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COVID-19: Analysis, Impact, and Perspectives in Chile

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***Abstract*---**The article describes and analyzes the main regional differences, the response capacity and the main lessons learned from the COVID-19 pandemic in Chile. In addition, it analyzes the impacts derived from the pandemic crisis on local productive systems and establishes a series of future perspectives that could strengthen the Chilean health system. The article provides an updated review of the impact of the COVID-19 pandemic in the country, as well as an explanatory narrative of the most relevant events to confront the pandemic crisis.

***Keywords*---**COVID-19, Public Policy, Health Economics, Local Economics.

Introduction

The COVID-19 pandemic has been the most important challenge faced by Chile and the world in recent times, not only because of the magnitude and impact it has had on all areas of society and the economy, but also because of the uncertainty derived from the lack of knowledge of the situation that was faced. This situation forced the incorporation of new practices and technologies to solve an emergency that at its most critical moment strained the public and private health system to the maximum (Dougnac, 2021).

In this context, the response capacity of the public health system in Chile from the origin of the pandemic implied preparedness and response capacity to COVID-19. It also evidenced inter-governmental capacity among the different public levels, both at the macro, meso and micro levels, to address system inequities at the population level and the various responses and actions to prevent the pandemic. Although regional disparities in health systems were initially evident during the process, with a series of negative social and economic impacts at the national and regional levels, statistics from the last two years show that anticipation in the actions of the government, and in particular the Ministry of Health, was one of the essential factors in dealing with the rapid spread of the

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SARS-CoV-2 virus (OMS, 2020). To mention a few timely actions: a Health Alert was declared early, mechanical ventilators, Personal Protective Equipment and vaccines were purchased in advance. In addition, thousands of officials at all levels of the health care system were trained, a wide network of laboratories was created, and an efficient Integrated Health Network was formed, which included public, private and institutional establishments to increase the number of hospital beds (Minsal, 2021). Beyond the positive governmental response capacity, a series of challenges remain open in the primary health systems, in the state of mental and emotional health of people and the economic restoration of regional productive systems.

Methodology

The methodology is descriptive and comprehensive in scope. The COVID-19 pandemic data were rigorously compiled and analyzed using the most widely used and internationally recommended sources, including data from official sources such as the Chilean Ministry of Health, the World Health Organization (WHO), John Hopkins University databases and Regional Governments.

Review of the literature

The COVID-19 pandemic crisis that started in Wuhan, at the end of 2019 has spread internationally to more than 180 countries. This outbreak has been considered a pandemic by the World Health Organization (WHO, 2019) as it shows an increasing person-to-person infection according to Qiu, Rutherford, Mao & Chu (2017). That has caused more than 900,000 deaths in recent months. Based on data reviewed by Liu, Gayle, Smith et al. (2020), COVID-19 recorded the highest infection and death rates compared to other coronavirus outbreaks. In proportion to population affected by the coronavirus, the cholera epidemic during the 19th century was one of the biggest diseases that Europe, various areas of America and Asia had, behind the Black Death. More than 10 million people died in the 1800s, becoming one of the most extensive and deadly diseases of the 19th century (Snow, 1958; Tang & Peng, 2017).

Because of this, travel restrictions, social distancing and quarantines have been implemented in several countries, with varying duration. In many economies, quarantine orders to prevent the spread of the coronavirus have caused not only a psychological impact (Ghani, 2020; Dutta, 2002), but have impacted commercial activities, such as business closures and disruption of commodity supply chains (Fabeil, 2020; Barra, 2021, et al.).

As the world continues to confront COVID-19, its impact on other public health, social and economic issues must also be considered. In this context, a series of evidence and lessons learned from the pandemic in Chile are presented below to examine the progress and implications of the pandemic.

Emergence of the importance of COVID-19 at the international level

The virus causing COVID-19 was detected at the end of 2019 in the Chinese city of Wuhan, with a population of about 11 million. On January 1, 2020, the World

Health Organization (WHO) reported an outbreak of pneumonia in that city and indicated that the cause would be a virus that emerged in a food market, which would have been transmitted from animals to humans (WHO 2020).

In this regard, on January 11, the Wuhan municipality reported the first death caused by the virus: a 61-year-old man who died due to respiratory failure (WHO, 2020). Following the timeline, on February 11, the first shipment of diagnostic kits for laboratory PCR-RT testing was sent to WHO regional offices and on Thursday 11, the organization announced that the name of this new disease would be COVID-19 (WHO, 2020).

