

Exploring GDP, Imports/Exports Variability: A Python and GIS Approach to Analyzing Economic Data by Country

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Abstract

The progress and development of a nation greatly depends on its economy. Looking at a nation's Gross Domestic Product (GDP) is one approach for assessing how well its economy is performing. The GDP provides us with the entire value of all commodities and services generated in a nation over a specific time period. An economy's health is also significantly influenced by the goods that a nation imports and exports to other nations. In this study, we want to understand how GDP differs across various countries and how imports and exports affect their economies. We will use Python and a tool called Geographic Information Systems (GIS) to analyze real data from the World Bank. The World Bank has a lot of economic information for countries all over the world. We will specifically look at the data on how much goods and services each country imports from other countries. Using Python, we can process this data and find patterns in how GDP varies between countries. With GIS, we can create maps and visuals to see if a country's location or geography has any relationship with its GDP and import/export numbers. By combining programming, data analysis, and maps, we can get a better understanding of what factors influence a country's economy.

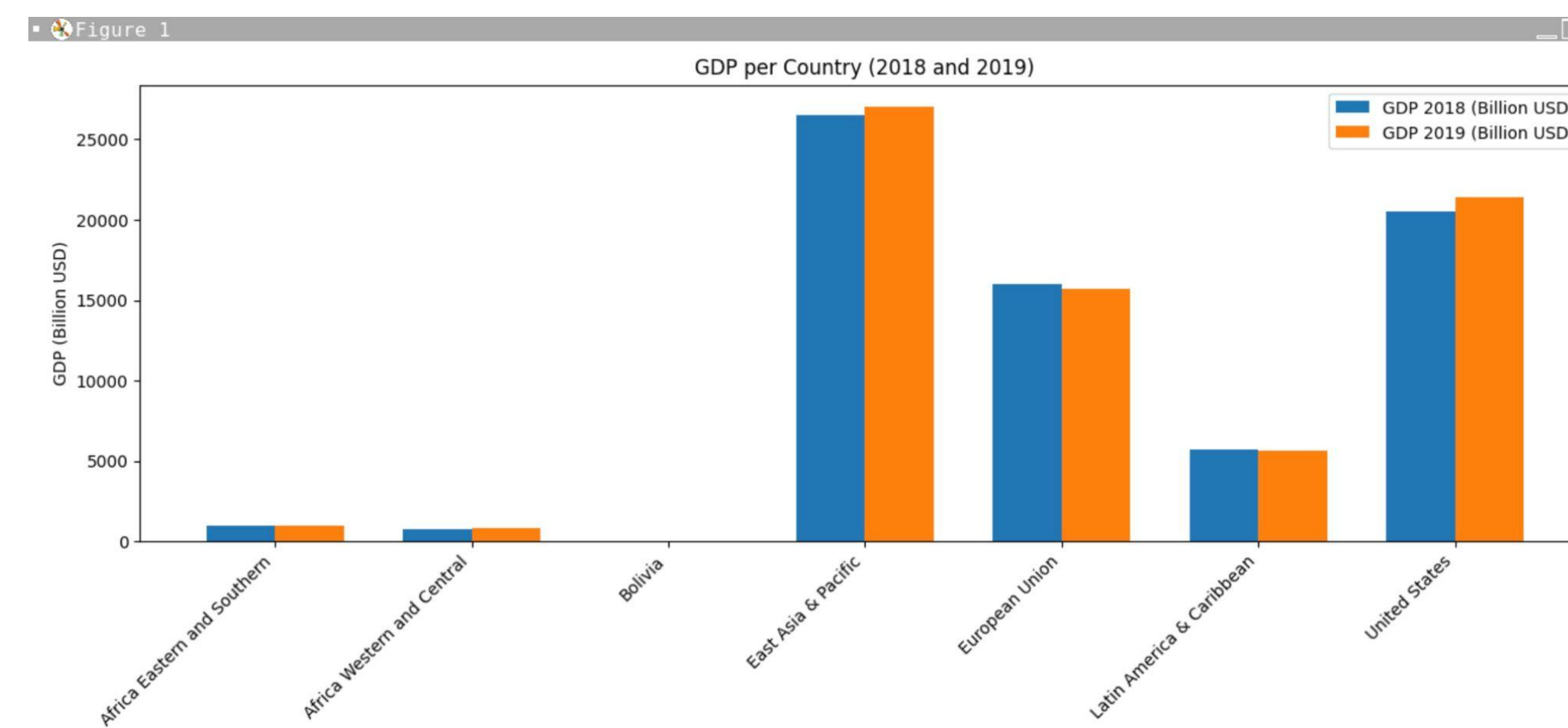
Introduction

The COVID-19 pandemic has significantly impacted global economies. This study analyzes how the pandemic affected various countries' economic performance, measured by Gross Domestic Product (GDP), imports, and exports. Using World Bank data, Python, and Geographic Information Systems (GIS), we investigate patterns and trends in GDP, imports, and exports before and after the pandemic outbreak across different countries and regions. By combining data analysis and geospatial visualization, we aim to provide insights into the economic impacts of COVID-19 and factors influencing a nation's economic resilience during this crisis. This research will help others to have a better understanding of what happened with the global economy in the past 6 years.

