Pandemics and tourism in Acapulco during the first two decades of the XXI century

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ABSTRACT

In Acapulco tourism is the most important economic activity, it is a beach destination and main actor in the contemporary tourist history of Mexico. From its tourist beginnings it caused admiration to own (national tourism) and strangers (international tourism) for its climate and golden beaches, known as the Pearl of the Pacific; annually receives around nine million visitors, however, during the Covid-19 pandemic Acapulco "closed" its beaches to tourism and this produced a decrease in the arrival of visitors, of this fact there was no precedent, although this pandemic (by Covid-19) was not the first that occurred so far this century, the previous ones, Severe Acute Respiratory Syndrome (SARS) and A(H1N1), did not have great repercussions on tourism. The objective of this article was to carry out an analysis of the tourism results of Acapulco during the pandemics that have occurred in the first two decades of the XXI century [A(H1N1) and Covid-19]. To this end, the descriptive statistical method of the variables referring to the arrival of tourists, hotel occupancy and economic spillover during the holiday seasons that were affected during the period of duration of the pandemics before becoming endemic was used. It is concluded that there is no parallel between the pandemics of influenza A (H1N1) and Covid-19, although an analysis of the behavior of specific topics can be made.

Keywords: Acapulco, Endemic, Tourism indicators, Pandemic, Tourism.

1 INTRODUCTION

Acapulco de Juárez is one of the 85 municipalities that make up the State of Guerrero, located in the south-southeast region of the Mexican Republic. It has a territorial extension (surface) of 1 727.3 km2 representing 2.7 percent of the state surface, is made up of 227 localities, 57 municipal delegations and 67 police stations (Municipal Development Plan of Acapulco 2021-2024); It is bordered to the west by the Pacific Ocean and the municipality of Coyuca de Benítez (municipality with which Acapulco forms one of the 74 existing metropolitan areas in Mexico), to the east by the municipalities of Juan R. Escudero and San Marcos; to the south by the municipality of San Marcos and the Pacific Ocean, and to the north by the municipalities of Coyuca de Benítez, Chilpancingo de los Bravo and Juan R. Escudero.

The municipality of Acapulco de Juárez (to be called simply Acapulco) has a population of 779,566 inhabitants (INEGI, 2020a), of which 52.3 percent (407,772) are women and 47.7 percent (371,794) are men. The male-to-female ratio (known as the masculinity index) is 91.2, that is, for every 100 women there are 91 men. The average number of live births is 2.1. With a population density of

451.3 (inhab./km2). 9.7 percent of the total population in the municipality is considered Afro-Mexican or Afro-descendant and 3.5 percent comes from an indigenous household.

Figure 1. Evolution of the population in Acapulco 1990-2020
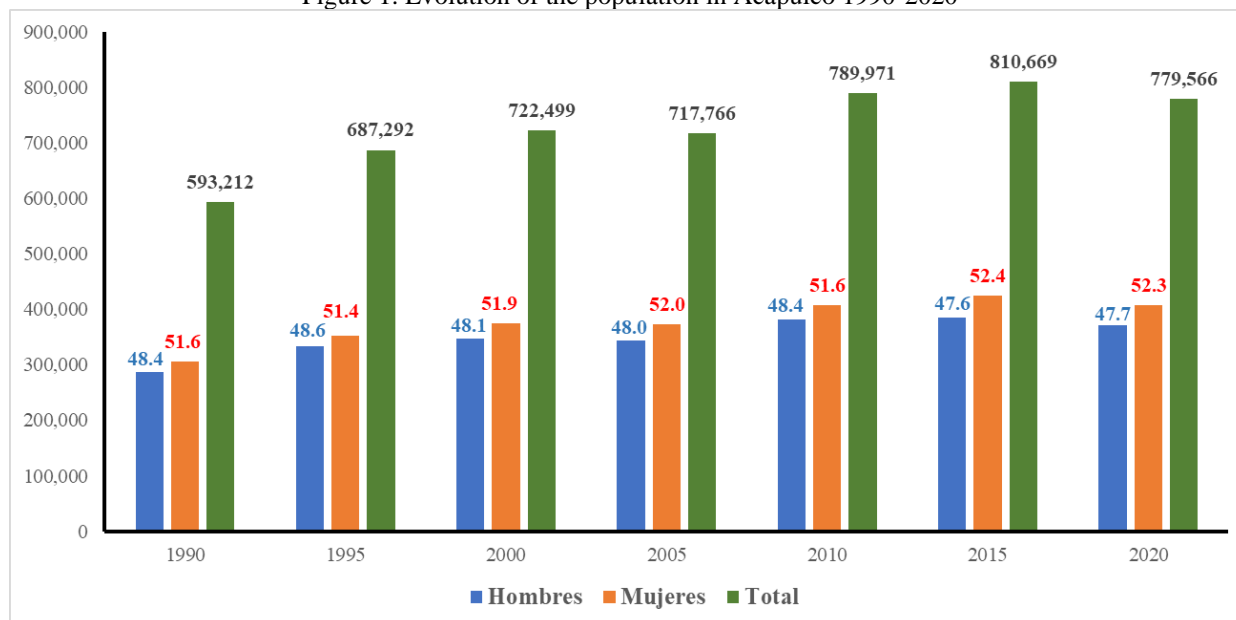
Source: Ministry of the Interior/INAFED (2022).

