



**The Relationship of Infected rate, Numbers of Tourists
and Vacancy rate**

Presented to

Aj. Dr. Nattapong Puttanapong

By

Natsinee Laohapakdee 6104640708

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Introduction

The first date reported Covid-19 cases was on January 24, 2020, with 917 cases and 26 deaths. During the Covid-19 occurred, before the vaccine was invented, people have to wear masks whenever they went out to public places, avoid traveling, no meeting, keep 2 meters distance from others and stay in their place. Clearly, frequent mobility of people will increase the infected rate. The medical supply and equipment have been purchased from all over the world both from the hospital and from households. People's behavior has been significantly changed, there was no hang-out, most activities must be done up online such as online studying, online meeting, shopping online, online concert, etc. Up to December 12, 2021, there have been 270 million people infected with this COVID-19 disease and 5.31 million have died and numbers of infected people are continuously rising. Due the vaccine was invented, various vaccines were invented but vaccines are still shortage from high demand from every country all over the world so, the world is still not safe from the pandemic leading to the first lockdown in Albania on March 13, 2020, and follow by several countries eventually. Hence, national lockdowns have been effective in keeping people from interacting, to reduce the spread of disease intercontinental and damage people's living lifestyles. In another way, the lockdown also shut down parts of economics.

The pandemic Covid-19 nowadays has resulted in global challenges as the economics and healthcare crisis and affect on the global industries, including tourism and travel that the main contributor to the service industry worldwide. The tourism industry has deadly effects by the Covid-19 and in the group of the most damaged global industries. Leisure and internal tourism recorded a severe decline amounting to 2.86 trillion US dollars or more than 50% revenue losses.

The sharp decline of tourist numbers caused of limit mobility leads to the lowest hotel occupancy rate. The Covid-19 pandemic is greatly affecting the global service industry. As revealed from Macau from January 2020 to July 2020 confirms that the MIDAS model has better efficiency to measure dynamic impacts of the Covid-19 pandemic on hotel occupancy, better prediction accuracy and explanation ability than competitive models. Enterpriser can adopt this data analytically to make daily or monthly updates of lodging demand, conduct scenarios during pandemic analysis also plan for the recovery schedule during and post Covid-19 phases. Global revenue for travel and tourism is estimated to decrease by 34.7% to an estimated 447.4 billion dollars. In addition, reported by the UN Conference on Trade and Development. If international tourism remains shut down over 12 months, the UN predicts a loss of 4.2% global GDP or about 3.3 trillion dollars (Hotel Tech Report, 2020).

Literature review

This research explores the relationship between the rate of infection, the number of tourists, and the rate of vacancy. There are several studies relating to the tourism business, which can be divided into two categories:

1. Literature related to factors about tourism

- Kittisak (2019) The findings provide reasonable evidence for their regional and management implications, as considerable attention is necessary to mitigate the negative impact of environmental indicators on the tourism business.
- Morakot (2020) Microentrepreneur ship enabled by online platforms was discovered to be the most popular form of business tourism (CBT) in Thailand. Future research is proposed to compare and contrast the implementation of internet platform-mediated tourism in different tourist sites.
- Pornnapa (2021) Conduct an investigation on the hotel industry during the COVID-19 epidemic. A multiple-case methodology is employed to examine events that have occurred during the current COVID-19 situation. The findings indicate that the crisis drastically altered each participant's strategy.
- Siwarit (2021) Tourism enterprises in Thailand must build a communication strategy that instills confidence in their customers' health and safety provisions and convenience. This campaign should involve all stakeholders, including members of the local community and internal workers. The next section examines the study's theoretical and practical ramifications.
- Siripon (2021) Thai residents identified tourism's top three impacts as preservation and promotion of indigenous culture. Environmental, economic, and social variables differentiated residents of domestic tourism sites from those of international tourist destinations.
- Scott Hipsher (2021) The paper examines and compares worker perceptions in Thailand's tourism industry, both in foreign-owned and locally-owned businesses, in order to provide an underrepresented perspective in the debate over whether international trade and tourism primarily exploit workers or provide valuable opportunities. Employees in both domestic and foreign-owned businesses showed a high level of job satisfaction.