Results

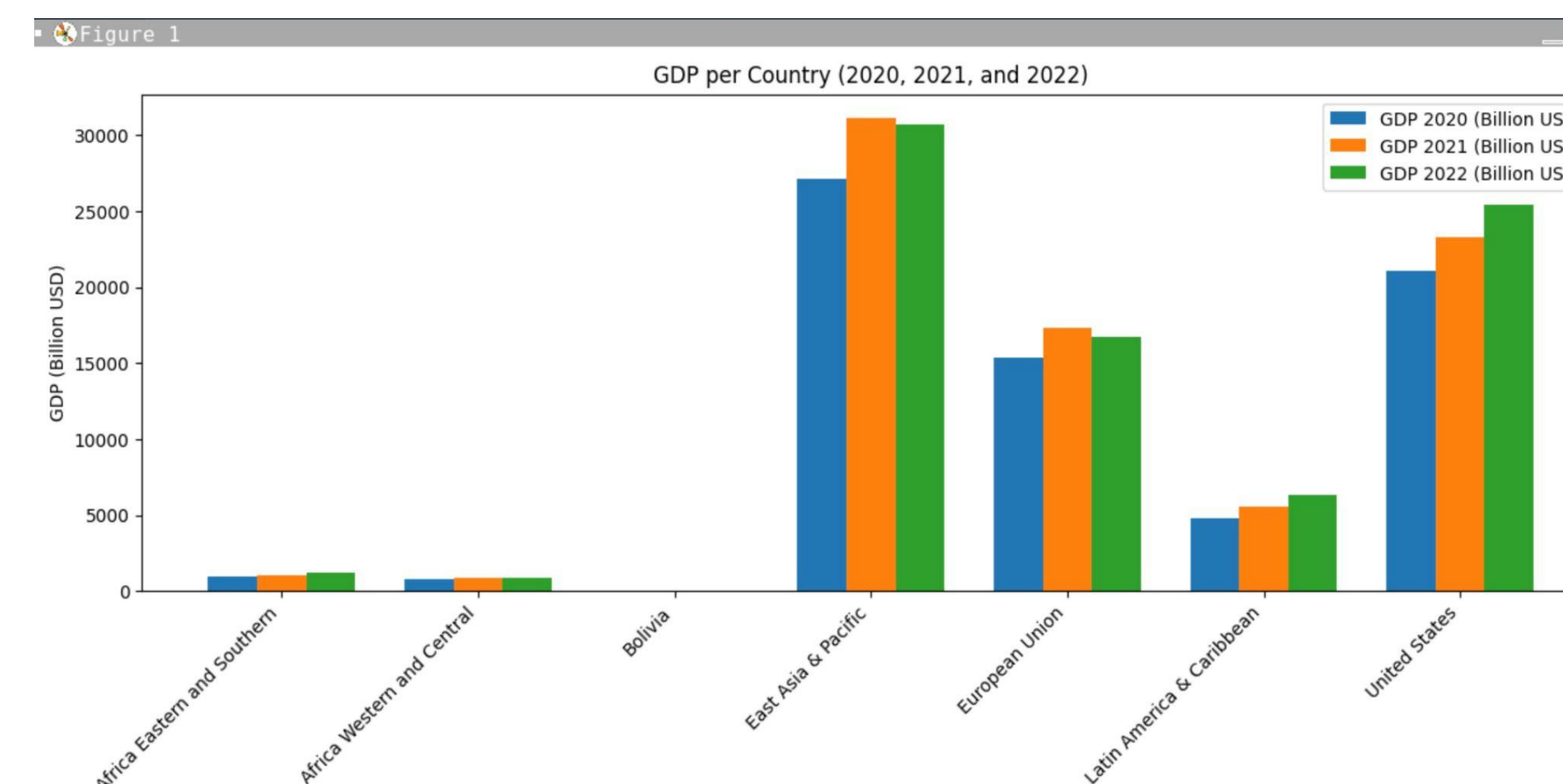
The analysis of GDP data for 2018 and 2019, representing the pre-pandemic period, reveals significant disparities in economic performance across the selected countries and regions.

The USA and the European Union emerged as the economic powers, with the highest GDP values surpassing all other entities in the study. However, the other regions exhibited comparatively lower GDP levels during this period.