In Acapulco is located 23.8 percent (223 924) of the total private homes inhabited in the State of Guerrero, the average occupants in inhabited homes amounts to 3.47 people. Of the total number of private homes inhabited in Acapulco, 88.9 percent have basic public services (electricity, piped water from the public network and drainage), services that are differentiated in homes, since 66.7 percent have piped water, 94.7 percent have drainage, 98.4 percent with electricity and 22.9 percent collect water through cistern or cistern.

According to the website Data Mexico (2022), and with data from the 2019 Economic Census, the economic sectors that concentrated the largest number of economic units in Acapulco were: 1) Retail trade (14,383 units), 2) Temporary accommodation and food and beverage preparation services (5,922 units), 3) Other services except government activities (4,077 units) and 4) Wholesale trade (703 units).

Table 1. Evolution of the Economically Active and Inactive Population 1990-2020

Concept/years	1990	2000	2010	2020
Economically Active Population	**187,016**	**257,599**	**339,195**	**384,977**
Employed Population	181,989	253,502	323,763	377,351
Non-employed population	5,027	4,097	15,432	7,626
Economically inactive population	**216,358**	**255,291**	**262,931**	**234,717**

Source: from 1990 to 2010 Ministry of the Interior/INAFED (2022) and 2020 of INEGI (2020b).

In Acapulco, tourism is the main economic activity on which a large number of direct and indirect jobs depend; contributes 60 percent to the Tourism Gross Domestic Product (GDP) in the State of Guerrero (Municipal Development Plan, 2012-2015). According to its economic specialization (temporary accommodation services, food and beverage preparation), during the third quarter of 2018 in terms of the Economically Active Population (EAP), trade activities and services related to tourism stand out in the tertiary sector, amounting to 83 percent of the EAP. (Municipal Development Plan, 2018-2021)

With regard to social development in Mexico, four indicators are used, which are associated with economic well-being and social deprivation; which are: 1) poverty, 2) social backwardness (social lag index), 3) marginalization (marginalization index) and 4) human development (human development index). These indicators are obtained from variables that generate different dimensions that allow analyzing the praxis of social policy.
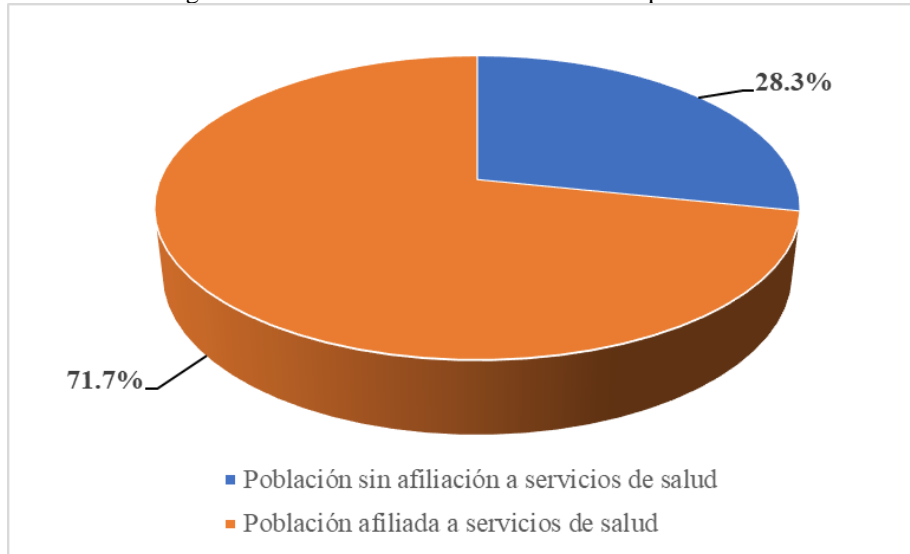
Table 2. Social Development Indicators for Acapulco

Years	Poverty	Marginalization	Social Backwardness	Human Development
2010	49.1	34.185	-0.68617	0.756
2015	56.6	47.875	-0.70923	0.753
2020	52.1	56.437	-0.58099	0.754

Source: Coneval (2022a), Coneval (2022b), Conapo (2022) and UNDP-Mexico (2022).

Social policy has permeated a large part of the population in Acapulco, the direct supports that have been delivered in this federal administration (2018-2024) and state (2021-2027) have reduced, in little, poverty (see table 2) and income inequality measured by the Gini Index (GI), since the IG decreased between 2015 (0.3856) and 2020 (0.3825), With a low social lag (when the value of this indicator is positive, the lag is high), with a high human development (between 0.7 and 0.799 high), however, there are still great social deprivations in the population. One of these social deprivations is access to health systems.