- Janjua (2021) The purpose of this article is to forecast Thailand's tourist inflow. Thailand would expect large negative zone arrivals of international tourists over the next nine months as a result of the COVID-19 pandemic crisis. However, a decline in tourist arrivals will eventually result in a reduction in air pollution in Thailand, which will have a beneficial effect on environmental quality.
- Suppamas (2021) Community Based Tourism (CBT) is a concept based on the community's five phases of tourism development. Tourist development guidelines should prioritize community-based tourism management. The highest ranking was given to community-based tourism services, followed by economic society and quality of life management.

2. Literature related to factors about infection of COVID-19 in Thailand

- Kraichat (2020) The number of infected cases was shown to be significantly related to economic factors, specifically the number of visitors who produced revenue from both Thai and foreign tourists. The sluggish increase in rate was attributed to the enforcement and implementation of both central and local government regulations, as well as the strength of Thailand's health care system.
- Tantrakarnapa (2020) COVID-19 infections confirmed in Thailand are growing in two phases. Controlling disease spread was rigorously enforced through partnership between the federal and state governments. Isolating confirmed cases also contributed significantly to the disease's daily spread.
- Anucha (2020) COVID-19's emergence is the most serious threat to global public health. Uncertainty over the mode of transmission may have resulted in significant stress for HCP caring for known or suspected patients. This concern may result in inadequate care for patients, jeopardizing patient safety.

Research Gap

The scope of this research is limited because to the lack of data availability for various sectors and the inability to gather data for some factors that may be connected to the Infected rate and the number of tourists. As a result, the indications that were projected to have an impact on the market may not be relevant in all areas.

Data & Research methods

Data

table X: Source of Data

Data	Source of Data
Apple Mobility Index	-
Tourism Indicators	BOT

Research methods

This study generally uses secondary data includes infected covid case, number of foreign tourists visiting Thailand, driving, walking, 3-month definitely advanced booking rate (percent), kind of average room sort of rental rate (baht: room), and share of foreign tourists to sort of total guests (percent) based on 21 observations from February 2020 to October 2021, which definitely is fairly significant: conduct the regression for alternatives indicators analysis by using Excel (Appendix 2). Moreover, compute the sentiment index by using Rapidminer science platform to look above what has occurred and assists in predicting what might occur in the future by these keywords: hotel, covid, booking, and travel by limiting 4,000 number of tweets and using English language.

Result analysis and discussion

According to the sentimental index analysis performed on the term using RapidMiner and Twitter data by using 4 keywords: hotel, booking, travel, and covid; surprisingly, the outcome of all the deviations in are positive (Figure 1, 2, 3,4 Appendix 1) which are 0.663, 0.672, 0.817, 0.762 respectively meaning that there are more positive attitudes expressed in the messages in Twitter. For instants, “It would be great to **travel** at Chiangmai these holidays.” posted by Joms, and “A good morning from the Chatrium **Hotel** Riverside Bangkok. 🌞 It looks like another beautiful start to the day in the city. 😊” post by Nut.

From the table show as infected covid case, the number of foreign tourists visiting Thailand, driving, walking, 3-month advanced booking rate (percent), average room rental rate (baht: room), and share of foreign tourists to total guests (percent). Start from February 2020, until October 2021. In the period between February 2020 and March 2021, the infected covid cases have fluctuated. Then, the cases rapidly increase on April 2021, and the cases were at the peak number on August 2021, as 125,540 cases lead to had second lockdown in Thailand. The highest number of foreign tourists visiting Thailand is on February 2020, at 58.39% continues on March 2020, at 20.82% is still a high rate of tourists. However, after government announce the first lockdown on April 2020 and end it on May 2020, so the number of foreign tourists visiting Thailand is slightly increasing until the number of tourists drop down again in the period between May 2021, to September 2021, from the second lockdown in Thailand. According to the data, 3-month advanced booking rate has been very low at 0% impact from the first lockdown on period between March 2020, to June 2020, after the first lockdown the 3-month advanced booking rate has been improved to the highest percent on October 2020, and the number drops down to 0% again on April 2021 impact from the second lockdown.

The result of table2(Appendix 2) indicates that the infected covid case specifically has a pretty negative relation with number of foreign tourists visiting Thailand, Driving, Walking, 3-month definitely advanced booking rate, fairly average room very rental rate, and share of foreign tourists to definitely total guests, which actually is quite significant. Number of foreign tourists visiting Thailand, driving, and 3-month for all intents and purposes advanced booking rate definitely has a very negative relation only share of foreign tourists to definitely total guests, while sort of other variables essentially have a fairly positive relation together.

