Our group decided to study the levels of greenhouse gas emissions (GHGs) produced by nine of today's global economic dominators: United States of America (US), United Kingdom (UK), Germany, Japan, Canada, Italy, France, the People's Republic of China (PRC), and the Russian Federation (Russia) between the years of 1991 to 2019. Our goal in looking at the data was to see if there was a positive relationship among a country's level of GHG emissions and their gross domestic product (GDP). Specifically, we looked at whether the countries with the largest economies were also the largest producers of greenhouse gas emissions.

We looked at data from the US Environmental Protection Agency (EPA), that shows the largest source of GHG emissions in the US are from burning fossil fuels for electricity, heat, and transportation. This is not unique to the United States; however, some countries' levels of GHG emissions are even higher due to their economies being strongly rooted in manufacturing of goods.

China, which recently was at the genesis of its industrial and economic transformation, has utilized energy sourced from the burning of fossil fuels to rapidly develop their global economy. One of the main questions we wanted to answer with our data was which of these nine heavyweight economies produced the most greenhouse gasses. We looked at this by country and per capita. The data sets we analyzed were taken from the EPA, World Bank, and UN Stats.

In an attempt to better understand the global emission rates individually of each of the nine countries we were researching, we looked at the per capita and annual emission rates compared to that country's GDP of the same year. We also compared each country's emission rates after their involvement and acceptance in 2016 of the Paris Agreement, which set out goals for limiting and capping emission rates to prevent global temperatures from increasing no more than 1.5-2 degrees Celsius annually.

Our findings show that the country with the highest annual rates of greenhouse gas emissions was the PRC, or China. This finding wasn't surprising when considering that China's economy has been undergoing an industrial revolution and also produces much of the world's goods for their individual and global markets as well. We also saw from our data that since around

1988-1998, China has seen a large increase in greenhouse gas emissions which matches their population's migration from the rural countryside to the cities and the country's higher GDP since 1992. China produces more than double the amount of greenhouse gasses than the second largest producer of annual global emission rates, which is the United States, and we found that France produced the least amount of global GHG emission rates.

Countries such as the US and PRC may on the surface of the data appear to be the main emission producers of GHGs. However, even with these comparably higher annual emission rates,it must also be kept in mind that China is a larger producer of the world's for-sale manufactured goods. Therefore it appears a global effort to mitigate the global concerns due to increasing global temperatures and climate patterns would be more effective and appropriate. Instead of one country with higher levels of emission rates being held accountable for solving and taking fiscal and policy moves to address global climate concerns, it'd be more effective and fair if all economic superpowers of the global economy were involved stakeholders.

Since we all suffer globally from the trapping of heat in the earth's atmosphere- as witnessed through the steady annual increase in global temperatures and consequential extreme weather patterns and even drought seen worldwide. These weather patterns are not selective and only present in the geographical areas of those countries producing a higher amount of GHG emissions- therefore we'd recommend, after reviewing the data front this study, that all countries within the G-7- including Russia and the PRC- work in concert with one another to address these mutually shared climate and GHG emission issues.

In the future, it would be of interest to take our findings to posit the overall responsibility to address reducing overall global GHG emission rates and to meet the Paris Agreement goals to cap increasing temperatures worldwide and address the current consequences the world is facing due to the effects of chronic greenhouse emissions annually.