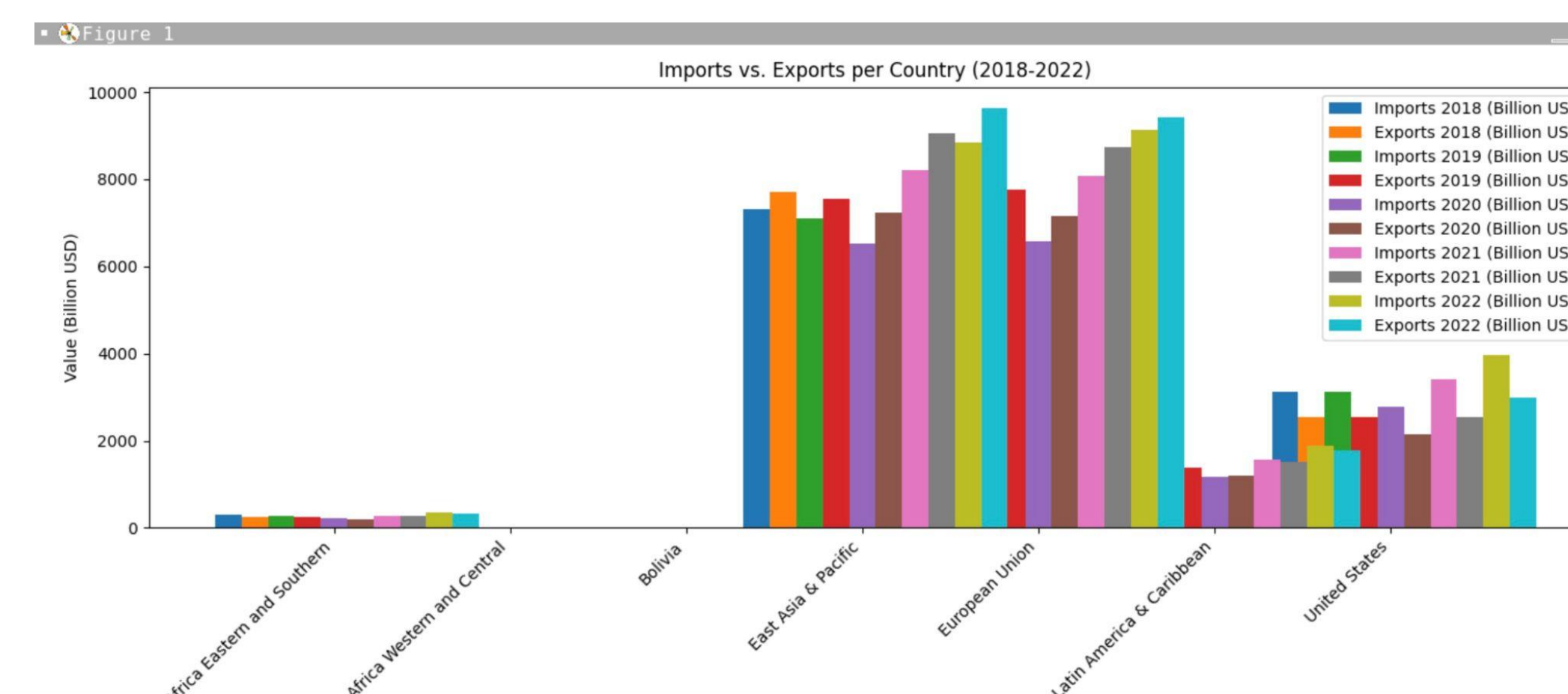
The post-pandemic period witnessed a significant impact on GDP across the analyzed regions. While some economies showed resilience, others experienced substantial declines in their GDP levels.

Notably, the United States and the European Union maintained their positions as economic powers, although their GDP growth patterns varied during this period. Other regions grappled with economic challenges, reflecting the uneven recovery from the pandemic's impacts.



The analysis reveals distinct patterns in import and export volumes across countries and regions. The United States and the European Union exhibited consistently high trade activity.

Other regions showed varying levels of import and export activity, highlighting disparities in economic integration and trade relationships among nations.



Conclusion

- The COVID-19 pandemic had a significant impact on global economies, with varying degrees of resilience and recovery across countries and regions.
- Disparities in GDP, imports, and exports highlight the existing economic gaps between developed and developing nations, underlining the need for targeted policies and interventions.
- Geographic location, resource endowments, and trade policies play crucial roles in shaping a nation's economic performance and integration into global trade networks.

Future Work

- Explore specific economic policies and strategies implemented by countries during and after the pandemic to understand their effectiveness in mitigating economic impacts.
- Investigate the role of regional trade agreements and economic unions in fostering economic resilience and facilitating trade during times of crisis. Use the Covid-19 pandemic as an example for future global pandemics.
- Incorporate additional socio-economic and geopolitical factors into the analysis to provide a more comprehensive understanding of the drivers of economic performance and trade options.

Acknowledgement:

This research has been supported by Niagara University.

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