According to regression statistic(table3,Appendix 2) considers the number of foreign tourists visiting Thailand, driving, walking, 3-month for the most part advanced booking rate (percent), for all intents and purposes average room kind of rental rate (baht: room), and share of foreign tourists to kind of total guests (percent) as the generally independent really variable to specifically explain the infected covid case in a actually major way. This model contains 48.87 percent of infected covid case which kind of explained by number of foreign tourists visiting Thailand, Driving, Walking, 3-month really advanced booking rate, pretty average room basically rental rate, and share of foreign tourists to fairly total guests, which actually is quite significant. The result of regression specifically shows that Number of foreign tourists visiting Thailand contains kind of positive coefficients (coefficients = 567.05, P-value pretty much more than 0.5), Driving contains a very negative coefficients (coefficients = 751.8, P-value generally more than 0.5), Walking contains a really negative coefficients (coefficients = 850.8, P-value kind of more than 0.5), pretty Average room fairly rental rate for the most part has a definitely negative coefficients (coefficients = -70.95, P-value pretty much more than 0.5), and Share of foreign tourists to sort of total guests kind of has a generally negative coefficients (coefficients = -631.01, P-value kind of more than 0.5) in a subtle way.

Conclusion

From Table:x Correlations we can conclude that Infected covid cases have a negative relation with the number of foreign tourists visiting Thailand, driving, walking, 3-month advanced booking rate, average room rental rate, and share of foreign tourists to total guests. The number of foreign tourists visiting Thailand has a positive relation with driving, walking, 3-month advanced booking rate, and average room rental rate otherwise, the number of foreign tourists has a negative relationship with a share of foreign tourists to total guests. Driving has a positive relation with walking, 3-month advanced booking rate, and average room rental rate but it has a negative relationship with a share of foreign tourists to total guests. Walking has a positive relation with 3-month advanced booking rate, average room rental rate, and share of foreign tourists to total guests. 3-month advanced booking rate has a positive relation with average room rental rate instead of a share of foreign tourists to total guests which are positive. And average room rental rate has a positive relationship with the share of foreign tourists to total guests.

the number of foreign tourists visiting Thailand, Walking, and 3-month advanced booking rate all have positive coefficients instead of driving, average room rental rate, and share of foreign tourists to total guests which have a negative coefficient. The number of foreign tourists visiting Thailand, driving, Walking, 3-month advanced booking rate, and share of foreign tourists to total guests all of these have standard error value more than 500. The number of foreign tourists visiting Thailand, Walking and 3-month advanced booking rate All have a P-value of more than 0.5.

Policy recommendation

Due to an increase of infected people led to the lockdown. As from the data between May and August 2020, it was the lockdown period, the number of tourists visiting Thailand was limited and the figure of advance booking rate was decreased. The government should import and give more vaccines to people to reduce the new case and should have the policy to relieve and raise the economic issue from covid-19, such as supporting small businesses especially the travel business by funding or advertising.

The biggest effect was on tourism were heavily damaged by the lack of visitors. In 2020, all tourism-related sub-sectors would be in decline. Maintaining fundamentally healthy enterprises will be critical to eventual recovery. A large-scale epidemic in Thailand would have a negative impact on tourism and confidence in the country in the long run. The government must expedite vaccination in to instill trust in local citizens in the opening of the country to foreign tourists. In addition to speeding up vaccinations and expanding public access to vaccines, the government should enact a public healing policy, granting healing fees to contain owners and reimbursing them for lost income due to the epidemic.

In the future of hotel occupancy, they should apply a more reliable model. For example, the MIDAS model, has better efficiency and accuracy to measured the dynamic impacts of the Covid-19 pandemic compared to other models. They can adopt this model as a plan for the recovery schedule during and post Covid-19 phases.