On February 14, the Egyptian Ministry of Health reported the first infected person; it was also the first in Africa. Ten days later, several Italian localities decreed total quarantine for some 100,000 people; COVID-19 was already seriously affecting other European countries, such as Great Britain and Spain. In Latin America, Brazil confirmed its first case on February 26; it was a 61-year-old person who returned from Italy (SAUDE, 2020); Argentina, Mexico and Ecuador followed. In early March, a person who had traveled through Southeast Asia became the first case in Chile. Eight days later, WHO qualified COVID-19 as a pandemic and stated: "We are deeply concerned about both the alarming levels of spread and severity, and the alarming levels of inaction". At that time there were more than 118,000 cases in 114 countries and 4,291 deaths (PAHO, 2020).

Sanitary alert

For various public health analysts, the series of actions prepared by the health authority was crowned with decree N°4 of the Ministry of Health, which ordered a Health Alert for all of Chile and came into force on February 8, 2020, the day of its publication in the Official Gazette. In principle, its provisions would last until September 30, 2020; however, its validity was successively extended, and it would remain in force until March 31, 2022 (Minsal, 2021).

The document granted extraordinary powers to the two undersecretariats (SRA and SSP), the 16 Ministerial Health Secretariats, the Institute of Public Health (ISP), the National Health Fund (FONASA), the National Supply Center (CENABAST) and the Superintendency of Health, to work on the three lines of action established: To carry them out, the Ministry worked together in two major areas headed by the respective undersecretariats: surveillance, control and public health measures, and preparation of the health care network. In contrast to other economies in the region, WHO positively highlighted these efforts in Chile.

The first quarantines

MINSAL studies (2020) indicate that in the first weeks of March 2020, the Undersecretary of Public Health, together with a team from the Epidemiology Department of the Ministry, went to a school in the eastern sector of the Metropolitan Region to learn about the situation and to inform and explain to the school authorities that, as of March 13, the entire school community had to remain in quarantine for two weeks and under epidemiological surveillance; This

meant that students, teachers and administrators had to isolate themselves in their homes to prevent the spread of the first contagions in Chile.

Days later, the President of the Republic headed an Inter-Ministerial meeting at the “La Moneda” Palace to coordinate the deployment of preventive actions to protect the population from COVID-19. After the meeting, it was informed that Chile had entered Phase 3, because there were infections whose traceability could not be assured; that is, there was not enough certainty to link them directly to a case abroad. Regarding measures to prevent the importation and spread of the virus, it was also announced that people coming from Iran, China, Korea, Japan, France, Spain, Italy, and Germany should be quarantined (Minsal, 2020).

Problems of confinement

Each of the measures reviewed under international scientific evidence, generated drastic decisions with a high impact on citizens, such as prolonged confinements, which generated many difficulties for the large number of families in Chile, but as suggested by Paris (2021) Ex-Minister of Health, it was necessary to reduce mobility to cut the chain of contagion. It was also a complex decision to postpone surgery and treatment for many patients in the face of a flood of new cases starting in April 2020, and then again during the second wave in 2021. In addition, it was known, due to the fragility of the health system, that this would increase hospital waiting lists, but the risk of contagion was very high. At the same time, it was necessary to reduce the pressure on the hospitals and their staff, especially the Intensive Care Units (ICU), which were already overloaded (Minsal, 2021).

During the first two years, Chile went through very complex times, requiring the greatest possible number of critical beds to care for all those who became seriously ill. An essential factor in this matter was the public-private collaboration, unprecedented in the country, which resulted in the COVID-19 Integrated Network. Strategies were designed and implemented to decongest hospital establishments, one of which was the transfer of patients by land and air between regions.

In addition, a network of laboratories was created whose staff worked hard to analyze the samples taken and thus determine whether a person should be isolated. The strategy of free sanitary residence for those who could not effectively isolate themselves at home was recognized by international organizations for its effectiveness (WHO, 2021).

Reaching the desired goal of neutralizing contagions implied having begun to negotiate early the acquisition of vaccines, since inoculating as many people as possible in the shortest possible time was key to protect the health of the population. The vaccination campaign in Chile is a state policy and the speed of immunization placed the country in the first places in the world (WHO, 2022).

Current situation of COVID-19 in Chile (Includes situation by region)

The latest update from the Chilean Ministry of Health, which includes data as of April 2, 2022, shows 23.031 active cases, 4.823 new cases and a cumulative total to date of 3.482.175 infected.

Cases in the Metropolitan Region total 1.329.262, the region with the most cases (excluding the MR) is Biobío, with 346.471 cases, the region with the fewest cases is Aysén, with 24.569 cases.

