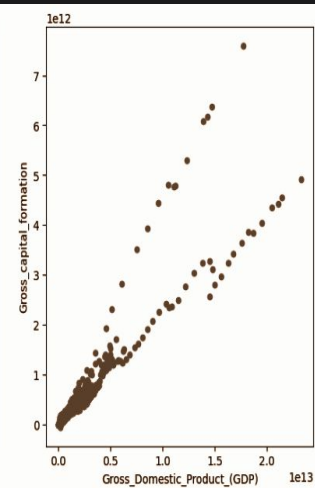
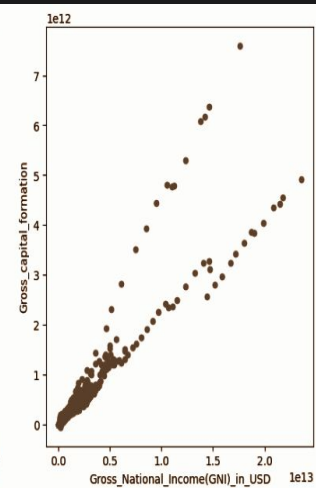
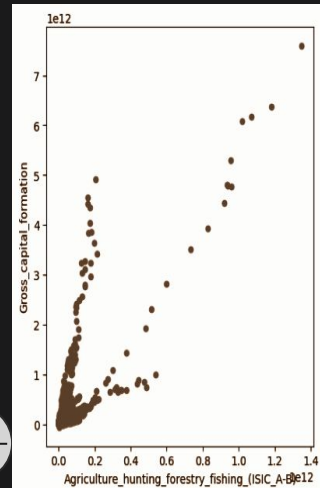
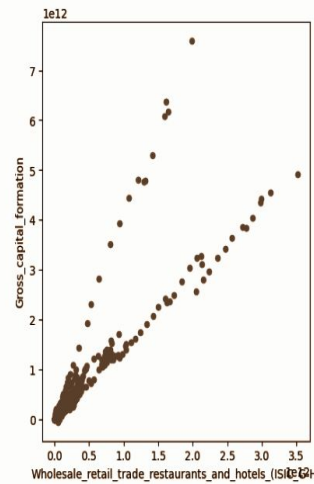
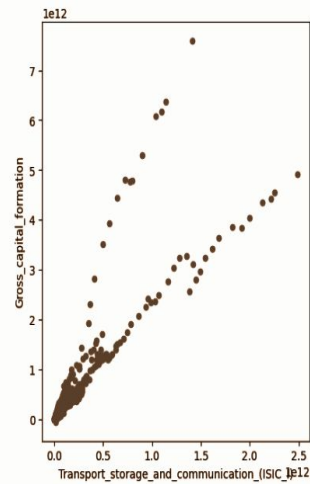
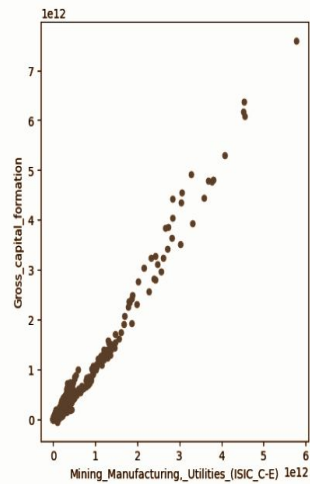
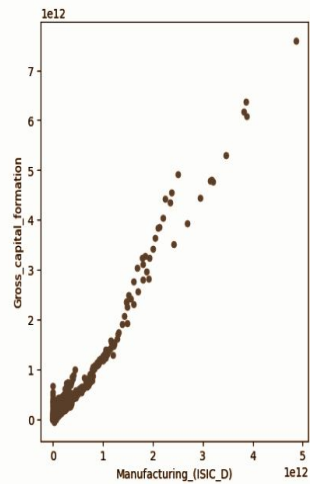
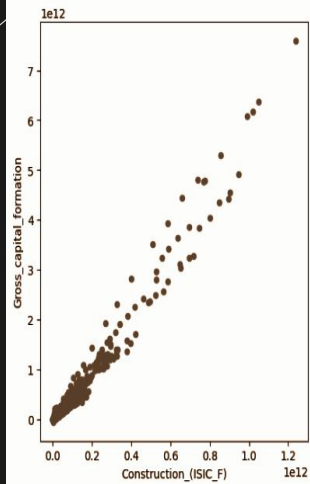
Gross Capital Formation (GCF), also known as Gross Fixed Capital Formation (GFCF), is an economic concept that represents the total value of physical assets (such as machinery, buildings, infrastructure, and equipment) that are produced or purchased for use in the production process during a specific period. In simpler terms, it refers to the total investment in new and replacement physical capital within an economy.

GCF includes both private and public sector investments in fixed assets and is an essential component of a country's Gross Domestic Product (GDP). It indicates the level of investment in an economy, which can be a crucial driver of economic growth and development. GCF is often used as an indicator of a country's economic health and its capacity to expand and improve its productive capabilities.

- **Gross\_fixed\_capital\_formation\_(including\_Acquisitions\_less\_disposals\_of\_valuables):**

Gross Fixed Capital Formation (GFCF), including acquisitions less disposals of valuables, is an economic concept that represents the total value of all investments made in a country's fixed assets, such as machinery, equipment, buildings, infrastructure, and other forms of capital. This includes both additions to these assets and the disposal of assets that have reached the end of their useful life. Gross Fixed Capital Formation (GFCF), including acquisitions less disposals of valuables, is an economic concept that represents the total value of all investments made in a country's fixed assets, such as machinery, equipment, buildings, infrastructure, and other forms of capital. This includes both additions to these assets and the disposal of assets that have reached the end of their useful life.







- The first scatter plot (axs[0]) shows the relationship between "Gross Capital Formation" and the construction sector. A positive correlation indicates that increased capital formation is associated with growth in the construction industry.
- The second scatter plot (axs[1]) displays the relationship between "Gross Capital Formation" and the manufacturing sector. A positive correlation suggests that more capital investment is linked to higher manufacturing output.
- The third scatter plot (axs[2]) focuses on the broader category of mining, manufacturing, and utilities. A positive correlation suggests that more capital investment is linked to higher output in Mining, Manufacturing, and Utilities.
- The fourth scatter plot (axs[3]) examines the relationship between "Gross Capital Formation" and the transport, storage, and communication sector. This plot provides insights into the link between capital investment and the infrastructure and communication industries.
- The fifth scatter plot (axs[4]) explores the relationship between "Gross Capital Formation" and the wholesale, retail trade, restaurants, and hotels sector. Analyzing this plot helps us understand how capital formation affects these consumer-oriented businesses.
- The sixth scatter plot explores the relationship between "Gross Capital Formation" and Agriculture, Hunting, Forestry, Fishing (ISIC A-B). It indicates that capital formation in some countries is high despite a significant contribution from the agriculture sector, while in other countries, capital formation is lower despite a similar level of agriculture.
- The seventh scatter plot explores the relationship between "Gross Capital Formation" and Gross National Income (GNI) in USD. The scatter plot reveals a positive relationship between gross capital formation and GNI. In general, countries with higher GNI tend to have higher gross capital formation.
- The eighth scatter plot explores the relationship between "Gross Capital Formation" and Gross Domestic Product (GDP). The plot shows a positive correlation between GDP and gross capital formation. Countries with higher GDP levels tend to have higher capital formation. This suggests that economic activity, as measured by GDP, is a contributing factor to capital formation.
- The ninth scatter plot explores the relationship between "Gross Capital Formation" and Exports of Goods and Services. It reveals whether there is a strong connection between capital investment and a country's ability to export goods and services.
- The tenth scatter plot explores the relationship between "Gross Capital Formation" and Imports of Goods and Services. It indicates that a higher level of capital formation is associated with increased imports, which can be influenced by various economic factors.





# Thanks!

Do you have any questions?

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[https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS?mo  
st\\_recent\\_year\\_desc=true.](https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS?locations=US&st_recent_year_desc=true)

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