Figure 2. Affiliation to health services in Acapulco 2020

28.3%

71.7%

■ Población sin afiliación a servicios de salud
■ Población afiliada a servicios de salud

Source: INEGI (2022b)

The health system in Mexico has suffered great losses, the representatives of neoliberalism have tried to privatize health services, leaving aside public investment in infrastructure, coupled with the above there are many restrictions to enter the public universities of the different states that make up the Mexican Republic in the area of health and for specializations are even more.

> Mexico went from having 2.23 doctors per 100,000 inhabitants in 2014 to only 1.95 doctors in 2019. The OECD recommends a rate of 3.2 doctors per thousand inhabitants. On the other hand, the number of nurses per thousand inhabitants has increased, going from having a rate of 2.69 per 1,000 inhabitants. to another of 2.85. But it is the second country, after Turkey, with the lowest rate in the OECD. Mexico is also below the OECD average of nine nurses per 1,000 inhabitants and below the rates of countries such as Brazil, where the ratio is between six and seven nurses per 1,000 people. (Torres, 2022)

Some highly specialized private health services offered in the Acapulco region are subrogated and others, due to their high price, are beyond the reach of people's budget, since 75.2 percent of the employed population has incomes below two minimum wages (the general minimum wage per day in 2020 amounted to $ 123.22, which is equivalent to 6.5 dollars for an eight-hour workday, this equivalence is according to the exchange rate to solve obligations as of January 2, 2020). This implies that some health services are out of reach of the bulk of the population.

This meant that during the Covid-19 pandemic throughout Mexico (and in Acapulco) it faced a deficit in medical personnel and nurses; outdated and incomplete infrastructure with a large number of people suffering from different diseases; "70 percent are overweight, a third suffer from obesity, in addition, this disease is associated with diabetes and cardiovascular diseases, also with bone and muscle disorders, and some types of cancer" (Government of Mexico, 2023).

On the last day of March 2020, the Agreement establishing *extraordinary actions to address the health emergency generated by SARS-CoV2 was published in the official gazette of the Federal Government*; in which "the immediate interruption, from March 30 to April 30, 2020, of non-essential activities is ordered, in order to attenuate the spread and transmission of the SARS-CoV2 virus" (DOF, 2020). One of these non-essential economic activities was tourism.

Table 3. Information about Covid-19

Concept	National	Acapulco
Covid-19 cases		
Confirmed	7 614 771	46 051
Negative	11 584 758	63 930
Suspects	826 346	1 352
Deaths	334 107	2 946
Recovered	6 861 981	39 979
Assets	9 441	109
Sex		
Women	53.64%	52.57
Men	46.36%	47.43
Type of patient		
Hospitalized	9.58	12.77
Outpatient	90.42	87.23
Main comorbidities		
Hypertension	11.90%	14.68%
Obesity	9.59%	11.61%
Diabetes	8.74%	9.48%
Smoking	5.42%	3.08%

Source: https://datos.covid-19.conacyt.mx/#DOView (24 May 2023)

2 OBJECTIVE

Analyze the behavior of Acapulco's tourism results in the holiday periods that were affected during the A(H1N1) and Covid-19 pandemics that have occurred in the first two decades of the XXI century.

3 METHODOLOGY

It is an analytical, cross-sectional (holiday periods) and documentary study which examines, from the descriptive statistical method, the behavior of the variables that refer to the arrival of tourists, hotel occupancy and economic spillover during the holiday seasons that were affected during the period of duration of the pandemics before becoming endemic. For this, information disclosed by the Ministry of Tourism of the Municipality of Acapulco during the holiday periods of Easter, summer and end of the year is used; Analysis of percentage variations or percentage growth rates is carried out as the case may be. The transversality is presented during the holiday periods, in addition, two cuts are made to a time series (2006-2022): the first period goes from 2006-2011 covering the pandemic of A (H1N1) and the second 2015-2022 that covers the pandemic by Covid-19.

4 RESULTS AND DISCUSSION

4.1 TOURISM DURING THE A(H1N1) PANDEMIC IN ACAPULCO

According to Viruez and Vera (2013), "the 2009 pandemic associated with the Influenza A(H1N1) virus originated from a genomic mutation of the swine influenza virus, the first outbreaks were reported in Mexico and the United States" (p. 59). "The monitoring of the epidemic caused by the A(H1N1) virus began, in Mexico, on April 23, 2009" (Pérez and París, 2009, p. 4), "but it was not until June 11, 2009 when the World Health Organization (WHO) declared influenza a global pandemic" (Saunders-Hastings & Krewski, 2016, p. 11). "It was on August 10, 2010 when the WHO officially declared the end of the influenza pandemic" (Velasco-Castañón, 2010, p. 248). From this moment the A(H1N1) virus would become a seasonal influenza strain, which to date continues to be monitored.

During the pandemic, tourism activities in Mexico were affected, the greatest impact occurred after the outbreak of influenza A(H1N1); When the influenza alert was extended to other countries, the influx of tourists to Mexican territory was reduced, it should be noted that countries such as Argentina, Peru, Ecuador, canceled flights from their country to Mexico. The problem caused by this pandemic was the cancellation of hotel and transportation reservations of 90 percent in most destinations (Center for Public Finance Studies, 2009); since activities related to tourism are considered high risk of contagion (restaurants, hotels, transport and recreation).

