

Секция 18
ЭКОНОМИЧЕСКИЙ ИМПЕРИАЛИЗМ
И ПОВЕДЕНЧЕСКАЯ ЭКОНОМИКА

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**ANALYZING THE EFFECTIVENESS OF PFIZER VACCINE
DOSES COLD SUPPLY CHAIN ON CORONA MORBIDITY
INDICES IN ISRAEL**

1. Summary.

At the end of December 2019, the corona virus (SARS-Co-2) causing COVID-19 disease broke out in China. From mid-February 2020, the virus began to spread rapidly to other countries, and by early April 2020 it had already spread to more than 200 countries. On 11.3.20, about three months after the outbreak of the virus, the World Health Organization declared the corona a global epidemic.

Since 2020, there has been a global crisis due to the Corona plague. There is hope that with the help of vaccines it will be possible to slow down the rate of epidemic spread. The purpose of the study is with the help of data collected in the State of Israel by the Ministry of Health to examine how cooperation with Pfizer helped build a supply chain of vaccines that caused a decrease in the number of patients and deaths so that the economy could be reopened without closure.

Project's aim

The project is a research project, carried out on data collection by the Ministry of Health on the corona plague in the State of Israel and research on how Pfizer built a cold supply chain quickly, analyzing data on how vaccines affect morbidity indices.

Examining the effect of the gradual vaccination process dose 1, dose 2, dose 3 on the number of patients with severe, moderate, mild, number of deaths and coefficient of infection.

With the help of analysis and tools learned in the various courses the research will strive to reach conclusions which can help to understand the constraints of supply chain of vaccines and identification of bottlenecks of health system.

Research questions

1. What is the level of impact of corona vaccine doses in Israel on morbidity indices?
2. What is the level of success of vaccines in Israel compared to other countries?
3. How to build a cold supply chain? And what are the constraints of the health care system?

2. Literature review.

Background

In 2019, the new coronavirus that causes COVID-19 was first detected in Wuhan, China in the four months after December. In 2019 mid-April 2020 saw a rapid escalation of the COVID-19 epidemic. Regulators began approving COVID-19 vaccines and governments around the world began to administer them. As governments navigate trade-offs between economic and public health outcomes, there has been a global race for vaccination rollout providing a glimmer of hope. Supply chains for the manufacture, distribution and management of a vaccine for a sufficient portion of 7.6 billion people were developed worldwide. The world's population ability to contain the disease, a concept called „herd immunity“, poses significant challenges. Approximately 5.6 billion people need to be vaccinated to achieve this goal.

The pandemic has the potential to transform pharmaceutical cool supply chains. The industry has a significant pipeline of very promising gene and cell therapy medicines, the distribution for which will not happen without cool chains that can operate anywhere from 2°C to -170°C. The COVID-19 vaccine has captured the public's attention, along with that of supply chain service providers and equipment manufacturers. And this is key given the broad range of challenges presented by such a complex supply chain, such as the need for specialized packaging, transport, and warehouse solutions as well as enhanced tracking requirements for biohazard materials handling and border administration. Addressing these issues will require major investments that will only happen with cross-entity collaboration and intelligent partnerships across the value chain. With the pharmaceutical industry expecting growth rates of up to 35 percent over the next few years, the opportunities are there to be seized by those bold enough to make the move.

3. Results.

I did data analysis in the language:

Regression of dose 1,2,3 versus patients is severe

Regression of patients is difficult versus second dose

Result: A second dose was able to reduce the number of severe patients

Regression of patients is slight versus a second dose

Result: A second dose was able to reduce the amount of patients slightly

Regression of moderate patients versus second dose

Result: A second dose was able to reduce a moderate amount of patients

Regression of the number of deaths versus a second dose

Result: A second dose was able to reduce the number of deaths

Correlation between second dose and morbidity indices: Correlation between severely ill patients and second dose, correlation between moderate patients and second dose, correlation between mild patients and second dose, correlation between number of deaths per second dose.

Correlation between the third dose and the morbidity indices: Correlation between the coefficient of infection and the third dose, correlation between medium patients and the third dose, correlation between mild patients and the third dose, correlation between the number of deaths and the third dose.

Regression: R-squared of vaccines against morbidity indices

R-squared meaning: The amount of variability in morbidity variables explained by vaccine doses.

4. Summary.

The vaccine of dose 1,2 succeeded in reducing the number of patients severe, moderate and mild and also the number of deaths in the second wave 8.1.2021 of Corona.

Vaccine of dose 3 managed to reduce the number of patients severely, moderately and easily and also the number of deaths in the third wave 11.7.2021 of the Delta strain.