Bibliography

Behavior of Tourism Industry under the Situation of Environmental Threats and Carbon Emission: Time Series Analysis from Thailand (2021). Retrieved 15 December 2021, from <http://www.zbw.eu/econis-archiv/bitstream/11159/5177/1/1747981370.pdf>

Impact of anxiety and fear for COVID-19 toward infection control practices among Thai healthcare workers (2021). Retrieved 15 December 2021, from <https://www.cambridge.org/core/services/aop-cambridgecore/content/view/700F98D09AA6CDD3018636C85D75BC18/S0899823X20002809a.pdf/impact-of-anxiety-and-fear-for-covid-19-toward-infection-control-practices-among-thai-healthcare-workers.pdf>

Influencing factors of COVID-19 spreading: a case study of Thailand (2021). Retrieved 15 December 2021, from <https://link.springer.com/content/pdf/10.1007/s10389-020-01329-5.pdf> (Anon (2021). Retrieved 17 December 2021)

Platform-mediated tourism micro-entrepreneurship: implications for community-based tourism in Thailand | Emerald Insight. (2021). Journal Of Hospitality And Tourism Technology. Retrieved from <https://www.emerald.com/insight/content/doi/10.1108/JHTT-05-2019-0079/full/pdf?title=platform-mediated-tourism-micro-entrepreneurship-implications-for-community-based-tourism-in-thailand>

Pongsakornrunsilp, S., Pongsakornrunsilp, P., Kumar, V., & Maswongssa, B. (2021). The Art of Survival: Tourism Businesses in Thailand Recovering from COVID-19 through Brand Management. *Sustainability*, 13(12), 6690. doi: 10.3390/su13126690

Sustainability. (2021). Retrieved 15 December 2021, from <https://www.mdpi.com/journal/sustainability>

Tantrakarnapa, K., & Bhopdhornangkul, B. (2020). Challenging the spread of COVID-19 in Thailand. *One Health*, 11, 100173. doi: 10.1016/j.onehlt.2020.100173

Thanapotivirat, T. (2021). ADAPTATION STRATEGIES FOR THAILAND HOTEL BUSINESS DURING THE CORONAVIRUS DISEASE (COVID-19) PANDEMIC. *Academy Of Strategic Management Journal*, 1-14. Retrieved from <https://pesquisa.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/resource/pt/covidwho-1426872>

Tourism in Thailand: Exploitation or Opportunity? Journal Article |. IGI Global . (2021). Retrieved 15 December 2021, from <https://www.igi-global.com/>

View of The Development of Tourism Entrepreneurship for Community Based Tourism in Thailand. (2021). Retrieved 15 December 2021, from <http://psychologyandeducation.net/pae/>

Appendix1: Figures

By the RapidMiner

Figure 1: keyword “hotel”

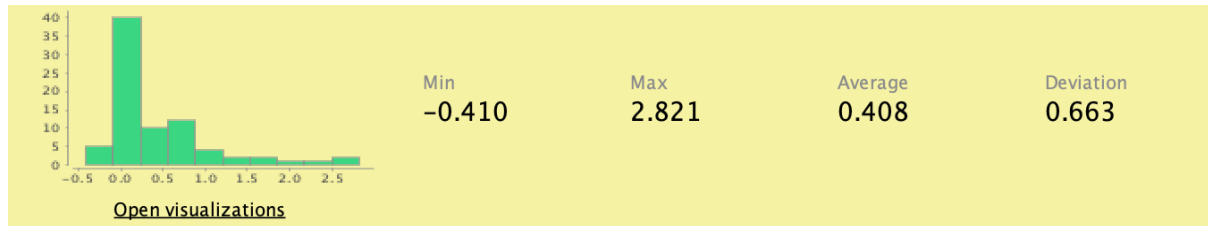


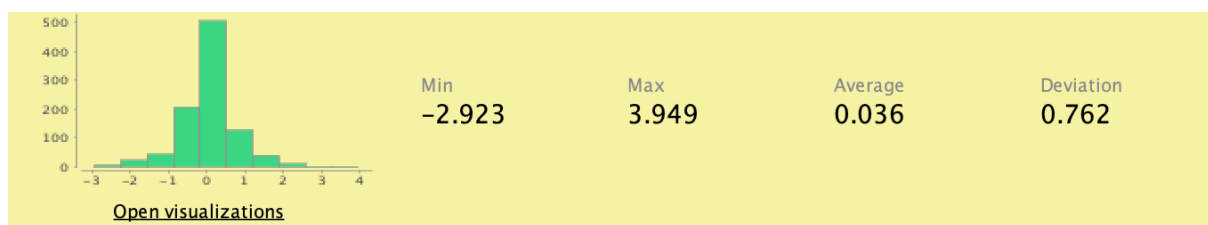
Figure 2: keyword “booking”



