

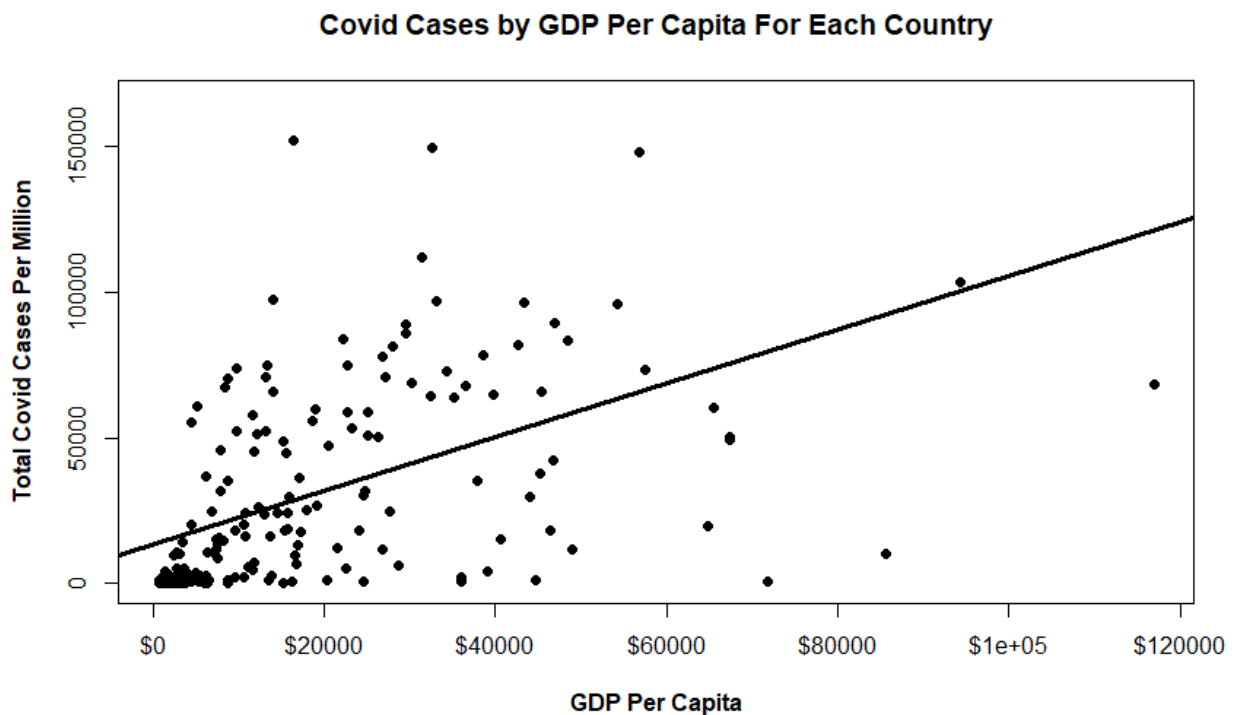
## **The COVID-19 Pandemic Dilemma: Save Lives or Economies?**

In March of 2020, the COVID-19 virus struck the world with its unprecedented nature, leading the World Health Organization to declare it a global pandemic. While the uncontrolled spread of the virus raised many uncertainties regarding the health and wellbeing of people, it was also believed to leave strenuous scars and repercussions on the global economy. Countries were consequently faced by the challenge of constraining the spread of the virus to save people's lives as well as their own economies. However, in countries like the United States, finding such balance ended up jeopardizing the lives of many. With over 58% of survey respondents disapproving of the US government's way of handling the pandemic, there seem to be some underlying economic motives behind its decision to reopen the country despite the objective severity of the outbreak.

These observations lead to the question: Can we find a similar global trend where prioritizing the health of the economy is associated with higher numbers of COVID cases in a given country? This paper focuses on the relationship between a country's economic motives and its total COVID cases.