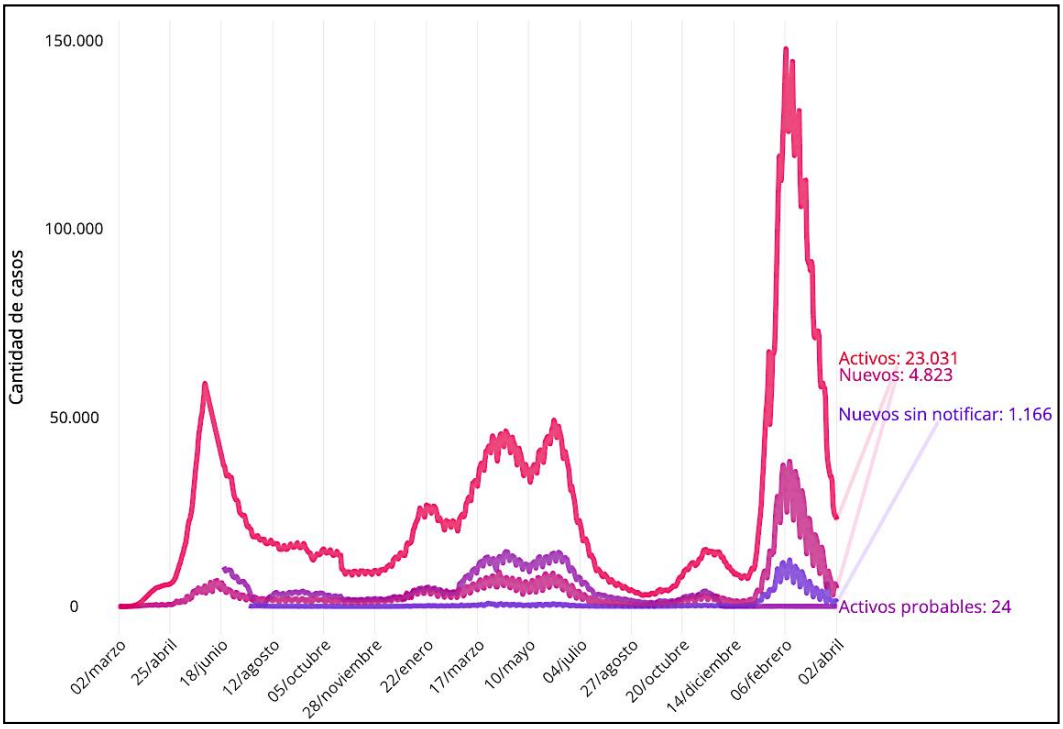
The total number of deaths is 45.302, the number of patients hospitalized in ICU is 546 people and the total number of PCR tests performed is 32.235.219 tests (Data UC, 2022).

According to various statistical sources analyzed in the last month (March 2022), the COVID-19 situation in Chile is serious. In this regard, it is essential to analyze the situation by region and make decisions at that level. In the case of Chile, the severity by region is as follows:

Very serious: Metropolitana de Santiago, Biobío, Valparaíso, Maule, Araucanía, Los Lagos, O'Higgins, Antofagasta, Coquimbo, Los Ríos, Ñuble, Atacama, Arica y Parinacota, Magallanes y Antártica Chilena, Aysén. **Serious:** Tarapacá (Rodillo, 2022).

According to the analysis, the only positive aspect suggests that the trend of cases has decreased in the last week (Rodillo, 2022). See status in the following graphical illustrations:

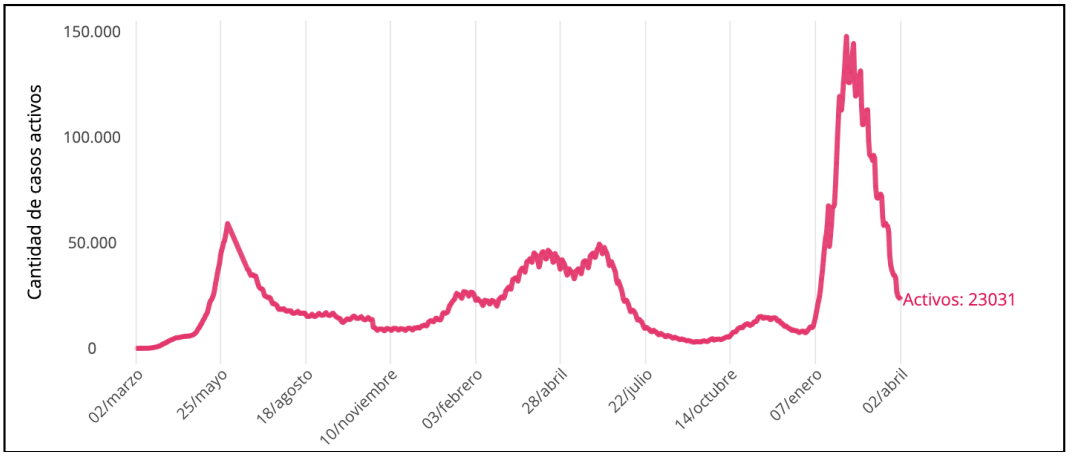
Graphic 1
Summary of COVID-19 national aggregate data



