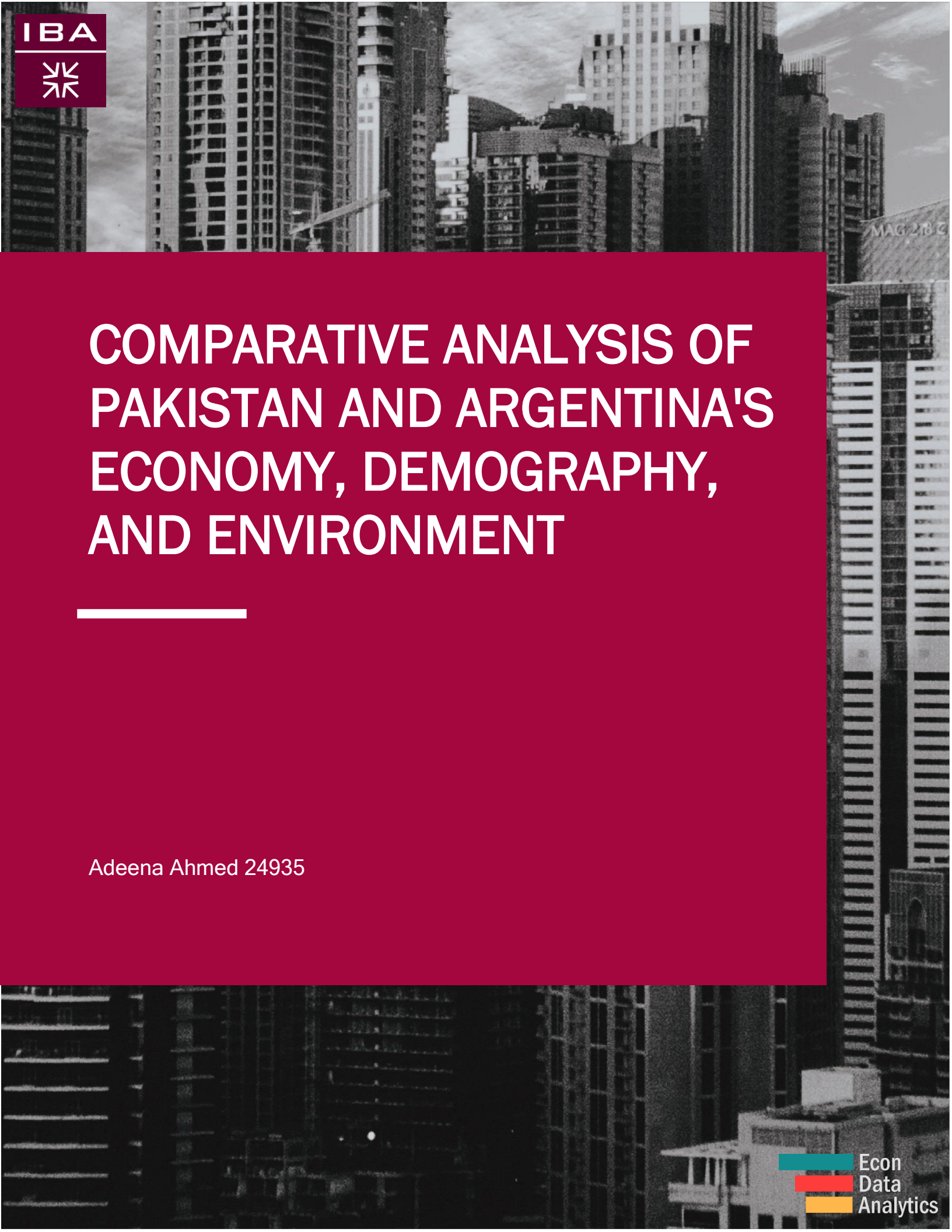

COMPARATIVE ANALYSIS OF PAKISTAN AND ARGENTINA'S ECONOMY, DEMOGRAPHY, AND ENVIRONMENT

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Econ Data Analytics

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Abstract

This report explores the economic, environmental, and demographic factors of Pakistan, Argentina, and World. This report explores how situation of Pakistan differs from Argentina and World from 1991-2022. From 1991-2022, Pakistan's population has jumped from 8th to 5th rank while Argentina's population lowered from 31st to 33rd rank. Population changes have positive effect on the Climate changes and Economic Growth. There exists a direct relation between Population growth and Climate change such as the fertility rates increases and mortality rates reduces, the population of a country increases. Moreover, due to the steady increase in population, not only global warming is taking place at an increasing rate but also there is a threat to natural resources such as land, water, and air. It can be further examined that countries like Pakistan and Argentina have made several policies to mitigate the effects of climate change and overcome the increasing population such as family planning programs. In the light of economic factors, GDP and climate change have an inverse relationship along with Pakistan has 56.68% more inflation than Argentina (Worlddata, 2022). The report's analysis suggests that Pakistan should adopt new policies before the country's natural resources gets strained and country must come up with effective and efficient plans to combat the soaring inflation, greenhouse gas emissions, and population growth.

1. Introduction

1.1 Background

Pakistan and Argentina are both agriculturally based economies with Argentina being a highly export oriented agricultural sector and diversified industrial sector while Pakistan lies in agricultural and semi industrial sectors (Wikipedia, 2023) (Wikipedia, 2023) .

Pakistan is the second largest country in South Asia and 33rd largest country in world. It is the 4th largest producer of mangos, 5th of cotton, 3rd of chickpea, and 7th of wheat. Industry is the second largest sector of the economy accounting for 19.74% of GDP and 24% total unemployment. Textile industry is the strength of Pakistan as export-oriented denims are produced along with tourism industry. Recently, Pakistan shifted to service sector and is main driver of economic growth. Moreover, it is also a nuclear power country with 6 licensed nuclear powerplants. However, high inflation, depreciation of currency, and crime rate are some of the weaknesses of Pakistan (Wikipedia, 2023).

Pakistan has been labeled as a country which faces both increasing population and severe climate change threats since 1991. According to the Global Climate Risk Index, Pakistan is the 5th most climate-vulnerable country, having nearly lost ten thousand lives and economic loss of worth 3.8 billion USD due to climate change since 1999 (ReliefWeb, 2023). As per the recent IQAIR (IQAIR, 2022) observation, Pakistan is 3rd most air polluted country. In comparison to Pakistan, Argentina is

the second largest country in South America and 8th Largest country in the World. It is also one of the five largest producers of soyabean, maize, sunflower seed, lemon, and pear. In the mining industry, it is the 4th largest producer of lithium, 9th of silver, and 17th of gold. However, its biggest weakness is the high inflation and poverty (Wikipedia, 2023).

Though it is ranked as 33rd in population index and recently dropped to 43rd place in Climate index yet it has a threat of severe climate change effects which includes, high carbon emissions and rising temperatures because as per the Climate Action Tracker (CAT), it's climate targeted policies were "Critically Insufficient" (ClimateActionTracker, 2023).
Some of the empirical evidence is given on the linkages between climate change and population, but a little emphasis has been placed upon how other factors lead to climate change apart from population and how climate change leads to economic loss.

1.2 Objectives of Study

The objective of this study is to compare how Pakistan's environmental, economic, and demographic situation differs from Argentina and World. Another objective is to examine the linkages between population and climate change, activities and climate change, and climate change and economic factors such as GDP and inflation. Moreover, chain effects will be examined as of how a change in population causes climate change and these further effects the economy. Additionally, trend analysis will be observed from 1991 to 2022 in the indicators so that informed and accurate conclusions and empirical analysis can be drawn. This will assist predictors and policymakers to make effective policies to combat climate change, population growth, and economic uncertainty.

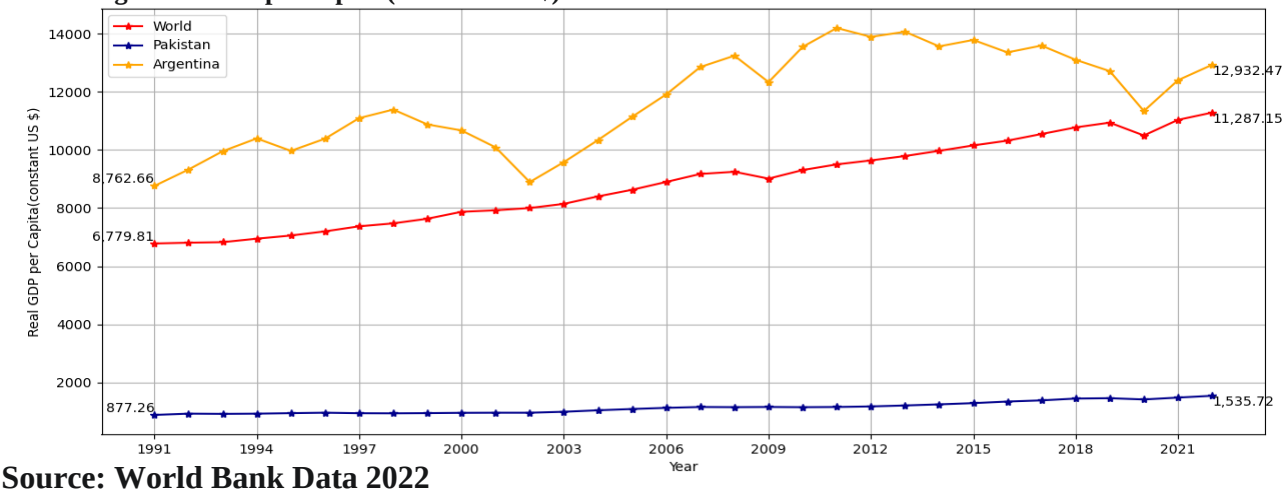
2. Methodology

This study uses descriptive statistics, trend analysis, graphical illustration, literature reviews, annual reports, and articles to accomplish the study objectives. The graphical illustration includes graphs of linkages and separate graphs of indicators. The data sources include World Bank open data (World Bank, 2022), IQAIR (IQAIR, 2022), IMF Climate Change (IMF: Climate Change Dashboard, 2022), Climate Crises in Pakistan (Climate Crises in Pakistan, 2023), Pakistan Environmental Protection Agency (PEPA, 2021), World Data Info (Worlddata, 2022), government publications, articles, and other online data sources.