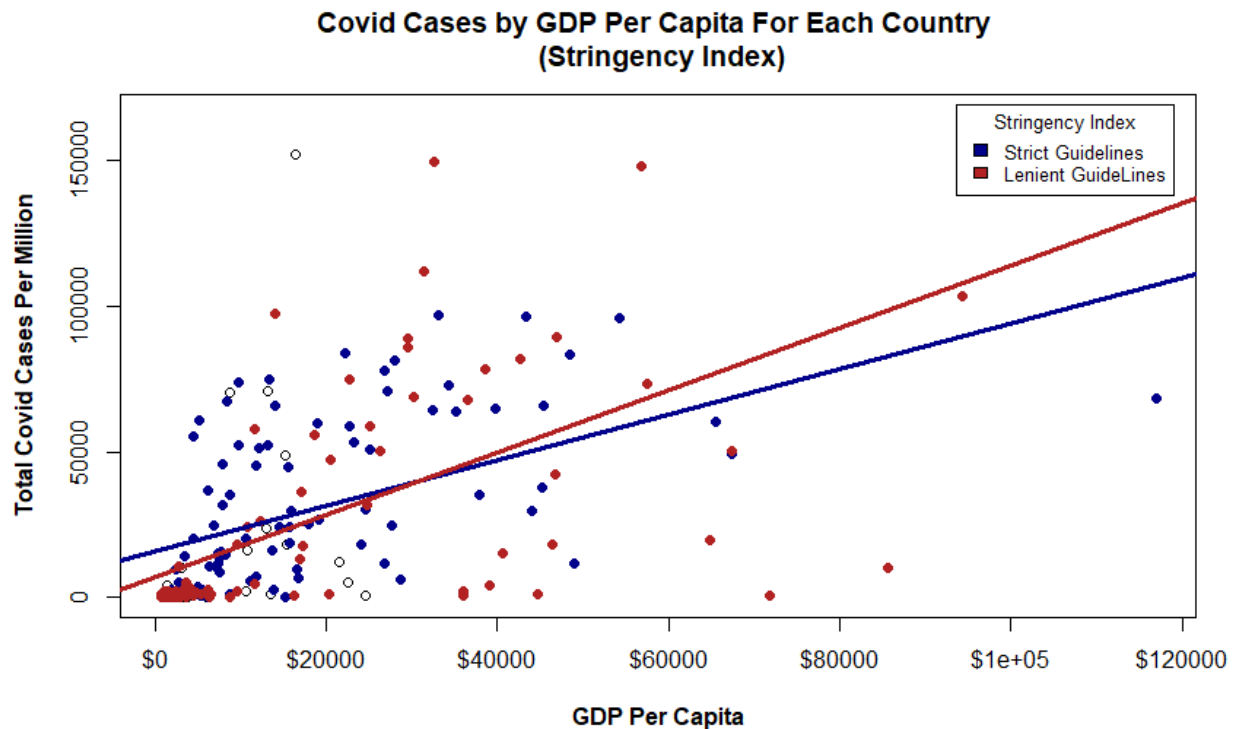
In order to observe this trend, I have collected data covering COVID case numbers recorded up to this date in different countries, as well as economic indicators taken from the International Monetary Fund (IMF) Organization. Although a country's economic 'motives' cannot be directly measured, the Gross Domestic Product (GDP) Per Capita is an indicator of a country's emphasis on its economic performance; high GDP Per Capita often corresponds with economic prowess and may imply motives to preserve economic stability.

Given that population density has been statistically proven to have a significant effect on the spread of the virus, I decided to hold it constant in the following analysis in order to yield more accurate results about the true relationship in question. The figure below displays the relationship between the total number of COVID cases per million and the GDP Per Capita in *US dollars* for different countries, keeping the population density constant.



The figure exhibits a considerably strong relationship modeled by the upward sloping line, in which higher GDP Per Capita values tend to somewhat correspond to higher total cases per million. The cluster at the bottom-left corner suggests that the majority of the countries have low GDP Per Capita and cases per million. According to the plot, a \$10,000 increase in GDP Per Capita is *associated* with a 9,224 increase in the number of cases per million. These statistics do not imply a causal relationship of which increasing GDP Per Capita increases the numbers of cases per million accordingly; they merely serve as a numeric interpretation to the observed relationship.