According to ECLAC/PAHO-WHO (2010), "estimates of the losses caused by the pandemic during 2009 amount to 127.36 billion pesos, or the equivalent of 9.11 billion dollars; represents 1 per cent of the previous year's gross domestic product" (p.4).

During the influenza A(H1N1) pandemic, Acapulco had days with hotel occupancy rates of 11 percent, due to this reduction in tourist arrivals it was reflected in the spending they did not make in the Easter and summer holidays of 2009. It should be remembered that the Easter holiday space covers what is known for Christians as the major week and Easter, for 2009 the time interval was from April 4 to 19, *ex ante* "had already been detected, in March, in Mexico and the United States cases of atypical pneumonia" (Reynoso, 2010, p. 37). The gestation of the pandemic was during the Easter holiday season of 2009.

Table 4. Tourism indicators of the holiday seasons 2008-2011

	Semana Santa			Verano			Fin de Año		
Años	Ocupación hotelera (porcentaje)	Afluencia turística (número de turistas)	Derrama económica (millones de pesos)	Ocupación hotelera (porcentaje)	Afluencia turística (número de turistas)	Derrama económica (millones de pesos)	Ocupación hotelera (porcentaje)	Afluencia turística (número de turistas)	Derrama económica (millones de pesos)
2008	80.3	534,448	1,523.2	67.0	617,682	2,223.7	73.4	488,033	1,815.5
2009	71.6	453,255	1,291.8	63.4	600,365	2,161.3	73.4	493,809	1,837.0
2010	70.0	451,659	1,287.2	62.4	589,638	2,023.6	74.5	502,573	1,869.6
2011	68.2	438,202	1,248.9	60.0	576,982	2,025.2	72.2	468,252	1,779.4

Source: Secretariat of Tourism of Acapulco. Statistical Yearbooks, several years.

The percentage variation of hotel occupancy during the Easter holiday period of 2009 with respect to 2010 had a decline of 1.6, while the tourist influx and the economic spillover during that same period had a percentage decrease (for both) of 0.4 percent. While for the summer period the percentage variation of hotel occupancy had a withdrawal of 1.0, the tourist influx, like the previous period, presented a decrease of 1.8 percent, the same happened with the economic spill, since it had a decrease of 6.4 percent.

These negative effects of the influenza A(H1N1) pandemic did not have an impact on the holiday period at the end of the year, as shown in Table 3, the indicators analyzed present favorable figures (with 1.1 in percentage variation of hotel occupancy and favorable growth rates of 1.8 percent for the tourist influx and in the economic spillover).

Another form of analysis is from the characteristics of the data, which are described through their measures of central tendency, position, dispersion, association and graphical analysis of the variables under study. Doing statistical analysis of the time series from 2006-2011 we have the values presented in the following table.

Table 5. Statistical results of the variables analyzed in the period 2006-2011

Statistical	Hotel occupancy (percentage)	Tourist influx (number of tourists)	Economic Spillover (MDP)
Stocking	50.2	7,848,701.8	23,690.5
Typical error	1.8	536,712.1	1,628.3
Median	50.7	8,099,317.5	24,744.1
Standard deviation	4.3	1,314,670.9	3,988.6
Curtosis	-1.4	-2.1	-0.6
Asymmetry coefficient	-0.5	-0.4	-0.8
Rank	10.9	3,057,015.0	9,979.4
Coefficient of variation	8.64	16.75	16.84
Minimal	43.7	6,029,452.0	17,363.3
Maximum	54.6	9,086,467.0	27,342.7

Source: authors.

The standard (standard) error of the mean weights the movements of the sample mean (mean obtained from the data) around the population mean, and is obtained by dividing the standard deviation of the population by the square root of the sample size:

$$Se_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

From the typical error, the confidence interval is constructed around the mean with a confidence level of 95%:

$$Límite\ inferior = \bar{x} - 1.96\ (valor\ en\ tablas\ de\ la\ distribución\ normal\ estándar) * Se_{\bar{x}}$$
$$Límite\ superior = \bar{x} + 1.96\ (valor\ en\ tablas\ de\ la\ distribución\ normal\ estándar) * Se_{\bar{x}}$$

Table 6. Confidence intervals around the mean

Limits/Variables	Hotel occupancy (percent)	Tourist influx (number of tourists)	Economic Spillover (MDP)
Lower limit	46.7	6,796,746	20,498.9
Upper limit	53.7	8,900,658	26,882.0

Source: own elaboration based on the data in Table 4.

The asymmetry coefficient (As) measures the degree of symmetry of the distribution with respect to the mean and its value should tend to zero. When As > 0, the curve is positive, implying that the values tend to cluster on the left side with respect to the mean. If As < 0, the curve is negative and implies that the values tend to meet on the right side with respect to the mean.

$$A_s = \frac{n}{(n-1)(n-2)} \sum_{i=1}^{n} \left(\frac{X_i - \bar{x}}{s}\right)^3$$

When the measures of central tendency (mean, median and mode) coincide, the curve is symmetric (there are the same number of elements to the left and right of the mean), and the distribution has the shape of Gauss's bell (normal distribution).