3. Worldwide Pakistan and Argentina Ranking

Pakistan and Argentina's global standing will be measured by Gross Domestic Product per capita (World Bank Data , 2022) (World Bank , 2022)

Figure 1: GDP per capita (constant US $)



Source: World Bank Data 2022

The GDP per capita of the country shows the per person GDP. In Figure 1, The Argentina's GDP per capita increased from $8762 to $12,932 which shows 0.47% increase in 3 decades whereas Pakistan's GDP per capita increased from $6,779 to $11,287 which shows 0.66% increase which is approximately 0.2 % lower than Argentina's. Moreover, the World's GDP per capita increased a bit from $877 to $1,535 which shows 0.75% increase. Argentina's GDP per capita is higher than Pakistan mainly because of lower population due to which the GDP per capita is higher as their GDP as per 2022 is $632,770 million and Pakistan's GDP is $376,533 million so having lower GDP and high population of Pakistan leads to lower GDP per capita than Argentina's. However, inflation rate of Argentina is higher than Pakistan which is further explained in *section 6.3 (Inflation Rate).* Moreover, the Argentina's currency is extremely depreciated (US$ 1 = 800.53 Argentine Peso) whereas Pakistan's currency is depreciated but it is better than Argentina (US$ 1 = PKR 278.60).

4. Goals and Policies for Population Control, Climate change, Economic stability.

4.1 Pakistan

The aim of Pakistan as per the Government of Pakistan Ministry of Climate Change (Government of Pakistan Ministry of Climate Change, 2021) is "to ensure that climate change is mainstreamed in the economically and socially vulnerable sectors of the economy and to steer Pakistan towards climate compatible development." The policies made in this regard are:

1. First ever National Water Policy package comprising a Policy and a Charter by Pakistan's Council of Common Interests on 23rdApril 2018 which targets to make interventions regarding the supply and reserves of water (Ministry of Water Resources, Government of Pakistan, 2018).
2. National Food Security Policy--2018 and one of its goals is to make agriculture more productive, profitable and climate resilient.
3. Ten Billion Tree Tsunami Programme (TBTTP) was approved by ECNEC on 29-8-019. The first phase of the programme is being implemented throughout Pakistan with the support of all provincial governments including AJ&K and GB for a period of four years (2019-20 to 2022-23). (Government of Pakistan Ministry of Climate Change, 2021)
4. In 2017 Government of Pakistan approved its National Forest Policy (NFP) that seeks to expand, protect, and promote sustainable use of national forests, protected areas, natural habitats and watersheds. (Government of Pakistan Ministry of Climate Change, 2021)
5. National Clean Air Policy (NCAP), 2023 aims to mitigate air pollution and minimize adverse effects of climate change on economy. (Ministry of Climate Change Government of Pakistan, 2023)

In terms of Population control, The Chief Minister approved the first Provincial Population Policy in January 2017 which includes a vision of a knowledge-based, wealthy, and healthy society in which every family is planned, and population is controlled.

4.2 Argentina

Since 2010, Argentina's mission is to achieve carbon-neutral development by 2050. However, during COP26, by staying below the 349 MtCO2e net emission threshold in 2030, Argentina increased its mitigation target even further. Argentina is actively working to not only mitigate the effects of climate change but also their population to improve their economy. The policies made in this regard are:

1. In 2018, and in the frame of the UN REDD+ program, Argentina submitted its National Action Plan on Forests and Climate Change (PANByCC), which includes a target of 27MtCO_2eq reduction from land use emissions by 2030 (UNREDD, 2022).
2. "Climate Change Adaptation and Mitigation Plan" in 2020, plan includes 250 public policy measures to be implemented by 2030 and prioritizes natural gas as a transition fuel. It also calls for lower emissions and water management. (Lewkowicz, 2023)
3. In 2022, took $500 million loan from the Inter-American Development Bank (IDB). stimulate the circular economy and decarbonization.

5. Connectivity between Population, Environmental, and Economic Changes.

5.1 Population and Fertility Rate

As per the Gotmark and Anderrson Research (Götmark & Andersson, 2020), there exists a strong direct relation between the fertility rates and population growth. A total fertility rate of 2.1 children per woman indicates a stable amount of population. However, Pakistan faces a staggering fertility rate of 3.4 children per woman due to which it jumped to the 5th most populated country in 2022 (Figure 2) from 8th most populated country in 1991 in the world (Figure 1). One of the reasons can be due to the less education and awareness about family planning.

5.2 Population and Infant Mortality Rate

A falling infant mortality rate leads to an increase in Population. As per recent study of Professor Corey Bradshaw (Population Matters, 2023) A high infant mortality rate leads to increase in fertility rates which results in high population. This is also called "Insurance or replacement effect" where if a woman loses her children so there are chances that she can give birth to another child.

5.3 Population and CO2 Emissions

Climate change is highly linked with population as when the population increases so the total greenhouses gas emission increases due to the increase in production activities and fossil fuel consumptions etc. (Population Connection, 2023). The high level of CO2 emissions is mainly due to burning fossil fuel to fulfill the growing population's energy consumption. Both Pakistan and Argentina face high levels of CO2 Emissions in 2022. However, as per their updated NDC's, both countries aim to reduce CO2 Emission till 2030. (UNDP, 2023) (UNDP, 2023)

5.4 Population and Agricultural Land

Countries which heavily rely on the agricultural sector tend to have a strong direct relation with Population Growth. As per recent D. Ortiz Research (D. Ortiz, L.Outhwaite, Dalin, & Newbold, 2021), there exists a tradeoff between producing more food and environmental degradation. Pakistan and Argentina are both agriculturally based economies. As their population grows, the need to feed the economy is being fulfilled by expanding the agricultural land.

5.5 Population and Unemployment and GDP.

Population and Unemployment are closely related to each other. The Population works as a labor supplier while the country's economic situation is labor demand. The labor demand doesn't match with the labor supply due to which with growing population, the unemployment rate increases. Additionally, there exists a long-term relation between Population, Unemployment, and GDP. One of the reasons for this linkage is the scarcity of human capital.

5.6 Population and Freshwater withdrawals

As per research (Ritchie & Roser, 2018), A growing population means more demand for global freshwater use which means countries need to have more freshwater withdrawals to meet demand sustainably.

5.7 Emissions and GDP

As per Dhaiya and Butt academic research (Dhaiya & Butt, 2023), a low GDP causes a reduction in emission. Shutdown of factories, reduction in use of vehicles due to high petrol prices leads to low GDP thus lower emissions.

5.8 Population and Temperature Change

The article from Population Media Center (Peluso, 2022) indicates that as the needs for necessities increases due to more population, the demand for food increases due to which more agricultural land cultivation leads to deforestation. This negatively impacts the land temperature causing them to rise due to more carbon emissions and shrinking forests. This has also resulted in rising sea levels.

5.9 Inflation and Unemployment

Inflation and Unemployment tend to have a negative correlation which indicates that as unemployment falls, the inflation rate increases. This is called "Phillips Curve." The empirical Study of (Mangnejo, Mahar, & Ahmed, 2020), the government of any country aims to achieve low inflation and create employment, however, this is constrained by a trade-off between them. When more people are working, they create income so their purchasing power rises giving a rise to inflation due to Demand pull inflation.

5.10 Agricultural Land and Nitrous Oxide Emission

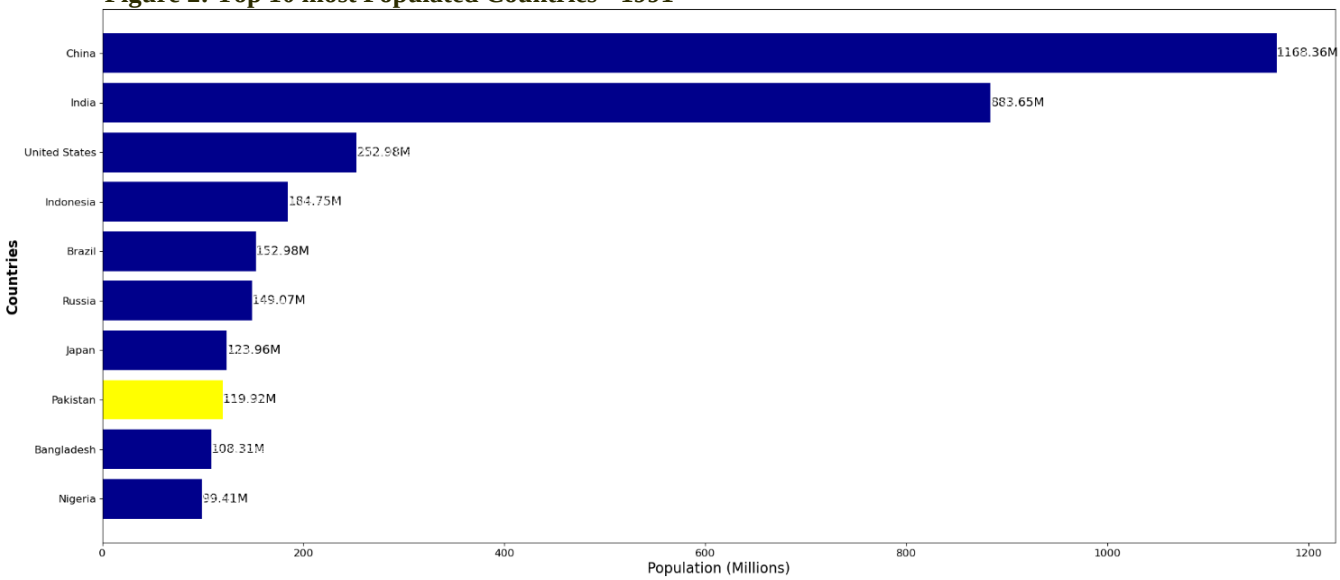
Nitrous oxide (N_2O) is an important anthropogenic greenhouse gas and agriculture represents its largest source (S. Reay, et al., 2012). Nitrous Oxide Gas makes the land infertile. Therefore, as the need for food increases, countries like Pakistan and Argentina which are both agriculturally based economies tend to cultivate more agricultural land resulting in high emission of Nitrous Oxide gas.

