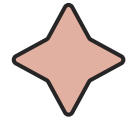


Group G



EE406 Contemporary Economic Issues

Tourism Index (Hotel)

Nichanun Subsomboon

6104640716

Puris Benjawanish

6104641003

Phatakan Kanchanapradist

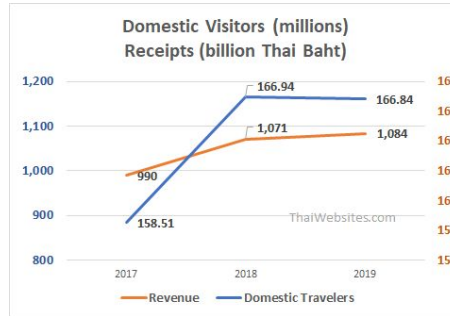
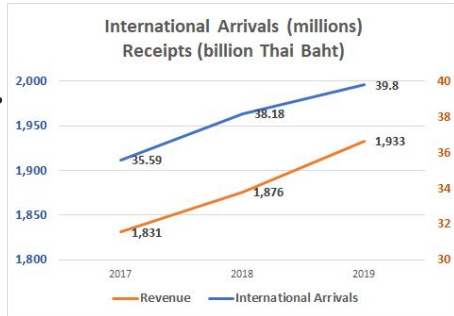
6104641318

Chanoknan Sriwichit

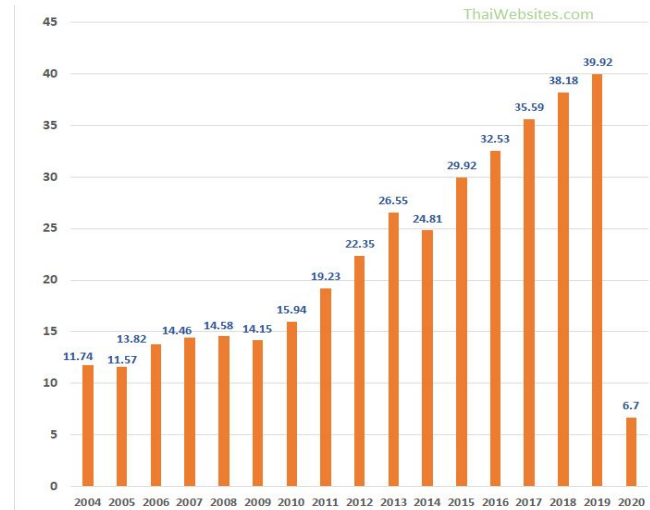
6104641441

INTRODUCTION & Project's Background

Tourism is the main revenue of Thailand and it has increasing dramatically every year (Before the COVID-19 situation).



Yearly Tourist Arrivals 2004-2020, ThaiWebsites.com



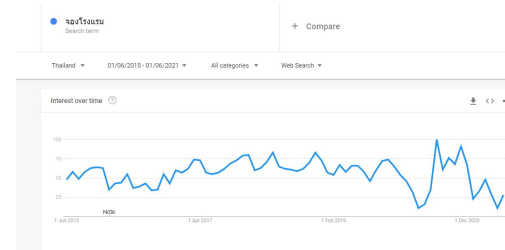
Source: ThaiWebsites.com

Sources of data

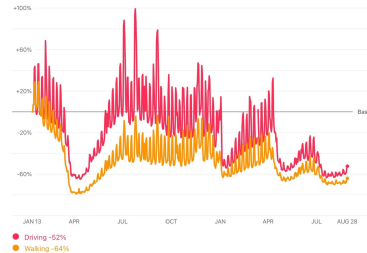
01 Bank of Thailand

	2563	2564	2565	2566	2567	2568
1. ดัชนีราคาผู้บริโภค (รวม)	6,702.40	29,916.25	26,178.19	25,991.98	22,529.39	29,823.18
2. ดัชนีราคาผู้บริโภค (ยกเว้น)						
3. ค่าเช่าบ้าน	29.52	71.38	71.38	75.58	66.99	65.10
4. อาหาร (รวม)	30.72	75.38	75.38	73.50	72.13	70.40
5. เสื้อผ้า	21.61	71.22	71.25	69.62	66.24	66.70
6. พลังงาน	37.81	61.74	62.54	68.22	56.99	54.20
7. การขนส่งสาธารณะ	34.25	61.71	61.38	58.34	55.68	53.80
8. ดัชนีราคาผู้บริโภค (3 เดือนก่อนหน้า)						
9. ค่าเช่าบ้าน	5.60	30.10	31.32	29.49	27.41	11.35
10. อาหาร (รวม)	6.41	34.89	35.81	34.38	32.37	18.93
11. เสื้อผ้า	5.61	29.22	29.82	29.38	28.39	14.81
12. พลังงาน	6.49	30.80	32.36	30.03	28.41	11.50
13. การขนส่งสาธารณะ	3.32	12.11	14.13	9.52	8.48	2.42
14. ดัชนีราคาผู้บริโภค (รวม) (ปี - ปี)						
15. ดัชนีราคาผู้บริโภค	1,121.00	1,711.18	1,769.72	1,623.01	1,459.84	1,205.12
16. อาหาร (รวม)	1,154.02	1,686.99	1,673.85	1,588.07	1,458.32	1,340.68
17. เสื้อผ้า	1,107.83	2,301.15	2,386.19	2,285.78	2,138.65	1,698.90
18. พลังงาน	689.10	1,103.34	1,308.91	1,164.70	1,047.74	1,012.15