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2}$$

Kurtosis (K) measures the pointing level of the probability distribution, if K = 3 is mesocurtic; if K < 3 is platicurtic and if K > 3 is leptocurtic.

$$K = \left|\frac{n(n+1)}{(n-1)(n-2)(n-3)} \sum_{i=1}^{n} \left[\frac{X_i - \bar{x}}{s}\right]^4\right| - \frac{3(n-1)^2}{(n-2)(n-3)}$$

The coefficient of variation (CV) relates the standard deviation as a percentage of the arithmetic mean of a data set; The values are positive. When CV > 85 percent, the higher level of heterogeneity of the data, and if CV < 85 percent, greater homogeneity in the data; This implies that the arithmetic mean will be representative of the data set.

$$C_V = \frac{\sigma}{\bar{x}} * 100$$

Table 7. Asymmetry, kurtosis and coefficient of variation

Measurements/Variables	Hotel occupancy (percentage)	Tourist influx (numbers of tourists)	Economic Spillover (MDP)
Coefficient of asymmetry	(-0.5) Asymmetrically negative	(-0.4) Asymmetrically negative	(-0.8) Asymmetrically negative
Kurtosis	(-1.4) Platicúrtica	(-2.1) Platicúrtica	(-0.6) Platicúrtica
Coefficient of variation	(8.64) Homogeneous data	(16.75) Homogeneous data	(16.84) Homogeneous data

Source: own elaboration based on the data in Table 4.

If the asymmetry coefficient (As = 0), the distribution is symmetric, that is, the values are equally distributed on both sides of the mean. If As > 0, the distribution is skewed to the right ("tail" to the right), it means that the mean is greater than the median. If As < 0, the distribution is skewed to the left ("tail" to the left), it means that the mean is less than the median.

Kurtosis (K) provides information about the presence of extreme values, measures the shape and concentration of data around the mean in relation to a normal distribution. It is calculated relative to the normal distribution that has a K = 3 (0). When K > 3 indicates a distribution with heavier tails and is known as leptocurtic kurtosis. When K < 3 indicates lighter tails and less frequent extreme values, it is known as platicurtic kurtosis.

When the measures of central tendency (mean, median and mode) coincide, the curve is symmetric (there are the same number of elements to the left and right of the mean), and the distribution has the shape of Gauss's bell (normal distribution).

When data is said to be homogeneous, it means that they share similar characteristics. Homogeneity refers to the consistency or similarity in the attributes or properties of the data and it is easier to identify patterns, trends or relationships between them The homogeneity of the data is desirable in many analyses, as it allows comparisons to be made and more accurate conclusions to be drawn.

Another way to identify the behavior of the data is through the graphical method, considered as an informal procedure. Charts identify events that affect the data. For Hernández (2015), a graph allows us to observe: 1) frequency, 2) trend, 3) extreme values, 4) dispersion, 5) structural changes, 6) slope changes and 7) seasonality.

Figure 3. Tourist influx in Acapulco 2008-2011
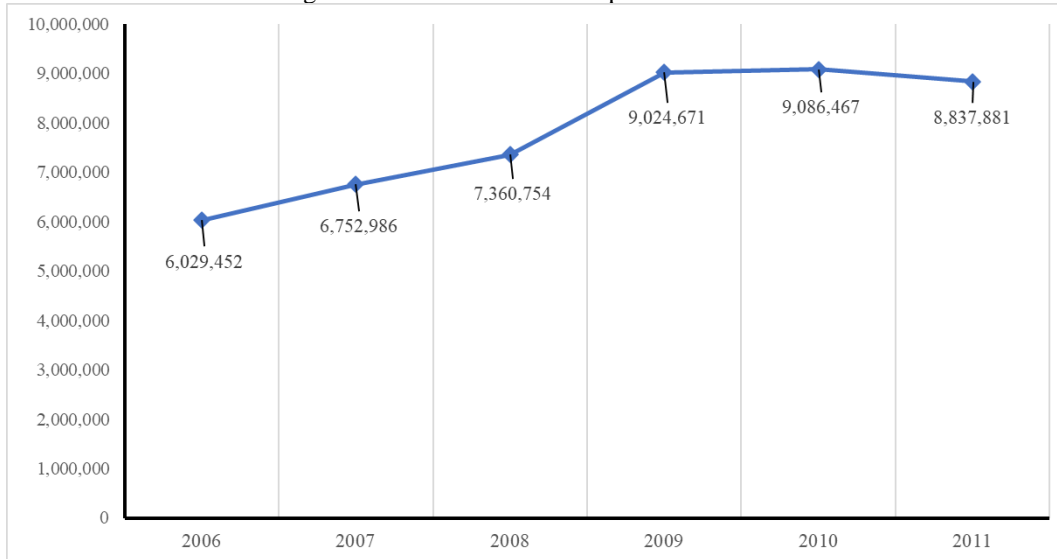
A positive trend in tourist influx is identified in the period from 2006 to 2011, with a minimum value of 6,029,452 visitors and a maximum of 9,086,467, without structural change or change of slope. In addition to the above, during the period of the influenza A(H1N1) pandemic there was a percentage growth of 0.4 percent, since it went from 9,024,671 visitors in 2009 to 9,088,467 in 2010. In real time, the pandemic lasted 425 days (from June 11, 2009 to August 10, 2010).

4.2 TOURISM DURING THE COVID-19 PANDEMIC IN ACAPULCO

The SARS-CoV-2 virus is the cause of the Covid-19 disease, it first appeared in Wuhan (Hubei province China) on the last day of December 2019 when the health authorities reported the presence of several cases of pneumonia, later it was announced that the cause was the presence of a new coronavirus. The Covid-19 disease spread at great speed throughout the world and was declared by the WHO as a global pandemic as of March 11, 2020, ending the health emergency on May 5, 2023, becoming an endemic. It took 1,150 days in real time.

In Mexico, as of March 30, 2020, preventive actions were applied throughout the country that were reflected in a digital platform generated *expressly* to disseminate different topics related to the Covid-19 pandemic. Preventive actions revolved around the suspension of non-essential activities, the application of hygiene and healthy distance measures, restrictions on meetings in closed spaces, home protection, especially for the elderly, pregnant women and people with autoimmune diseases. In addition, a Covid-19 health complication calculator based on risk factors was generated; in order to estimate the probability of pregnancy of the disease in the face of possible contagion.

Before these preventive actions, different agreements derived from the pandemic had already been published, highlighting the Agreement 02/03/ 20 where the suspension of classes during the

period from March 23 to April 17, 2020 was announced, postponing the return to classes gradually (according to the color of the epidemiological traffic light that was created to know the regional behavior of the pandemic) and with the application of filters Restrooms: 1) at home, 2) at the entrance of the school and 3) inside the classroom.

The follow-up given to the behavior of the Covid-19 pandemic (in Mexico) was extensive and punctual in the States and Municipalities of the Mexican Republic; three entities (Conacyt, Inegi and Coneval) generated individual digital platforms where confirmed, negative, suspected, death, recovered and active cases were traced. The purpose of the creation of the digital platforms was the dissemination of real information to the population about the behavior and trend of the pandemic.

Just as the return to school was gradual and complying with hygiene protocol, it was also for many non-essential economic activities, including tourism; "cataloging it as an instrument of propagation of the virus and of the contagions by the displacements that are made" (Zepeda, Medina and Flores, 2020, p. 70).

The pandemic brought severe consequences to tourism, "BBVA estimated during the first months of 2020 a decline of 83.7 percent, the Anahuac Center for Tourism Research and Competitiveness (CICOTUR) predicted a fall in tourism GDP between 3 or 5 of the 8.7 percent obtained in 2018" (ECLAC, 2020, p. 50).

In this pandemic, unprecedented events were presented, for example, in Acapulco recreational activities on the beach were prohibited during the month of April 2020 (from 02 to 29), with the commitment to reactivate for the last day of the same month and year; however, infections did not decrease, for this reason, the reactivation was rescheduled until the first days of July 2020 when the epidemiological traffic light changed to orange, as a consequence, in Acapulco two holiday periods were directly affected: 1) Easter and 2) summer; and the year-end period was partially affected. It should be noted that the ban did not imply the closure of the inns, some operated with 30 percent hotel occupancy, complying with hygiene protocols. In addition, the low tourist influx can be explained by second homes.

Table 8. Tourism indicators of the holiday seasons 2018-2022

Años	Semana Santa			Verano			Fin de año		
	Ocupación hotelera (porcentaje)	Afluencia turística (número de turistas)	Derrama económica (millones de pesos)	Ocupación hotelera (porcentaje)	Afluencia turística (número de turistas)	Derrama económica (millones de pesos)	Ocupación hotelera (porcentaje)	Afluencia turística (número de turistas)	Derrama económica (millones de pesos)
2018	74.1	487,573	1,477.3	67.0	694,114	3,110.2	79.2	591,503	2,602.6
2019	75.0	493,525	1,495.4	65.0	786,873	3,210.4	83.4	628,460	2,765.2
2020	4.4	30,000	90.0	18.3	274,789	1,154.1	36.9	229,785	942.0
2021	39.7	140,605	442.9	36.0	547,385	2,299.0	64.4	439,237	1,844.8
2022	63.7	376,008	3,115.5	59.3	597,385	5,346.4	73.0	826,976	6,405.3

Source: Secretariat of Tourism of Acapulco. Statistical Yearbooks, several years.

Large collapses are observed in the variables that are analyzed during the three holiday periods in 2020, for example, in hotel occupancy it had a negative percentage variation of 70.6, a percentage decrease of 93.9 and 94 for the tourist influx and in the economic spillover, respectively; having a slight recovery from the Easter holiday period 2021. It should be emphasized that on World Tourism Day 2020 (September 27) Acapulco was awarded the Global Safety Seal granted by the World Travel & Tourism Council (WTTC) together with the WHO and the Centers for Disease Prevention (CDC). The Global Safety Seal was awarded for complying with hygiene protocols, in addition, the Covid-19 Clean Point and Responsible Tourist programs were implemented.

> In Acapulco mass events were suspended: the pyrotechnics show, the sale, distribution and use of Cantoya balloons, musical events on beaches and in public areas were prohibited. The sanitary shielding was strengthened in hotels, bars, restaurants, public transport, in beach accesses filters were installed, in the information modules the information on the importance of the use of face masks and antibacterial gel was replicated, periphoning was carried out in the beach area, information campaigns were created in the mass media, Awareness courses were given to tourism service providers, public areas were sanitized, sweeping and manual cleaning campaigns were carried out. (Cruz, Dimas and Ortega, 2021, p. 422)

The following table presents the results for the descriptive analysis of the 2015-2022 time series, of the tourism variables analyzed; it should be noted that this period includes the period of the beginning of the Covid-19 pandemic.

Table 9. Statistical results of the variables analyzed in the period 2015-2022

Statistical	Hotel occupancy (percentage)	Tourist influx (number of tourists)	Economic Spillover (MDP)
Stocking	44.3	8,574,769	34,283.8
Typical error	2.6	546,513	4,334.6
Median	46.9	8,985,058	31,458.2
Standard deviation	7.4	1,545,773	12,260.1
Curtosis	0.0	-0.9	5.4
Asymmetry coefficient	-1.2	-0.8	2.1
Coefficient of variation	16.6	18.0	35.8
Rank	20.4	4,036,019	41,199.7
Minimal	31.3	6,192,520	21,456.5
Maximum	51.7	10,228,539	62,656.2

Source: authors.

First, confidence intervals are presented at 95 percent of the three tourist variables.

Table 10. Confidence intervals around the mean

Limits/Variables	Hotel occupancy (percent)	Tourist influx (number of tourists)	Economic Spillover (MDP)
Lower limit	39.2	7,503,603	25,788.0
Upper limit	49.4	9,645,935	42,779.6

Source: own elaboration based on the data in Table 8.

The following summary table presents the results of the symmetry of the data, the presence of extreme values and their homogeneity.

Table 11. Asymmetry, kurtosis and coefficient of variation

Measurements/Variables	Hotel occupancy (percentage)	Tourist influx (numbers of tourists)	Economic Spillover (MDP)
Coefficient of asymmetry	(-1.2) Asymmetrically negative	(-0.8) Asymmetrically negative	(2.1) Asymmetrically positive
Kurtosis	(0.0) Mesocúrtica	(-0.9) Platicúrtica	(5.4) Leptocúrtica
Coefficient of variation	(16.6) Homogeneous data	(18.0) Homogeneous data	(35.8) Homogeneous data

Source: own elaboration based on the data in Table 8.

The following figure shows the behavior of the tourist influx 2015-2022, as can be seen during the pandemic there was a percentage decrease of 39.5 percent in the arrival of tourists; and as of 2021 and 2022 I present percentage growth rates of 3.4 and 27.6 percent, respectively; This fact is visualized in the holiday period of the end of the year of 2022, where the economic spillover has a significant increase; whose percentage growth rate of the time series of the economic spillover was 117.4 percent with respect to the previous year, that is, it went from 28,822.7 to 62,656.2 million pesos (MDP).

Figure 4. Tourist influx in Acapulco 2015-2022
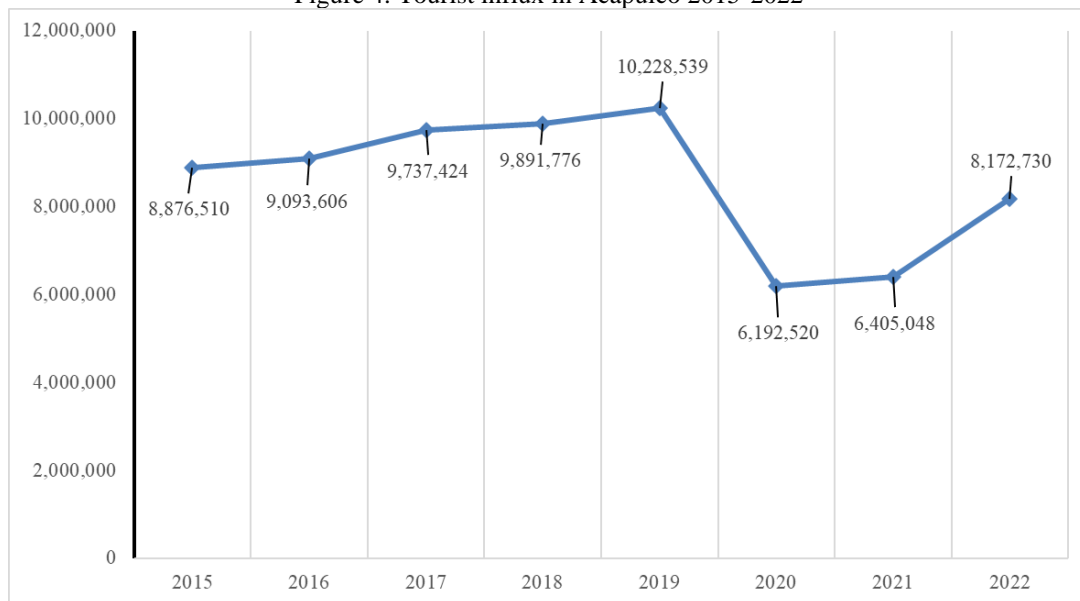
Source: authors.

Figure 5. Economic Spill (MDP) in Acapulco 2015-2022
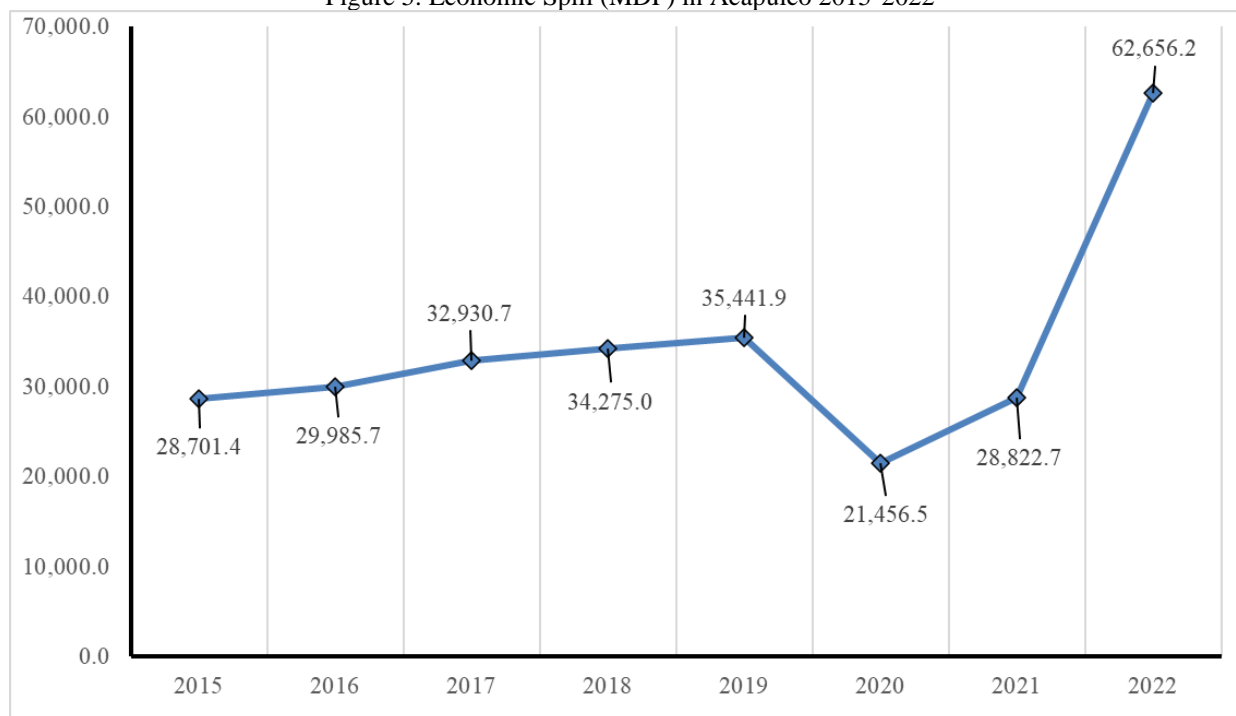
Source: authors.

5 CONCLUSIONS

Acapulco only prohibits, for a short period of time, the enjoyment of beaches when extreme hydrometeorological natural phenomena occur and the sea in the background, but in pandemics draconian measures were implemented for their use, ranging from the temporary "closure" of beaches, to social distancing measures in hotels, shopping centers, restaurants, among other businesses; This had a direct impact on the tourism sector.

There is no parallel between the influenza A(H1N1) and Covid-19 pandemics, although different elements can be analyzed : 1) number of deaths, 2) suspension of activities, 3) infections, 4) vaccines, 5) availability of information, 6) economic crises and 7) duration of the pandemic.

In Mexico, during the Covid-19 pandemic, various digital platforms were generated, that is, technological tools were made available to the population in which prevention issues, the risks of contagion and its complications according to their conditions were disseminated, for records and vaccination points. The purpose was to communicate the information in a real way and not to replicate the bad information that some media disseminated.

To date, it is not possible to know the economic and social effects of the Covid-19 pandemic in Acapulco. The oxygenation that was intended to give the economy of Acapulco in the holiday season of the end of the year of 2020 was at too high a social cost, since, according to official figures, infections doubled, as did deaths.

Acapulco has entered a process of tourism relaunch, this is demonstrated in the public investments that are currently being made in infrastructure, the diversification of attractions and ecotourism activities that are being offered, in order to reposition itself as the first place of traditional beach tourist destinations in the travel market.

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