6. Trend Analysis of Population, Environmental, and Economic Indicators

6.1 Fertility rates, Mortality rates, and Population

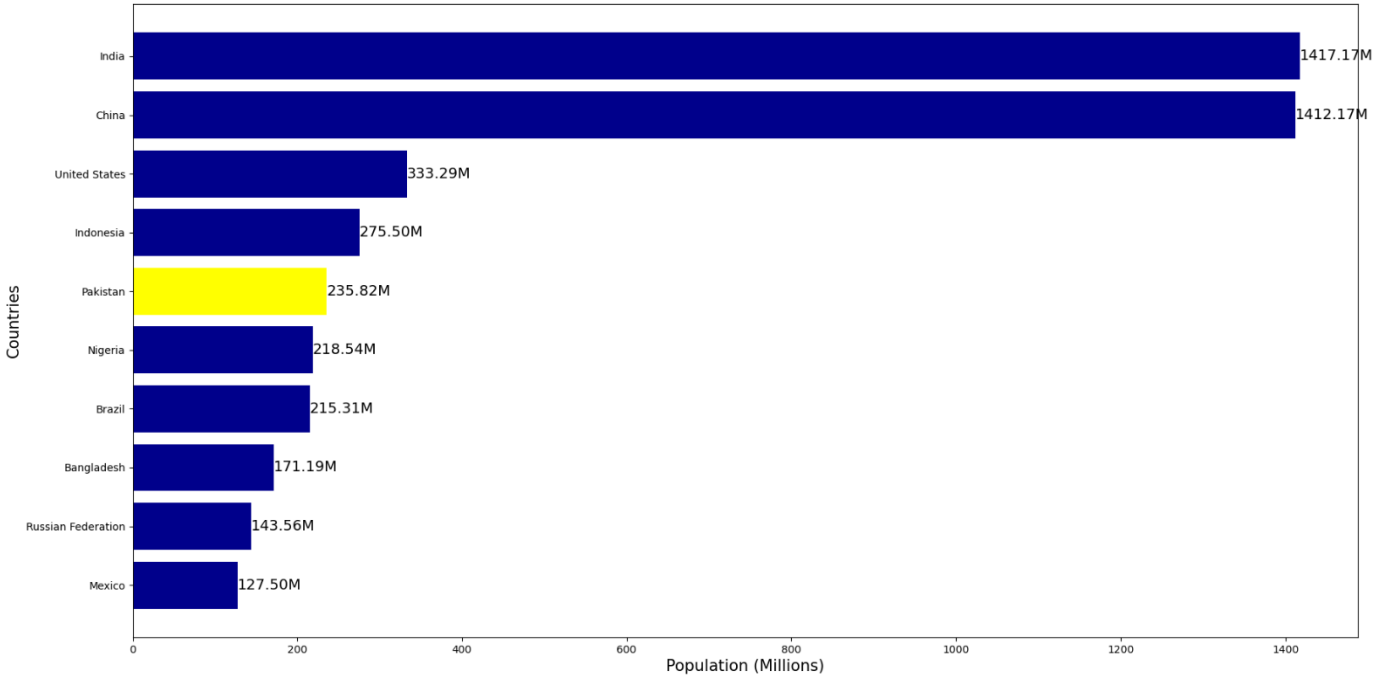
Pakistan has been ranked as the 5th most populated country in 2022 (Figure 3) while in 1991, it was 8th most populated country (Figure 2). Whereas Argentina was 31st most populated country in 1991. Eventually it fell 2 levels in 2022 and became the 33rd most populated country in 2022. Pakistan always had a high fertility rate as compared to World and Argentina which resulted in overpopulation.

Figure 2: Top 10 most Populated Countries - 1991



Source: World Bank Data 1991

Figure 3: Top 10 most Populated Countries - 2022

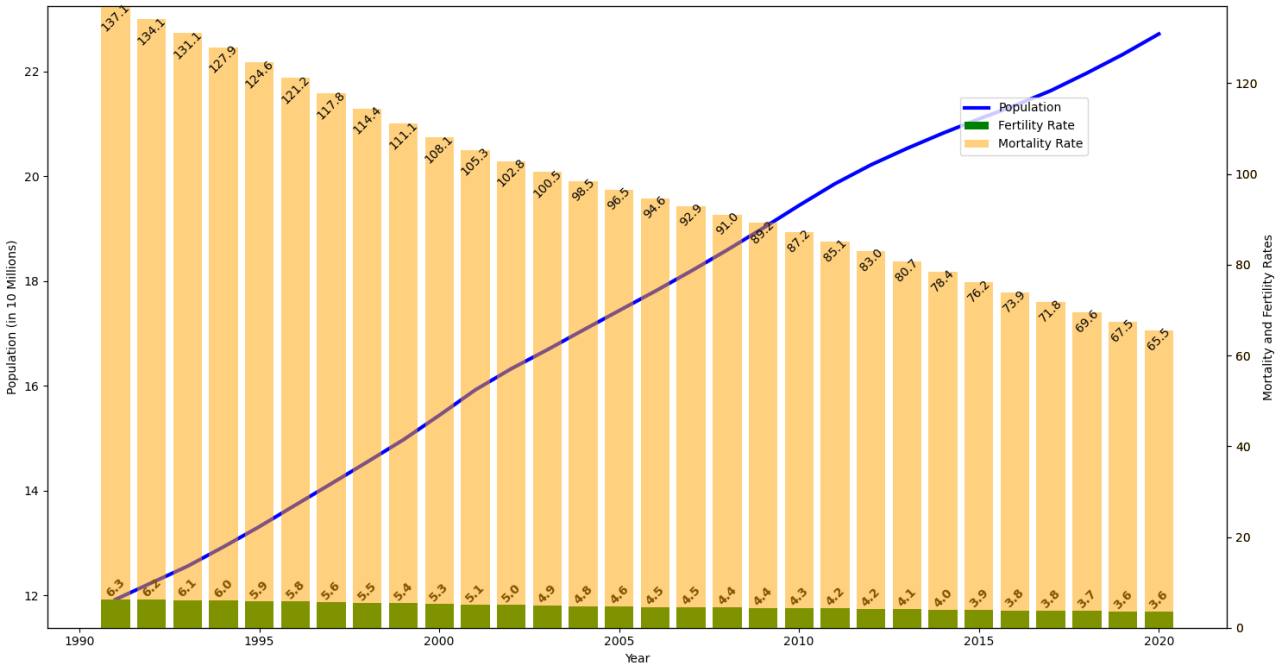


Source: World Bank Data 2022

Figure 4, Figure 5, and Figure 6 shows the comparison between how Pakistan's Population due to fertility rates and mortality rates differs from World and Argentina. (World Bank Data, 2022)

As per the Figure 4, from 1991 to 2022, Pakistan's Fertility rate decreased from approximately 6.3 to 3.6 children per women which means there was a decline of approximately 42.85% in the birth of children per women over the 3 decades. Meanwhile the mortality rate had a decreasing trend as the children died under 5 years old decreased from approximately 137.1 to 65.5 which shows a 52.22% decline over 3 decades. However, it can be observed that the Populated increased steadily because there has been development in medical centers in Pakistan due to use of technology, investment in hospital thus the mortality rate is decreasing.

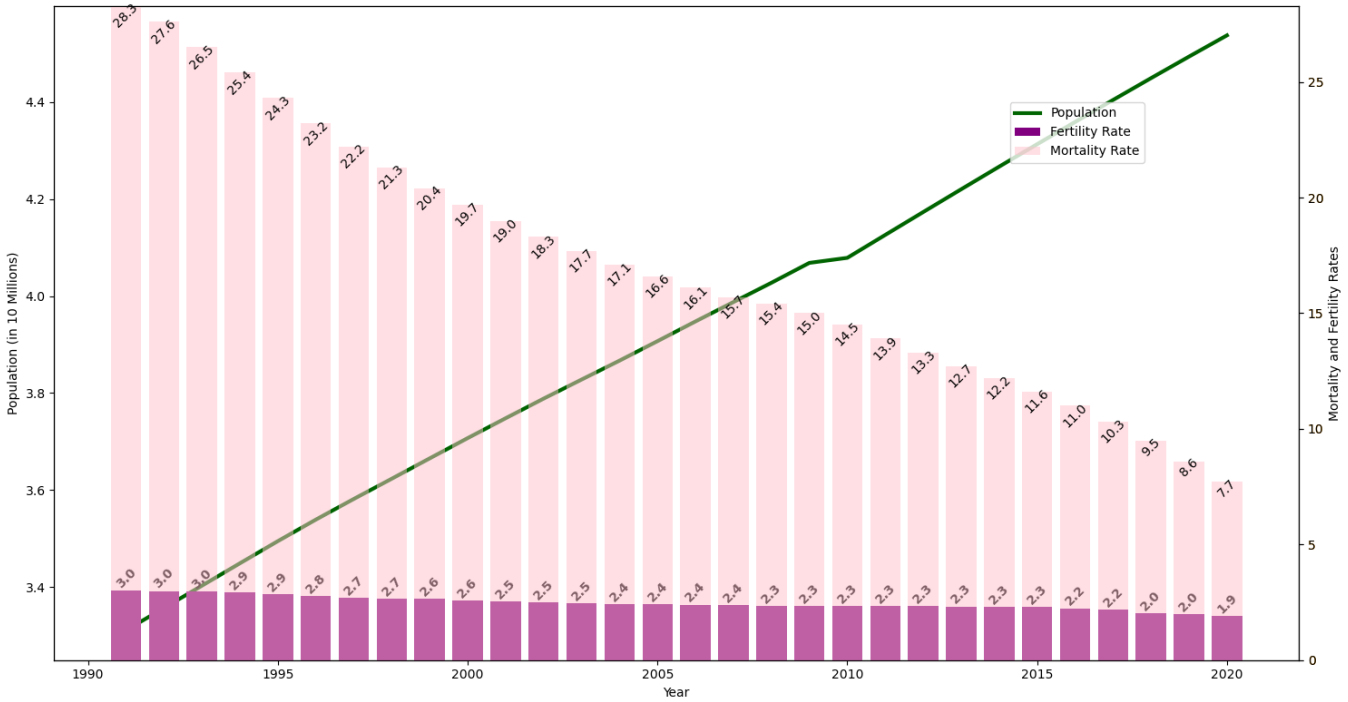
Figure 4: Population, Fertility, and Mortality Rate - Pakistan