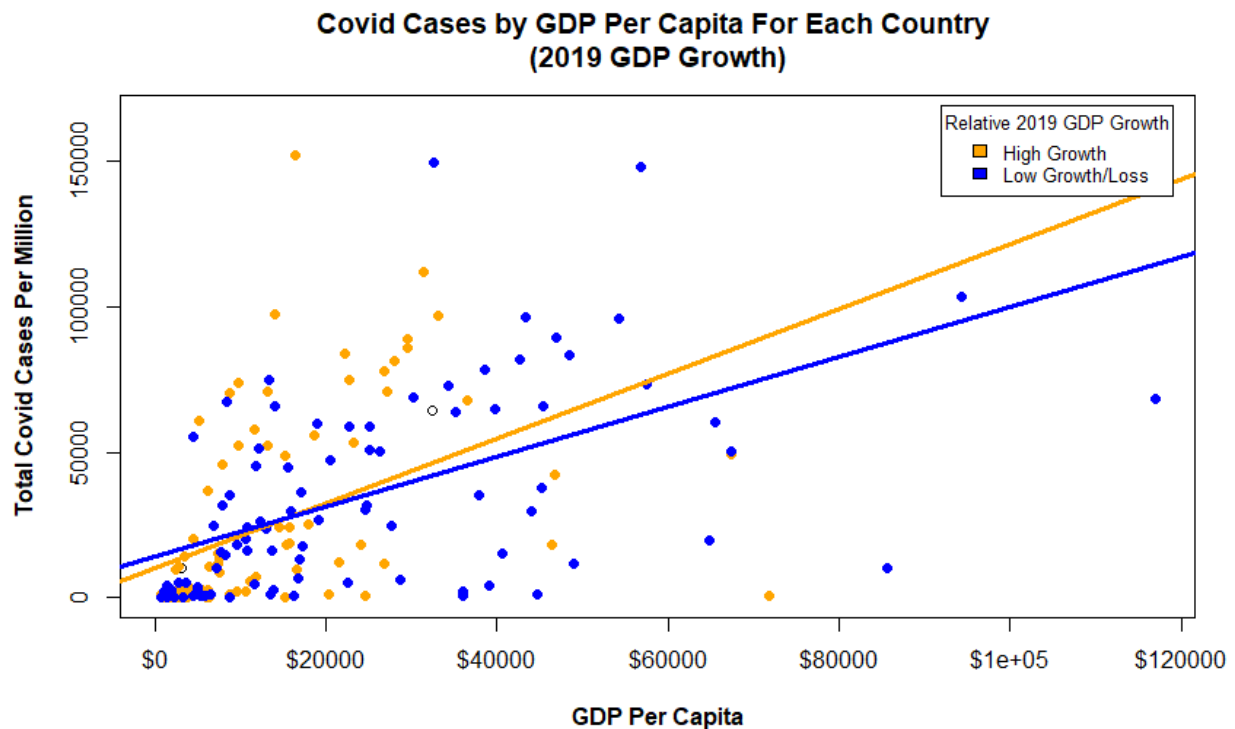
To delve deeper into the analysis, I decided to include other factors that might help scrutinize this relationship, namely the stringency index to account for the strictness of a country's guidelines in response to the pandemic. This index is a composite measure based on nine response indicators including school and workplace closures, travel bans, and lockdowns. Holding the population density constant, the figure below displays the relationship between GDPs Per Capita and cases per million among countries that have enforced either relatively **strict** or **lenient** restrictions.



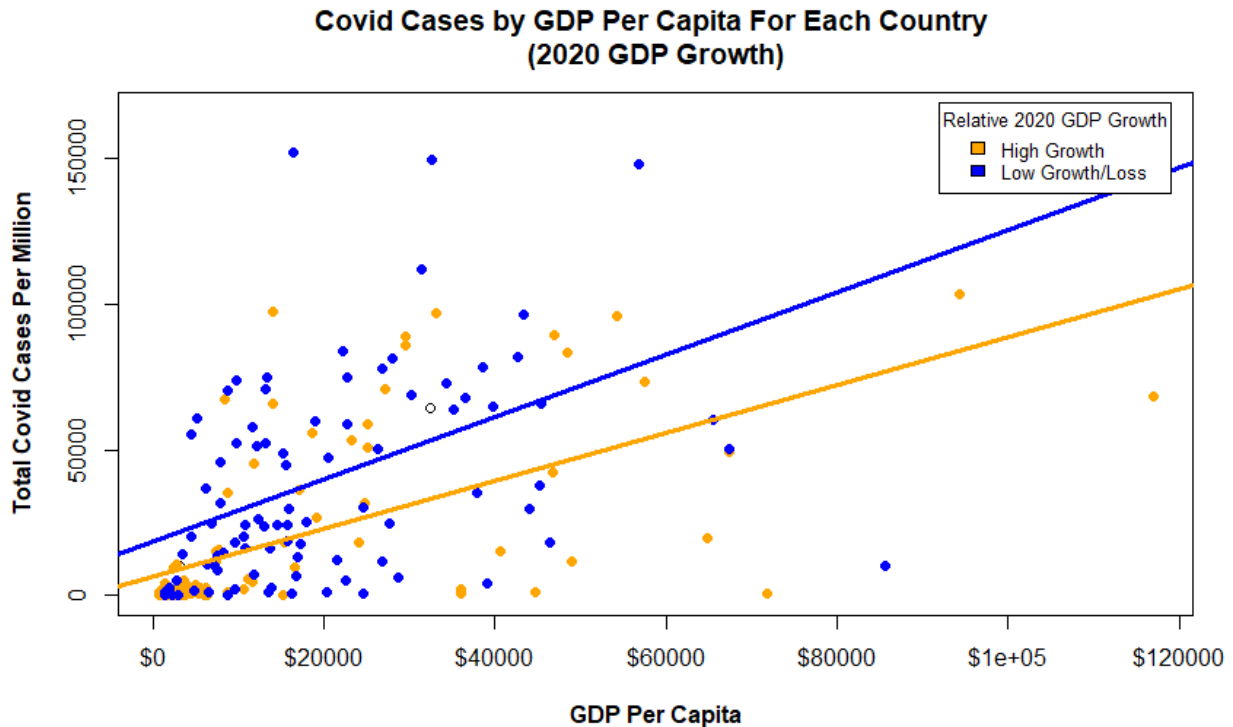
It is quite evident that the relationship between GDP Per Capita and COVID cases for countries who have enforced relatively lenient guidelines seems to be considerably stronger. A \$10,000 increase in GDP Per Capita is *associated* with a 10,700 increase in the number of cases per million for countries with lenient guidelines, and only a 7,791 increase for countries with strict restrictions. These statistical findings are intuitive; countries who may have acted upon their economic motives are reasonably inclined to enforce lenient restrictions to preserve their economic states. However, could this leniency in enforced guidelines be directly attributed to pure economic motives?

There is no definite answer to this question, yet it may seem odd for a country to avoid lockdowns and closures if it were not primarily to revive the economy. Sweden, who has one of the highest GDPs Per Capita in the world, has made public remarks about its decision to reopen the country and fulfill its economic motives. Despite the fact that Sweden's efforts were directed towards saving the economy as well as people's lives, it eventually recorded comparably high numbers of COVID cases per million.

These observations raise questions on whether the challenge of saving lives and economies exists in a dichotomy. It is quite difficult to provide a definite answer to these questions as that would require a separate analysis for each country in the study. However, a generalized trend might be visualized from comparing the pre-COVID GDP growths in 2019 along with the GDP growths during the pandemic in 2020 for each country. Keeping the population density constant, the figures below depict the same discussed relationship among countries who either had **high GDP growths** compared to other countries in the study, or **low GDP growths/losses**, in 2019 and 2020 respectively.



\*White points represent countries that had no reported GDP growth.



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Based on 2019 GDP growths, a \$10,000 increase in GDP Per Capita is *associated* with higher increases in the number of cases per million for countries whose economies experienced relative growths than countries whose economies did not. Though based on the 2020 GDP growths, there seems to be a shift where a \$10,000 increase in GDP Per Capita is *associated* with smaller increases in cases per million for countries with relative GDP growth. These results point to the possibility that countries who may have been successful in their trials to preserve their economy in the midst of the pandemic had other plans to mitigate the spread of the virus. Jordan, being a small country with a substantial dependency on their economy, enforced restrictions that permits workers only in certain industries to work freely under any lockdowns. Although Jordan eventually recorded above average cases per million, they managed to handle the virus better than what the 2019 GDP growth projection predicted, all while stimulating their economy and flourishing industries.

To conclude, these findings uncover subtle nuances to the widening impacts of the COVID-19 pandemic. Although further research is needed to capitalize on these outcomes, the

economic facet of the pandemic seems to be holding underlying significance. Apart from any causal inferences, the statistical degree to the association between a country's economic motives and its recorded COVID cases is far from minimal. Economic prosperity and under-control COVID-19 case numbers may not be mutually exclusive, but our data shows achieving both is no simple or well-defined task.

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