Source: Data UC, 2022.
Note: new cases include both asymptomatic and symptomatic cases.

This graph presents general consolidated statistics for your analysis: evolution of confirmed infections; active cases (which correspond to confirmed live persons whose date of onset of symptoms in the notification is less than or equal to 14 days as of the date of the current report); recovered cases (estimates, according to MINSAL criteria); new cases (confirmed by tests up to 9 p.m. the day before this publication) and evolution of deaths by COVID-19. Total cases correspond to the sum of active, recovered, and deceased cases. New cases are included in the number of active cases (Data UC, 2022).

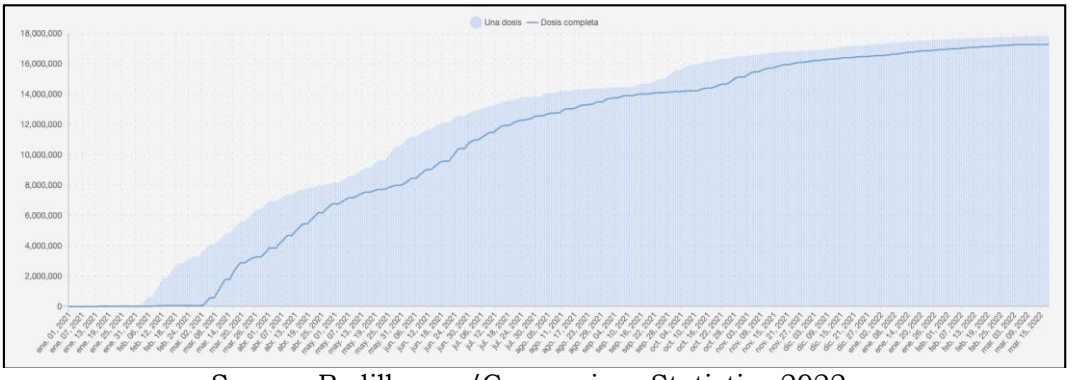
Graphic 2
Active cases between March 02, 2020, and April 02, 2022



Source: Data UC, 2022

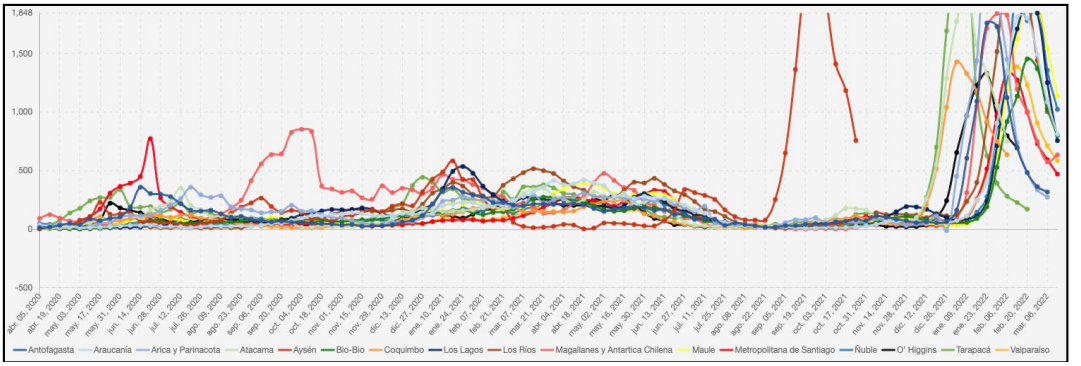
This graph, prepared by the Covid-19 Data Table of the Ministry of Science, Technology, Knowledge, and Innovation of Chile, shows the evolution of cases of Coronavirus infection confirmed by laboratory tests, and reported by the epidemiological surveillance system EPIVIGILA of the Ministry of Health. This corresponds to the famous infection curve, which considers only persons actively affected by the virus, and which should decrease as the pandemic subsides.