02 Google trend



03 Apple mobility index



Source: https://www.bot.or.th/App/BTWS_STAT/statistics/ReportPage.aspx?reportID=875&language=th
<https://trends.google.co.th/trends/explore?date=2015-06-01%202021-06-01&geo=TH&q=%E0%B8%88%E0%B8%AD%E0%B8%87%E0%B9%82%E0%B8%A3%E0%B8%87%E0%B9%81%E0%B8%A3%E0%B8%A1>

Briefs of analytical methodologies

1 Select the conventional economic indicators

Our group use the occupation for the conventional economic indicators

2 Find the keyword search statistics on Google Trends

Search the keywords that is related to the conventional economic indicators, for example, จังหวัดน่าเที่ยว, เที่ยวไทย, and จอที่ปักถูก

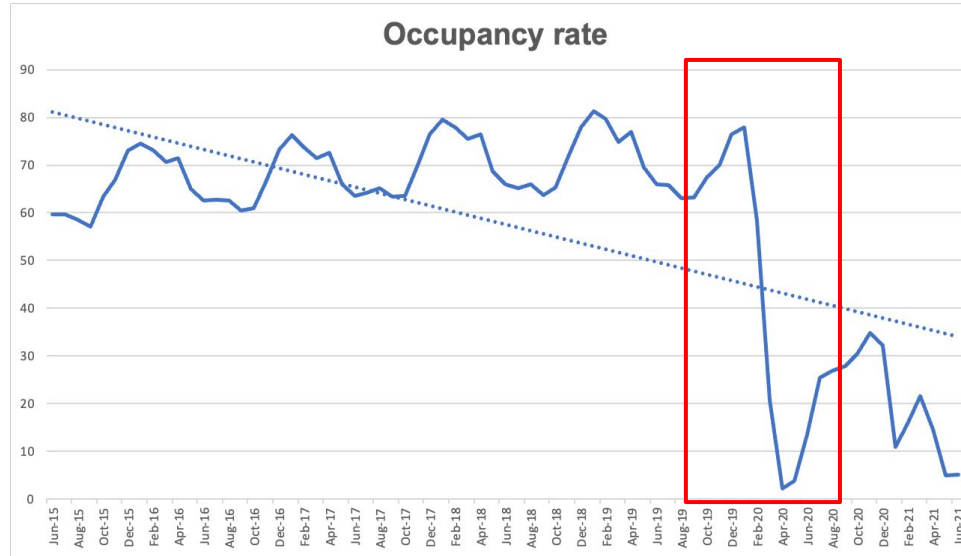
3 Check other Alternative economic indicators

Search for Retail and Recreation in Google Mobility Index and Apple Mobility Index. After seeing correlation, our group choose to use only Apple Mobility Index and change data from daily to monthly

4 Suggest the applications of these results

Our group use auto-regressive and regression to check the result to find the correlation and suggest how government can solve the problem.

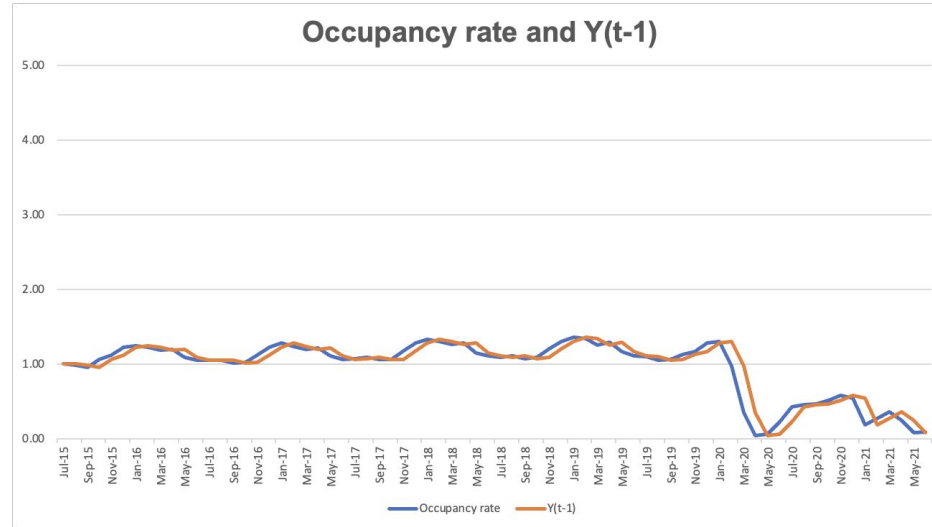
Historical trends of conventional indicators



Observations

- Before the year 2020, the occupancy rate was in the up trend.
- The highest occupancy rate is mostly in January and December of each year.
- There is a significant drop in occupancy rate and average room rental rate in 2020 due to Lockdown policy against COVID-19 pandemic in Thailand.

Historical trends of conventional indicators



SUMMARY OUTPUT

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.00194719	0.04199197	0.04637044	0.96314704
Y(t-1)	0.98501324	0.04035562	24.4083288	5.7999E-36
R Square = 0.894858034		Adjusted R Square = 0.893356006236929		

All alternative indicators

Keywords from Google trend

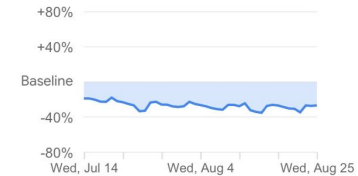
- ