# Selected Topic

➜ Our project analyzes the relationship between GDP/GDP per capita and the productive and technological capacities of different countries between the years 2008 and 2019.

# Reason why the topic was selected

➡ We desire to understand how productive and technological capacities of countries affects the GDP/GDP per capita of different countries in different regions of the world. This project is important especially as the gap between developed and developing countries widens.

# Description of Data Sources

The data sources used for this project are derived from two reputable international organizations:
The **United Nations Conference on Trade and Development (UNCTAD)** and the **World Bank**.

➜ From **UNCTAD**, the data selected include the productive capacities index (PCI) and the frontier technology readiness index (FTRI).

➜ The *PCI* measure the levels of productive capacities along three pillars for a given economy: productive resources, entrepreneurial capabilities and production linkage. The features of the *PCI* analyzed for each country in this project include: human capital, natural capital, energy, transport, ICT, institutions, private sector, and structural change.

➜ The *FTRI* measures technological capacities related to physical investment, human capital and technological effort, and covers national capacities to use, adopt and adapt these technologies. The features of the *FTRI* analyzed for each given country in this project include: ICT, Skills, Research and Development, Industry Activity, and Access to Finance.

➜ From the **World Bank**, the data selected include countries broken by global regions and six income levels. Each country has a measurement for *GDP per capita* and *GDP*:

▸ *GDP per capita* is gross domestic product divided by midyear population.

▸ *GDP* is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products.

# Questions we hope to answer with the data

➜ What are the most important productive capacity and technological capacity features that a government should invest in to increase their GDP/GDP per capita?

➜ Should countries concentrate on productive capacity or technological capacity features to maximize their GDP/GDP per capita?

➜ How do productive capacity and technological capacity features differ between countries in different regions of the world?

# Description of the data exploration phase of the project

The data exploration phase included the finding of appropriate data sources and tables, the identification of variables and data types, the generation of a statistical summary of the dataset, and a a non-graphical univariate analysis (observing the count of unique values, finding null values, etc).

# Description of the analysis phase of the project

The analysis phase included cleaning, transforming, and modeling the data into a succinct dataset. Moreover the analysis phase helped us establish which tools would be used to create the final dashboard as well as the interactive elements. Listed below are tools we have decided to use  used and The tools used are listed below.

➡ QuickDB:  used to graphically show the structure of the database and relations between database objects

➡ SQL: used to join tables into one integrated database

➡ Tableau: used to create an interactive dashboard

➡ Google Suites: used to house the dashboard

# Overview of all the regions and their metrics for GDP and GDP per capita:
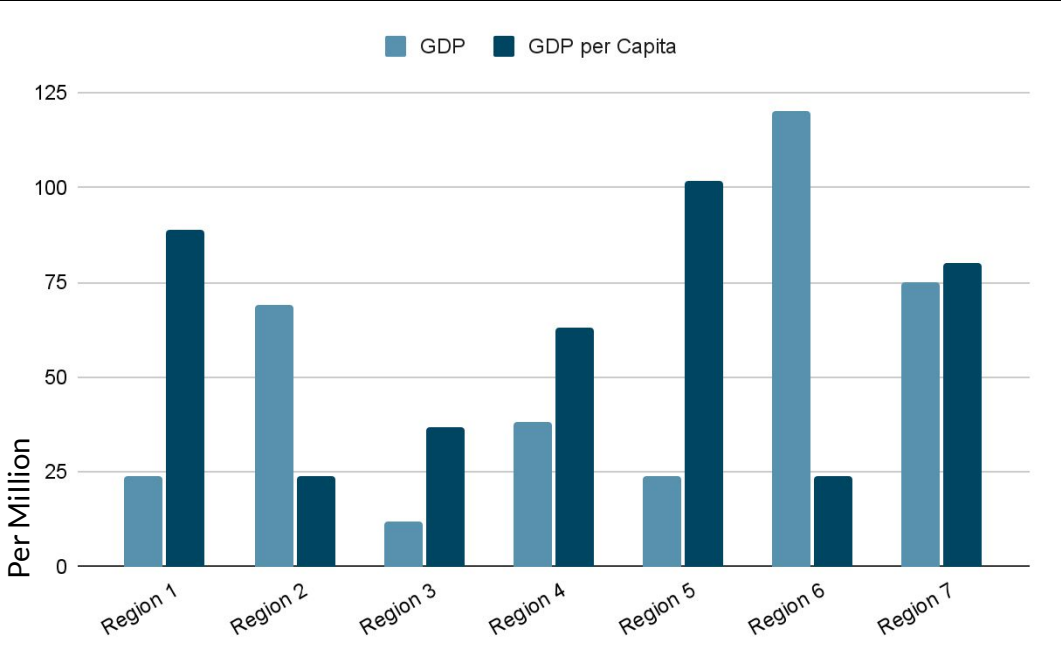
# Machine Learning Models

### Linear Regression

To determine (ask Rafael what should be here.)

### Random Forest Feature

Used to determine which productive and technological capacities and features impact GDP/GDP per capita the most.

### Interactive Elements in the Model

Select countries and change productive capacity and technological capacity feature levels to generate the country's GDP/GDP per capita.

*The above will have actual examples of each model and components

Country in vacuum taking GDP and GDP per Capita at one year, changing either tech or industry capacity and seeing change in GDP.

Graph showing important productive capacity and technological capacity features that a government should invest in

Map showing productive capacity and technological capacity features differ between countries in different regions of the world