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DS310 Final Project Report

Our research aimed to identify the most impactful policies in preventing the spread of COVID-19, focusing on "Contact Tracing - Limited Contact Tracing" and "International Travel Controls - Quarantine Arrivals From Some Regions." Using Power BI analysis on data from 10 representative countries, we compared cases per capita over time, revealing that New Zealand, South Korea, and Japan had consistently low case numbers, while France faced persistent high cases.

The data emphasized New Zealand's early adoption of robust contact tracing and international controls, indicating a proactive approach to pandemic management. Conversely, France's delayed implementation correlated with significantly higher cases per capita than New Zealand, highlighting the importance of timely and effective policy interventions in shaping pandemic trajectories.

Examining the timing of policy interventions, a 100% stacked column chart showed that comprehensive contact tracing (second degree) was widely implemented, peaking at 80% in August 2020. This method significantly lowered the daily death rate until December. Limited contact tracing became predominant after December, coinciding with a spike in cases, suggesting its inferior effectiveness during surges.

Analyzing international travel controls with a stacked bar chart revealed a trend: as Level 1 controls decreased, Level 3 controls increased. France's higher death cases aligned with the implementation of Level 1 controls, contrasting with South Korea's success with more stringent Level 3 controls. This indicates that policy effectiveness depends not only on timing but also on stringency.

In April 2020, both Japan and France allocated funds to combat COVID-19, with Japan continuing investments in December. Japan's declining cases in early 2021, compared to France's increase, suggested the effectiveness of sustained financial support. Charts correlating international support policy and cases highlighted Japan's lower cases as they received significantly more funding than France. We also visualized Japan and France’s school closing policy vs the cases per capita over time and noticed that Japan’s early implementation and repetition during the 2nd COVID wave helped decrease cases overall, while France’s delayed reaction and lack of reenactment caused cases to rise again, emphasizing the potential synergy of policies.

Acknowledging project limitations, we omitted public health infrastructure data due to inconsistent and outdated information. Our focus on timely relevance led to excluding hospital bed data, despite its relevance. Additionally, redundant data in our warehouse poses a challenge.

In summary, our research underscores the critical role of early, effective policies in managing a pandemic as opposed to relying on just one or two strongly. Comprehensive contact tracing and stringent international controls, when implemented in a timely manner, proved effective. Furthermore, sustained financial support and enforced school closure policy when necessary contributed to favorable outcomes. Despite limitations, our findings emphasize the complex implementation of policies in shaping a country's pandemic response.