

Thesis Portfolio

Understanding the Impact of COVID-19 on Economy and Environment in the Asia-Pacific Region

(Technical Report)

A Comparative Study of the Effects of the COVID-19 Vaccine in China and the US

(STS Research Paper)

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science
University of Virginia • Charlottesville, Virginia

In Fulfillment of the Requirements for the Degree
Bachelor of Science, School of Engineering

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Spring, 2021

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Table of Contents

Sociotechnical Synthesis

Understanding the Impact of COVID-19 on Economy and Environment in the Asia-Pacific
Region

A Comparative Study of the Effects of the COVID-19 Vaccine in China and the US

Thesis Prospectus

Sociotechnical Synthesis

The COVID-19 pandemic has been an unprecedented event that has completely altered the course of many lives. In late December 2019, health authorities in the Wuhan province of China detected several pneumonia cases from an unknown source with links to the Huanan Seafood Market. Before the start of the travel ban on January 23, around five million people had left Wuhan. By the end of January, the number of infections had surged to over ten thousand. The death toll from the coronavirus exceeded that of the SARS outbreak just a few days later. In Wuhan, 28 hospitals were designated to treat coronavirus patients, but the outbreak continued to test China's disease control system, and most of the hospitals were soon fully occupied (Castañón & Esomunu, 2020).

COVID-19 is a global health crisis unlike any other — one that is killing people and demolishing their lives. But it is much more than a health crisis, it is also a human, economic, and social crisis: that is attacking societies at their core. Specifically, the impact of the COVID-19 vaccine on global politics has been monumental. A multitude of global health agencies, big pharmaceuticals, and foreign governments are in collaboration to expedite the distribution of various COVID-19 vaccines. The reception of a COVID-19 vaccine has varied greatly in the US and China. For instance, many US citizens have said they will not even take a vaccine for COVID-19. Whereas in China, cultural pressures have resulted in widespread compliance with mask wearing and social distancing measures despite China having more residents than the US. For the STS portion of my prospectus, I will be conducting a comparative study of the US and China with regard to vaccine development, diplomacy, cultural differences, and the deployment and distribution strategies in order to examine the sociotechnical impact of the COVID-19 vaccine from a global perspective.

Safety measures have run the gamut of restrictions: physical distancing guidelines, proper hand washing practices, and the use of face masks are on the lower end of the restriction spectrum, while travel restrictions, business closures, and country-wide lockdowns are instances of the more stringent measures (Balmford & Annan, 2020). Policy responses have drastically differed among governments across the globe, but the economic strife has plagued countries regardless of their COVID-19 response plan. Lockdowns in the first half of 2020 impeded economic activity, leading to a reduction in the amount of industrial activity and hence emissions. During this time period, observations from publicly available satellite sensors have shown that concentrations of various atmospheric pollutants, nitrogen dioxide especially, have decreased (Adams and Johnson, 2020; McMahon, 2020). The Asia-Pacific region was no exception, with China, Japan, South Korea, Australia, and New Zealand all experiencing slowed growth and large reductions in various economic sectors. Therefore, in the technical portion of the paper we plan to examine the environmental and economic impact of COVID-19 in the aforementioned countries in the Asia-Pacific region.