Source: World Bank Data 1991-2022

Below, Figure 5 shows that Argentina's fertility rate decreased from approximately 3.0 in 1991 to 1.9 in 2022 per woman which means a decline of 36.67% childbirth over 30 years. The mortality rate also faced a decline from 28.3 to7.7 from 1991-2022 thus a huge decline of 72.8% children's deaths. Due to this the population had slow growth over time because of better health conditions after the trauma and poisoning crises which took place during 2002.

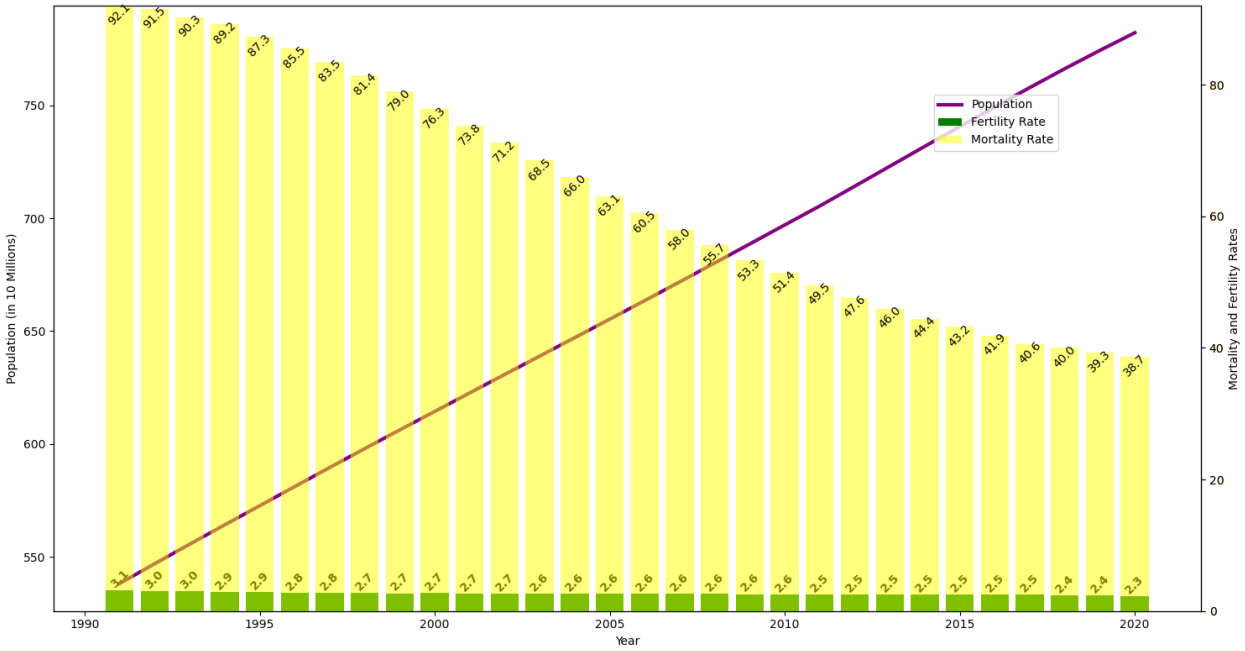
Figure 5: Population, Fertility, and Mortality Rate - Argentina



Source: World Bank Data 1991-2022

Figure 6 shows that World's fertility rate fertility rate decreased from 3.1 to 2.3 children per women from 1991 to 2022 which means a 25.8% decline in childbirth per women. The mortality rate reduced from 92.2 to 38.7 children death approximately which means 58.02% decline in children death over 3 decades from 1991-2022. Due to this the overall population steadily increased.

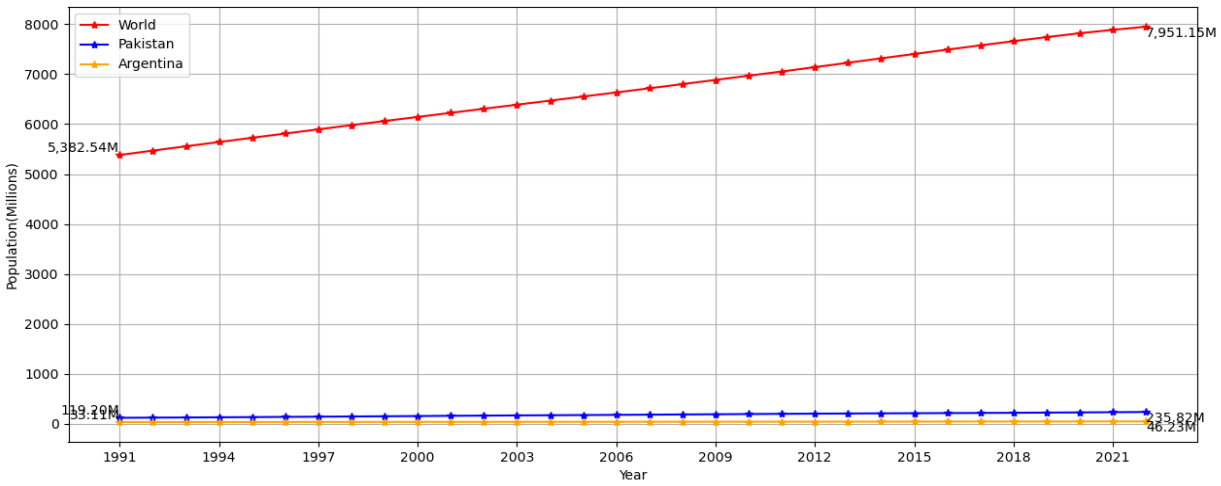
Figure 6: Population, Fertility, and Mortality Rate - World



Source: World Bank Data

Figure 7 shows that on overall basis Pakistan has not only highest population from 1991-2022, but it had a drastic increase in the Population as compared to the World and Argentina. From 1991-2022, Pakistan's Population increased by 97.81%, World's by 47.77%, and Argentina's by 39.58% approximately. (World Bank Data, 2022)

Figure 7: Population Trend (1991-2022)

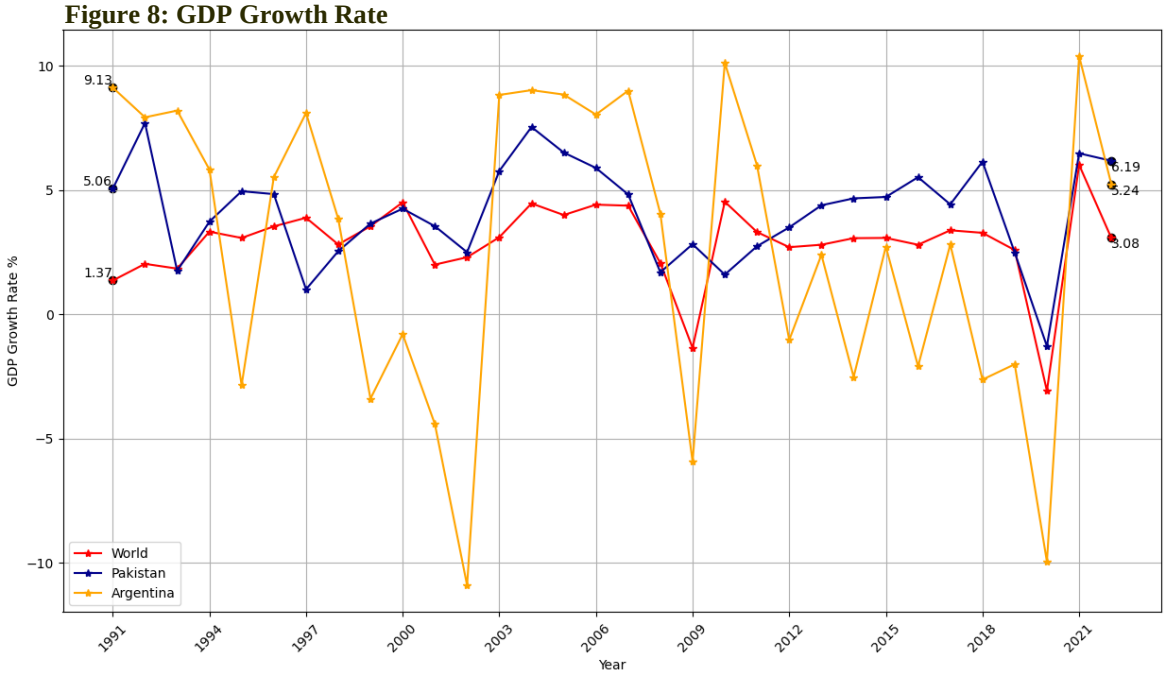


Source: World Bank Data (1991-2022)