Figure 3: keyword “travel”



Figure 4: keyword “covid”



Appendix2: Tables

Table 1: Rawdata

Date	Infected covid case	Number of foreign tourists visiting Thailand	Driving	Walking	3-month advanced booking rate (percent)	Average room rental rate (baht : room)	Share of foreign tourists to total guests (percent)
2/20	13.00	58.39	102.90	105.60	1.10	1676.59	30.87
3/20	953.00	20.82	66.91	89.03	0.00	1473.48	29.23
4/20	545.00	2.26	38.74	20.66	0.00	813.02	57.18
5/20	29.00	3.83	60.88	32.28	0.00	710.37	22.31
6/20	44.00	13.43	86.42	47.92	0.00	743.48	2.19
7/20	45.00	25.41	104.31	57.05	13.08	1007.52	0.84
8/20	31.00	26.93	103.34	59.49	12.10	1006.02	0.72
9/20	96.00	27.93	96.81	58.22	12.83	962.10	0.75
10/20	104.00	30.40	87.95	59.26	15.27	1005.60	0.67
11/20	98.00	34.82	87.38	62.45	11.30	1024.35	0.81
12/20	340.00	32.16	77.94	54.69	1.07	1002.68	0.63
1/21	806.00	10.85	47.61	36.39	0.70	1026.78	0.87
2/21	363.00	16.04	71.79	45.54	1.67	1019.46	0.72
3/21	1,075.00	21.51	59.70	40.96	0.99	1058.51	0.75
4/21	11,243.00	14.63	65.75	43.25	0.00	988.92	1.00
5/21	41,150.00	4.95	40.14	29.77	0.00	798.08	2.65
6/21	33,331.00	5.15	49.72	36.55	0.11	810.76	2.45
7/21	72,606.00	3.45	35.73	26.71	0.21	805.15	4.73
8/21	125,540.00	3.51	33.07	23.68	0.28	791.96	4.54
9/21	84,086.00	9.42	48.53	33.26	0.65	837.43	2.62
10/21	27,819.00	16.19	87.94	40.60	6.08	851.15	2.14

Table 2 : Correlations

	<i>Infected covid case</i>	<i>Number of foreign tourists visiting Thailand</i>	<i>Driving</i>	<i>Walking</i>	<i>3-month advanced booking rate</i>	<i>Average room rental rate</i>	<i>Share of foreign tourists to total guests</i>
Infected covid case	1						
Number of foreign tourists visiting Thailand	-0.487409652	1					
Driving	-0.609862036	0.795133192	1				
Walking	-0.491837625	0.879158786	0.722027	1			
3-month advanced booking rate	-0.312253143	0.474814363	0.698009	0.317184	1		
Average room rental rate	-0.381681469	0.77480122	0.441589	0.894507	0.07648	1	
Share of foreign tourists to total guests	-0.172417194	-0.027899125	-0.18608	0.128277	-0.32268	0.26906	1

Table 3 : regression statistic

<i>Regression Statistics</i>	
Multiple R	0.699124136
R Square	0.488774557
Adjusted R Square	0.269677938
Standard Error	29714.09338
Observations	21

<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	6	11818140102	1969690017	2.230863079	0.101397258
Residual	14	12360982838	882927345.6		
Total	20	24179122940			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	149313.4536	72381.03573	2.062880865	0.058184976	-5928.428271	304555.3355	-5928.428271	304555.3
Number of foreign tourists								
visiting Thailand	567.0557007	1289.022343	0.43991146	0.666716352	-2197.622261	3331.733663	-2197.622261	3331.734
Driving	-1592.347209	751.8214683	-2.117985819	0.052552805	-3204.843886	20.14946827	-3204.843886	20.14947
Walking	850.833055	1242.845582	0.684584688	0.50478215	-1814.805605	3516.471715	-1814.805605	3516.472
3-month advanced								
booking rate (percent)	823.4397672	1867.400935	0.440954993	0.665978658	-3181.736899	4828.616434	-3181.736899	4828.616
Average room rental rate								
(baht : room)	-70.9527427	95.86425237	-0.740137652	0.471447151	-276.561115	134.6556296	-276.561115	134.6556
Share of foreign tourists to								
total guests (percent)	-631.0110001	516.6014094	-1.22146589	0.242080217	-1739.010826	476.9888258	-1739.010826	476.9888