Graphic 3
Persons vaccinated (January 2021-March 2022)



Source: Rodillo.org /Coronavirus Statistics 2022.

Graphic 4
Trend of last 7 days/100,000 inhab. 7 days/100 thousand inhab. by region (March 2022)



Source: Rodillo.org /Coronavirus Statistics 2022.

Brief description of the impact of the pandemic on the Chilean economy

According to official statistics from the Ministry of Economy, there has been a significant level of heterogeneity in the commercial performance of companies during the first months of the pandemic. Part of this can be seen in a series of studies a series of studies carried out in Chile by official agencies, where it is observed that each business stratum experienced an increase or decrease in their sales, together with the average inter-annual variation of these. Compared to the previous year, 62.4% of the companies recorded a decrease in their sales in 2020, while decrease in sales in 2020, while 37.6% experienced an increase (Commercial and Industrial Policy Division, 2021)

Considering the sales recorded in 2020 for the construction of each stratum, it is possible to point out that, in the aggregate, the average variation in sales was -15.8%. Meanwhile, the group of micro-companies is the most affected, both in terms of the proportion of companies that recorded a drop (63.1%), as well as in the intensity of these (-37.5%). In the case of small, medium-sized, and large companies, a proportion of almost 40% recorded a decrease in sales. It should be noted that, in terms of the magnitude of the drop in sales in each stratum, the variation is more pronounced in large and small companies than in medium-sized ones (-16.3%, -10.4%, and -4.3%, respectively). Regardless of the size of the company, there were sharp declines in employment in three sectors: Arts, Entertainment and Recreation Activities, Accommodation and Food Service Activities, and Construction (Commercial and Industrial Policy Division, 2021).

Discussion of the Results

From the review of the state of the art of descriptive statistics and lessons learned from COVID-19 and its impact on health and the economy in Chile, the trends show an enormous heterogeneity in the processes of approach, planning, vaccination, and rates of reduction of the pandemic at the national level.

Something similar occurs with the other Latin American economies between the first and second year of the pandemic. On the economic level, there is an increase in the levels of poverty and inequality in its different dimensions and a series of negative effects in different industrial sectors.

Whether we like it or not, this is linked to the capacity and speed of response of public health systems, at the same pace that favorable conditions are created to build macroeconomic stability, which has also been affected by the social and economic gaps in the country and lately affected by the war between Russia and Ukraine during the last month. The results in Chile in terms of neutralizing COVID-19 since its inception have been positive, although social and health nuances are evident that if not effectively addressed may affect performance in keeping the pandemic and its various mutations under control.

The descriptive statistics illustrated throughout the article contrast the current pandemic situation in the various regions of Chile, where very serious regional cases are evident, especially in the most densely populated regions. The purpose of this discussion is to encourage debate and new lines of research that will allow us to delve deeper into the nuances of the pandemic in the fifteen regional economies of Chile, as well as to know the effects, impacts, and prospects for the country, where infection rates, vaccination, containment plans, mental health, telework and economic recovery is still a real Achilles heel.

Conclusion

There is no doubt that the COVID-19 pandemic has brought us potential positive impacts, such as new technological innovations in diagnostics, real-time data capture and enhanced surveillance. These advances can be leveraged to create new, more responsive COVID-19 resistance programs (London School of Hygiene and Tropical Medicine, 2021).

With the above in mind, digital technologies have become an important part of our daily lives. Throughout the pandemic, despite quarantines and the closure of Borders. However, the application of these technologies to improve human health remains largely untapped in low-income countries. Thus, there remains much opportunity for the public and private sectors to work together to harness the power of digital solutions to address inequalities and improve health care delivery in the poorly connected and technology-poor regions of Chile (Barra, 2021). Just as the pandemic has improved responsiveness due to technological advances, at the regional level several disruptions in health services are evident during the pandemic, causing discontinuities in the treatment of other diseases or pathologies.

In particular, the summary of official descriptive statistics show that the pandemic has not yet subsided, especially in highly populated regions such as the Metropolitan Region and Biobío. The data suggest that the vaccination system continues to be positive, and it is the duty of institutional health management to promote the timely care of people. In the case of maintaining this trend, the original difficulties of the pandemic could fade in time, and the lessons learned could serve to reorganize an optimal behavior of the population, reaching in the

medium-term positive perspectives in the field of health and the economy of the country.

This article not only wants to draw attention to the silent processes not included in the conventional static reflection of the pandemic and its impacts on human, social and economic health in Chile, but also seeks to open new questions about the management of the pandemic in a new economy disrupted by new global trends faced by institutions and people in their territories.

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