6.2 Gross Domestic Product Growth Rate

When Population increases so the GDP tend to increase mainly due to increase in economic activities. Figure 8 shows the comparison between Pakistan, Argentina, and World GDP growth rate. The world's GDP growth rate increased from 1.37 percent to 3.08 percent which shows 1.71% approximately. Pakistan's GDP growth rate increased from 5.06 to 6.19 percent which means an increase of 1.03% approximately, however, there was fluctuation too. Meanwhile the Argentina's GDP growth rate decreased from 9.13 to 5.24% which means a decrease of 3.89% approximately. Pakistan's GDP growth rate was higher than Argentina's in last year's mainly due to improvement in capital accumulation meanwhile Argentina's GDP growth rate was in negative too in many years and decreased due to weak capital accumulation and high interest rates due to which businesses are unable to compete. (World Bank Data, 2022)

Figure 8: GDP Growth Rate

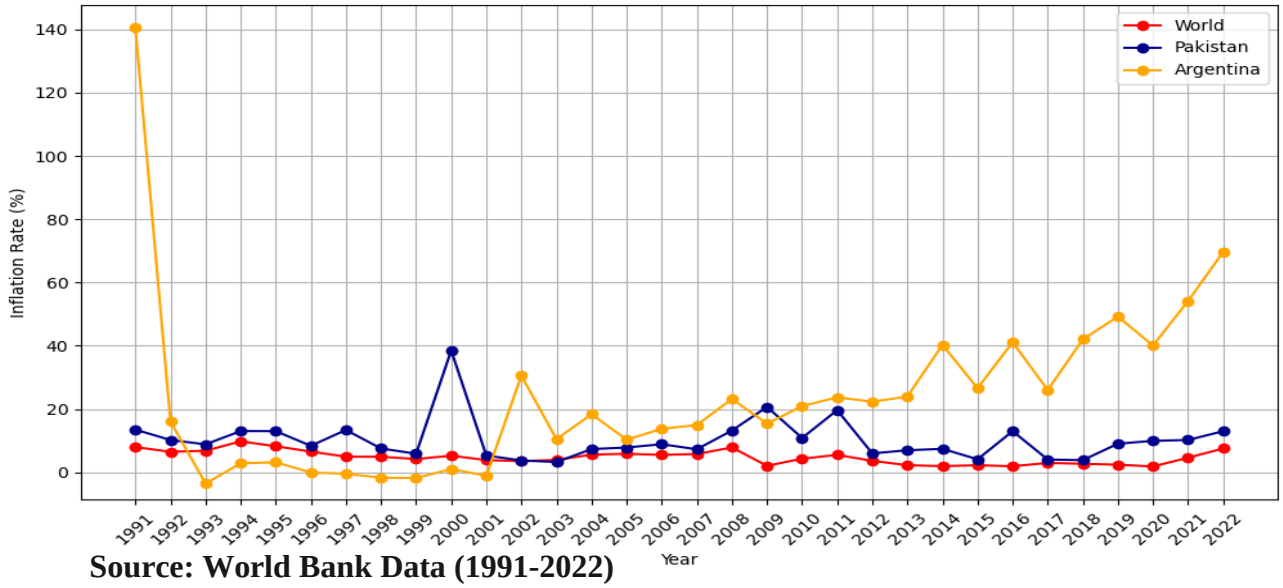


Source: World Bank Data (1991-2022)

6.3 Inflation

Pakistan is known for being a highly inflated country meanwhile Argentina is still facing inflation crises. Figure 9 shows the comparison between Pakistan, Argentina, and World. From 1991-2022, the inflation rate of Pakistan decreased slightly from 13.49% to 12.99% meanwhile, Argentina's inflation rate decreased drastically from 140.5% to 69.68%. The World's inflation rate decreased a bit from 7.98% to 7.51%. Pakistan's inflation rate was lower than that of Argentina mainly due to increase in interest rate by State Bank of Pakistan to curb inflation. (World Bank Data, 2022)

Figure 9: Inflation Rate

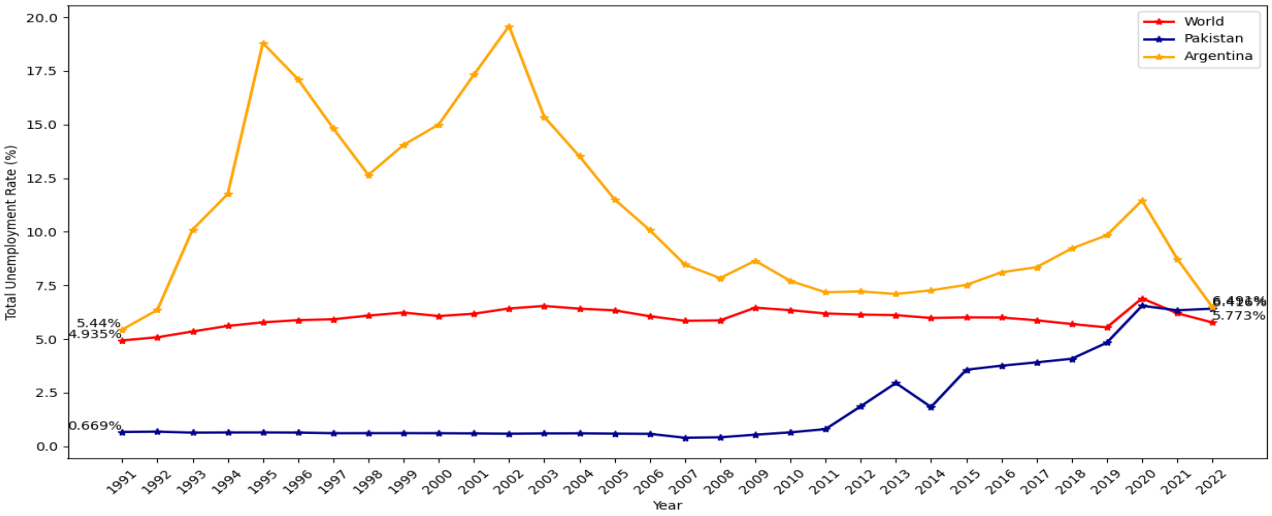


Source: World Bank Data (1991-2022)

6.4 Unemployment

In a country like Pakistan, the job security is very low due to which the unemployment rate is high. In Figure 10, Pakistan's unemployment rate increased to 0.669% to 6.426% whereas Argentina's unemployment rate increased a bit from 5.44% to 6.493% though the inflation was at peak (18-20%) during 1996-2002. The World's unemployment increased a bit from 4.945% to 5.773%. Pakistan had the highest increase in the unemployment rate mainly because of economic turn down as many businesses went out of market and many closed for a while such as Suzuki, KIA lucky motors etc. (Editorial, 2022). (World Bank Data, 2022)

Figure 10: Unemployment Rate

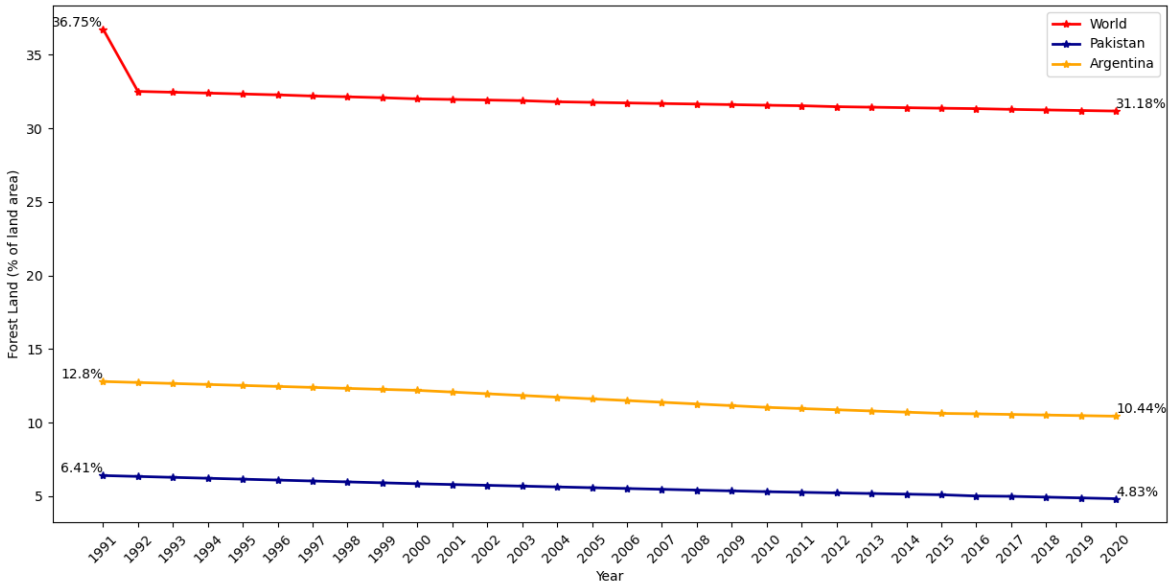


Source: World Bank Data (1991-2022)

6.5 Deforestation

Pakistan and Argentina face an extensive amount of deforestation due to which their forest land is decreasing as a percentage of total land. In Argentina, deforestation mainly occurred due to soybean production due to increasing population and their high food demand and in Pakistan, it occurred mainly due to urbanization and tourism (building hotels). Figure 11 shows the forest land changes of Pakistan, Argentina, and World. From 1991-2020, Pakistan's Forest Land decreased from 6.41% to 4.83% resulting in 1.58% decrease. Argentina's Forest Land decreased from 12.8% to 10.44% resulting in a decrease of 2.36% whereas the World's Forest land decreased from 36.75% to 31.18% resulting in a decrease of 5.57%. The lowest Forest Land is of Pakistan mainly because of less supply of SUI gas so people cut trees for cooking, cooling, and other purpose. (World Bank Data, 2020)

Figure 11: Forest Land (% of Land Area)

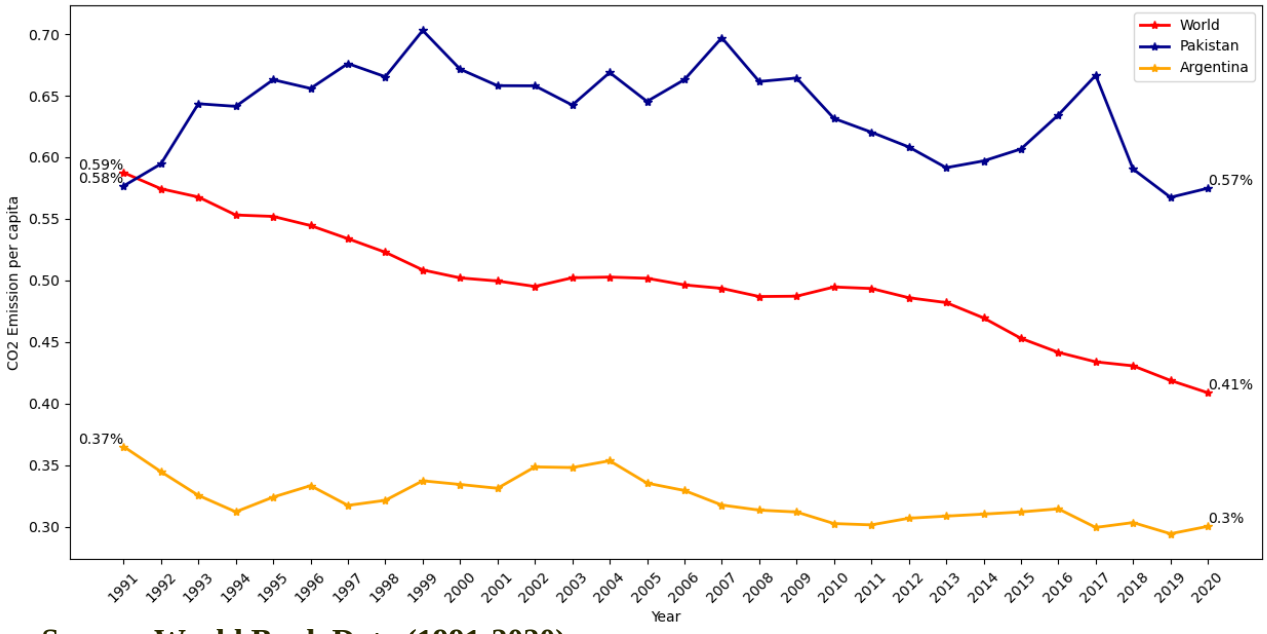


Source: World Bank Data (1991-2020)

6.6 CO2 Emissions

Pakistan and Argentina have high amount of CO2 emissions due to which there NDC goals are to reduce CO2 emission by 20% (Pakistan) and not to exceed 349 million tons of CO2 emission. Figure 12 shows the comparison of CO2 emission trend of Pakistan, Argentina, and World. From 1991-2022, Pakistan's CO2 emission reduced a bit from 0.58% to 0.57% which shows a decrease of 0.01% whereas Argentina's CO2 emission decreased from 0.37% to 0.3% which is a decrease of 0.07%. Both the countries performed well in reducing CO2 emission due to which are not in the list of top 30 most CO2 emission countries. The World's CO2 emission reduced from 0.58% to 0.418%. Though Pakistan had the highest CO2 emission compared to World and Argentina, but it was below 1%. (World Bank Data, 2022)

Figure 12: CO2 Emissions per capita

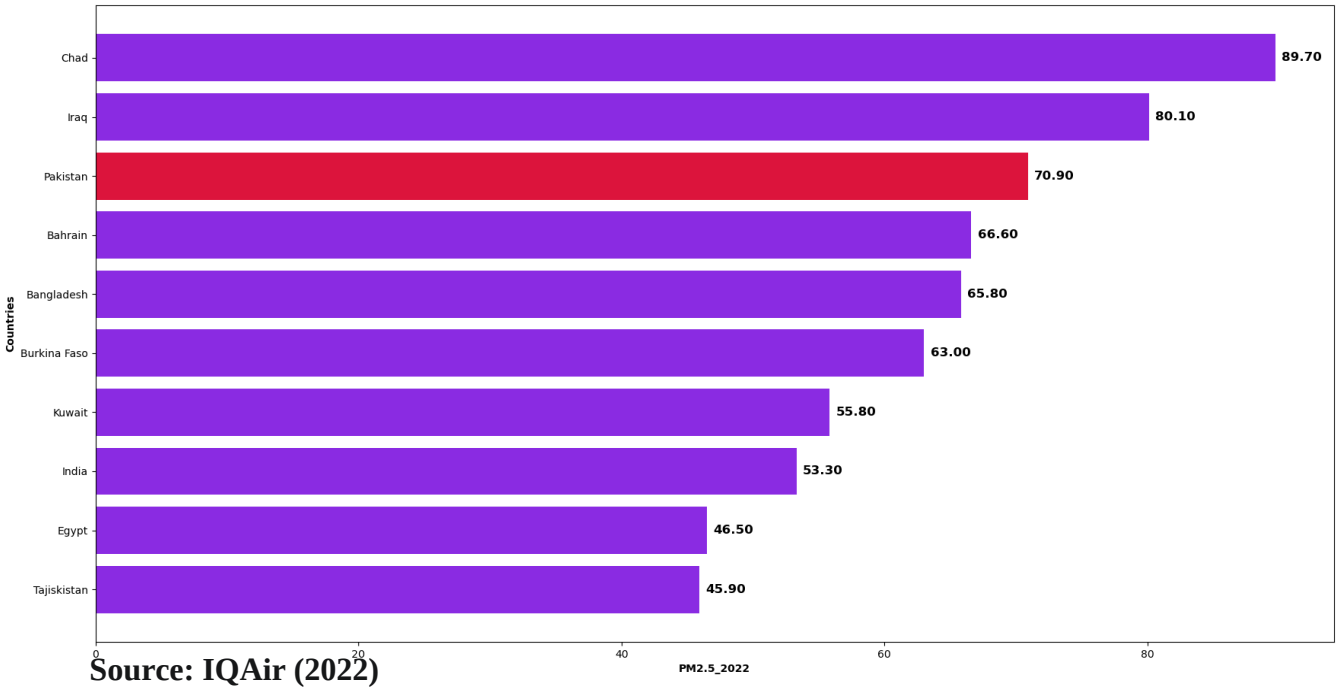


Source: World Bank Data (1991-2020)

6.7 Air Pollution

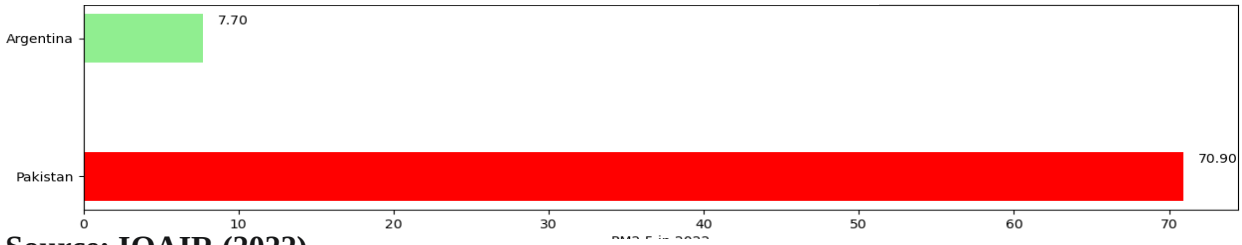
Air Pollution is caused by vehicle and industrial emissions from fossil fuel combustion, cigarette burning, burning organic matters which contain PM (particulate matter). As per WHO guidelines, the World's air quality should lie between 0-5 µg/m³. As per figure 13, Pakistan is ranked as the 3rd worst air quality country with a score of 70.90 µg/m³ which exceeds by 10 times. However, Argentina is considered as one of the cleanest countries due to which it is ranked 108 in Air quality index with a score of 7.5 µg/m³ which exceeds by only 1 to 2 times of WHO guidelines. This is mainly because Pakistan's city Lahore is ranked as the top 1st country which has the worst air quality due to soaring pollution and smog crises leading to 50% rise in pediatric patients due to respiratory issues.

Figure 13: Top 10 worst Air Quality Countries PM2.5 - 2022



Source: IQAir (2022)

Figure 14: PM2.5 of Argentina and Pakistan in 2022



Source: IQAIR (2022)

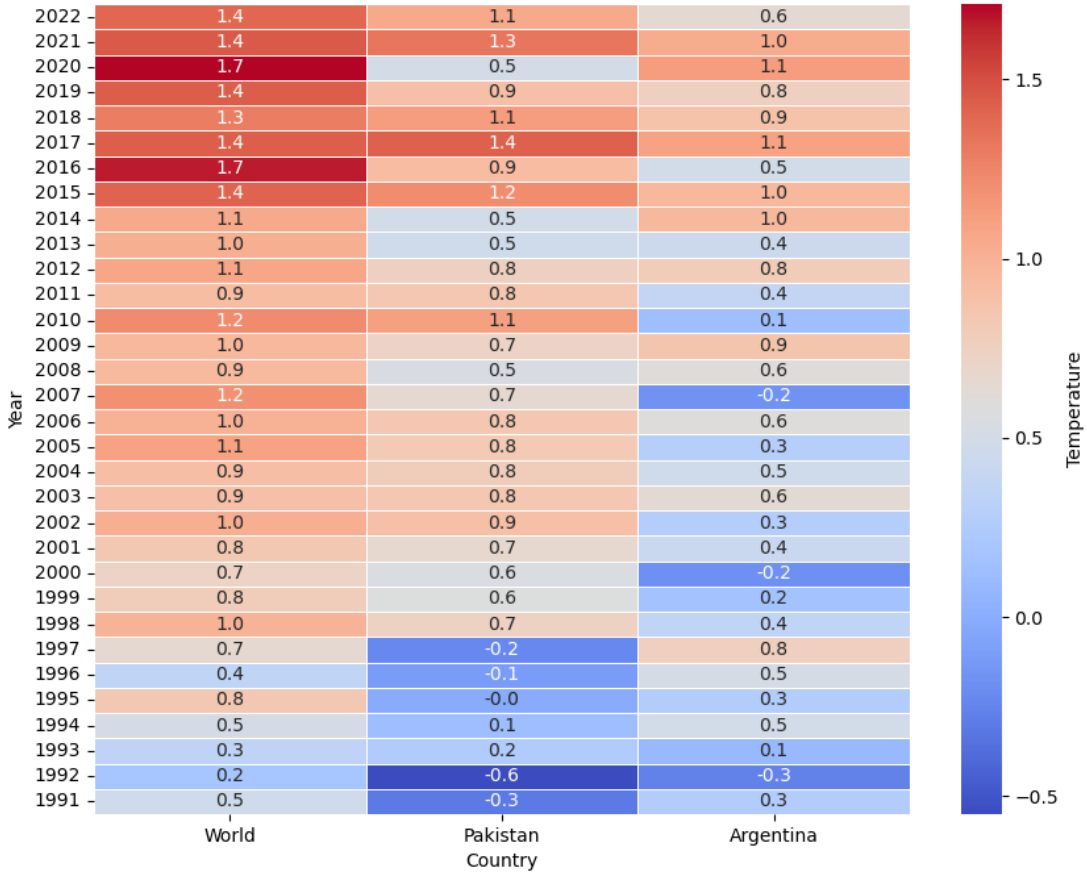
Figure 14 shows the PM2.5 of Pakistan and Argentina in 2022. Pakistan was ranked as 3rd most polluted country while Argentina was ranked as 108th country and was considered a relatively clean country.

6.8 Temperature Changes

Since the pre-industrial activities, human population has caused increased the global temperatures. Over the last few decades, the earth's temperature has increased by 1 degree Celsius. Pakistan and Argentina are facing extreme temperature changes from 1991-2022. Pakistan faced an extreme heat wave in 2018 while Argentina is facing droughts and scarcity of water due to extreme temperature in 2023.

Figure 15 shows the change in temperatures of Pakistan, Argentina, and World. Pakistan's temperature changes have risen over the 30 years from -0.3 to 1.1-degree Celsius change. In recent years, it has become a warmer country due to continuous global warming. Argentina's temperature changes have also risen from 0.3 to 0.6 degree Celsius because of low precipitation levels. Moreover, the World's temperature change has risen from 0.5 to 1.4 degree Celsius.

Figure 15: Temperature Changes

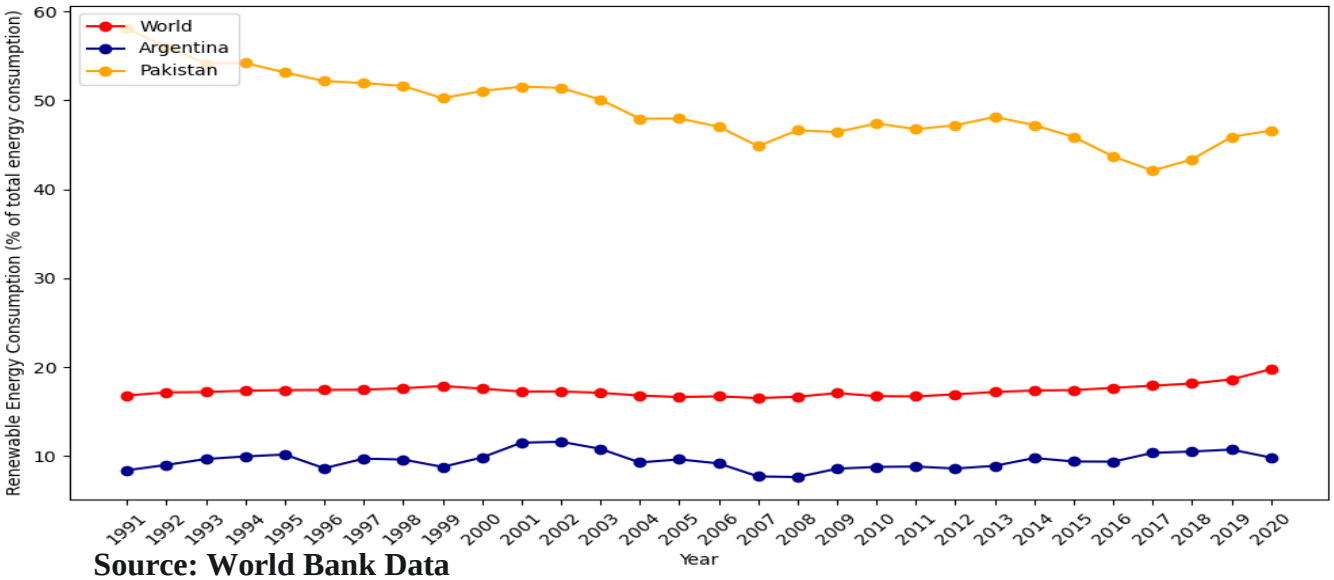


Source: Climate Data. IMF(1991-2022)

6.9 Renewable Energy Consumption

In recent years, World is shifting towards renewable energy resources to reduce the greenhouse emission. It includes using solar, hydro, wind, and geothermal. In 2022, the use increased by 8%. Figure 16 shows that Pakistan had the highest percentage in renewable energy consumption. However, from 1991-2022 it decreased from 58.09% to 46.60%, a decrease of approximately 11.49%. Argentina's consumption increased a bit from 8.42% to 9.84%, an increase of 1.42%. Moreover, the World's consumption increased from 16.82% to 19.77%, an increase of 2.95%. (World Bank Data, 2020)

Figure 16: Renewable Energy Consumption (% of total energy consumption)

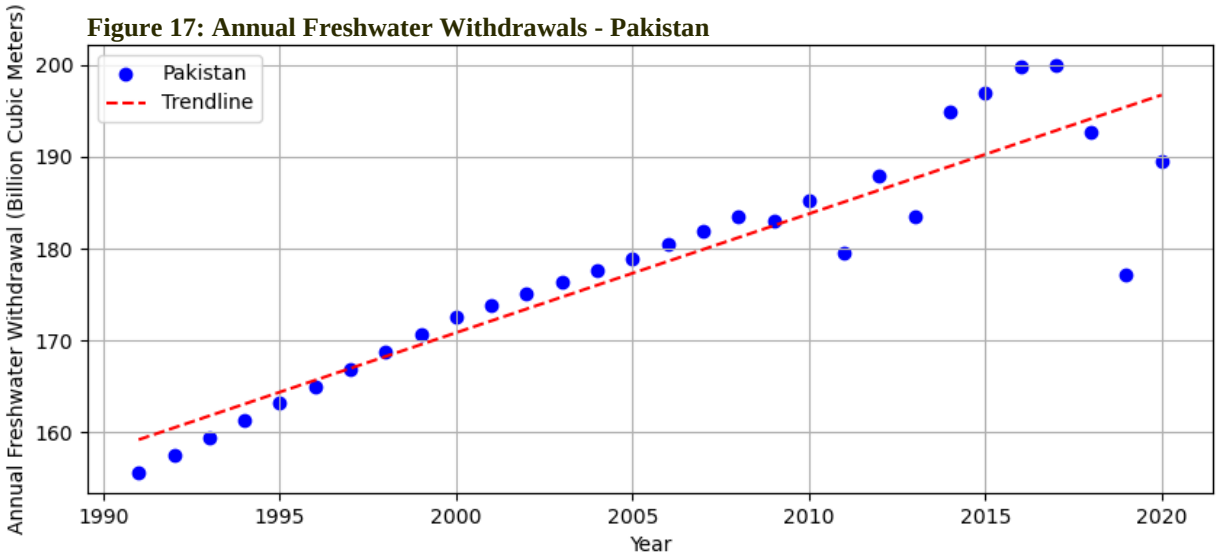


Source: World Bank Data

6.10 Annual Freshwater Withdrawals

The levels of water differ significantly all over the world. In recent times, countries like Pakistan and Argentina face a serious water crisis due to which droughts and floods occur. Figure 15 and 16 shows the annual freshwater withdrawals of Pakistan and Argentina. In figure 17, there is an increasing trend in annual freshwater withdrawals due to which from 1991-2022, it increased from 155.6 to 189.59 billion cubic meters therefore an increase of 21.84%.

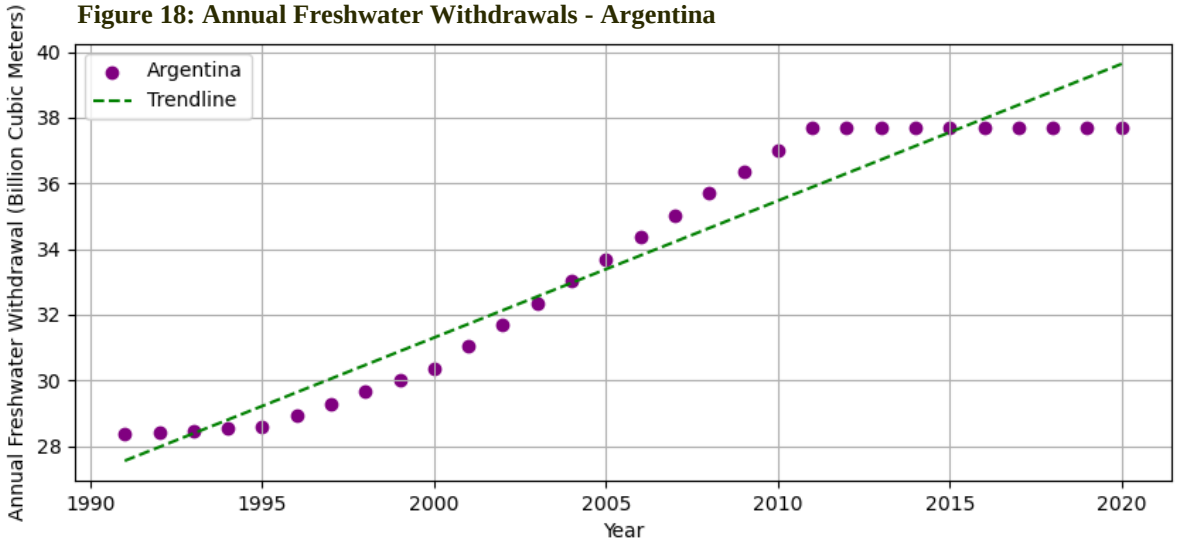
Figure 17: Annual Freshwater Withdrawals - Pakistan



Source: World Bank Data

In Figure 18, Argentina's annual freshwater withdrawals increased a bit from 28.37 to 37.69 billion cubic meter therefore an increase of 32.85%. (World Bank Data, 2020)

Figure 18: Annual Freshwater Withdrawals - Argentina

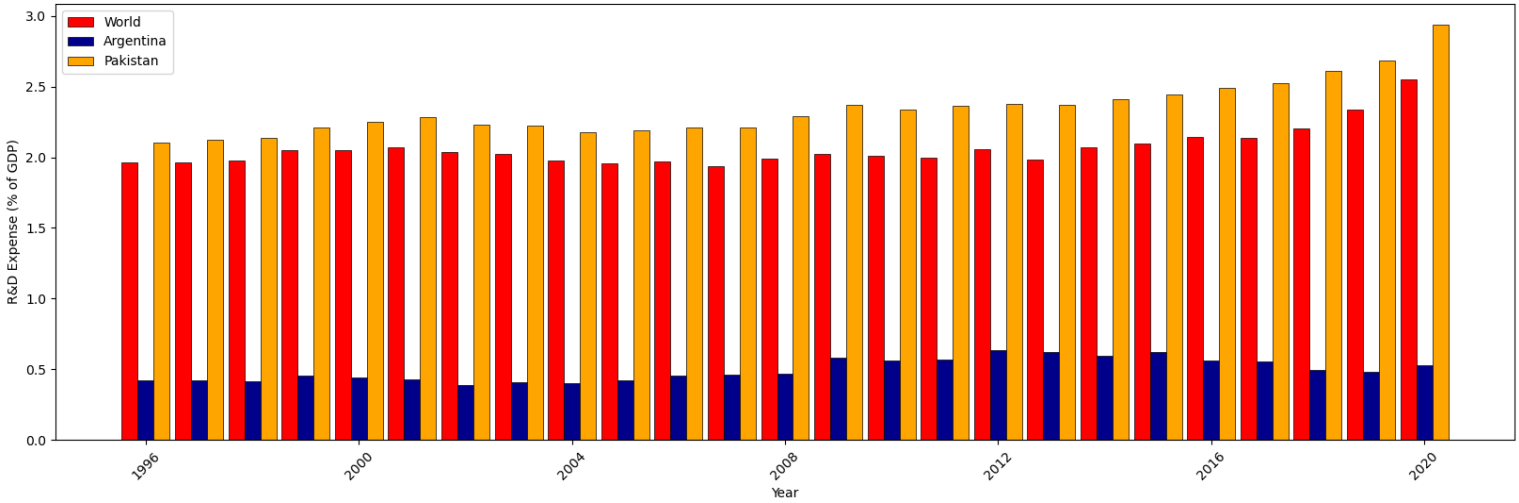


Source: World Bank Data

6.11 Research and Development Expense

A country cannot prosper or experience economic growth until and unless it doesn't allocate its budget on research and development. In figure 19, Pakistan's R&D expense have risen from 2.10 to 2.93%, Argentina's R&D expense rose from 0.42 to 0.53%, and World's R&D expense rose from 1.96 to 2.5%. Pakistan's R&D expense is higher than World and Argentina mainly because Pakistan is working on making improved quality seeds for crops, informing farmers about better techniques etc. (Haris, 2021) (World Bank Data, 2020)

Figure 19: Research and Development Expense (% of GDP)



Source: World Bank Data (1996-2020)

7. Summary

Table 1 below summarizes the situation of both countries as per the data of 2022. The indicators are from the above section of the report. The last two indicators are for additional comparison.

Table 1: Summary of the Indicators

Indicators	Pakistan	Argentina	Observation
Population Rank	5th	33rd	Pakistan is not only a higher populated country but has greater growing population than Argentina since the CAGR % of Pakistan is 2.23% while Argentina has 1.08%.
Fertility Rate	3.47	1.89	Pakistan has a higher Fertility Rate than Argentina, however, both countries Fertility rate are decreasing.
Mortality Rate	65.5	7.7	Both Countries faced a drastic decline in Mortality rates however, Pakistan's mortality rate was higher than that of Argentina.
Unemployment Rate	6.44%	6.49%	The unemployment rate was almost same but Pakistan faced an greater increasing trend than Argentina.
Inflation Rate	12.99%	69.68%	Argentina had higher inflation rate than Pakistan.
CO2 emissions	0.57%	0.30%	Pakistan had higher CO2 emissions than Argentina but both countries faced a decreasing trend.
Nitrous Oxide Emission (metric tons)	68972	51061	Pakistan had higher nitrous oxide emissions than Argentina but both countries faced an increasing trend.
Forest Land	4.83%	10.44%	Argentina had higher Forest Land than Pakistan.
GDP	$376,533M	$632,770M	Argentina had higher GDP than Pakistan. Both countries faced an increasing trend howver, Pakistan was less than the world too.
Annual Freshwater Withdrawals (billion cubic meter)	189.59	37.69	Pakistan had higher freshwater withdrawals than Argentina. Both countries faced an increasing trend
Temperature Changes (degree Celsius)	1.1	0.6	Pakistan had greater temeprature changes than Argentina.
Renewable Energy Consumption	46.60%	9.84%	Both countries renewable energy consumption was increasing but Pakistan's was higher than Argentina.
6.12Terrestrial and marine protected areas (% of total territorial area)	9.80%	9.60%	Pakisatan had higher Marine protected areas compared to Argentina.
Air Pollution Rank	3	108	Pakisan's air quality is extremely bad while Argentina's air quality is good.
Research and Development	2.93%	0.53%	Paksitan spends a higher proportion on R&D as compared to Argentina.
GDP per capita	$1,535	$12,932	Due to Pakistan having higher population and lower GDP than Argentina, the GDP per capita of Pakistan is less than Argentina.
Debt(% of GDP)	73.56%	80.93%	The debt burden on Argentina is more than Pakistan
HDI	0.544	0.842	Argentina is more developed in terms of heath, knowledge and standard of living than Paksitan

Source: WorldData.info and World Bank Data (2022)

8. Conclusion and Recommendation

Based on different indicators' descriptive analysis, and statistical analysis, trend analysis, and literature review, connectivity between demographic, environmental, and economic factors was made, and Pakistan's situation was compared with Argentina, and rest of the World.

Based on the analysis, both the countries are facing serious level of climate change and economic instability. Pakistan has been facing a fast-growing ranked as the 5th most populated country along with severe climate changes like increase in temperature changes, above average fertility rate of 3.6, and increasing deforestation which are becoming a big problem. This all contributes to global warming and health issues. Though Argentina is 33rd but the inflation is rising, and climate change is becoming a big problem.

In this regard, Pakistan and Argentina need to make and implement policies to do reforestation, lower the greenhouse gases, family planning, sustainable and organic agricultural land cultivation, and increase the water accessibility. There are several strategies which both countries can do to mitigate the negative effects of these problems. For family planning, women can be given education on reproductive health and per child affordability along with they can be given courses which would lead to career opportunities for them since education and career have a negative correlation with family planning and it tends to reduce childbirth per women.

For Reforestation, Pakistan has started a project "PLANT4PAKISTAN" where 10 billion trees are to be built from 2018-2023. Moreover, when trees are cut to meet human needs, for each tree cut, there should be 10 trees planted in that area so that sustainable plantation could be done. Moreover, Pakistan's surface area for solar photovoltaic power of 0.071% could meet Pakistan's current electricity demand (Climate Transparency, 2020).

In addition to it, both countries can put permits on the amount of trees cut down and pollution emitted in the form of greenhouse gas which could create burden on producers in the form of per unit cost of trees cut and pollution emitted. Voluntary programs can be initiated where the companies need to put environment as their topmost priority and produce in a clean and efficient manner. Method like this were Diesel Emissions Reduction Act (DERA) and EPA's SmartWay program (Environmental Defence Fund, 2020) which proved out to be success saving $27.8 billion in fuel costs and reducing the rank of countries in PM2.5.

Since both countries are agriculturally based economies, there GHG emissions' large part from agricultural activities is from usage of synthetic fertilizers, digestive process of animals, and livestock manure so using organic fertilizers and diet changes in livestock can reduce the emissions.

The unemployment rate could be catered through providing education to youth and giving people the necessary training, which would open more job opportunities for them as due to insufficient training and education centers and using old methods of work lead to brain-drain from developing countries like Pakistan and Argentina. For this, both countries need to increase their research and development expense which would stimulate economic growth in the long run.

Finally, based on the results, Pakistan as compared to Argentina has more population, climate change, and economic uncertainty concerns therefore Pakistan needs to devise a sustainable and effective policies to control population structure, climate change, economic instability, marine life, and renewable resources.

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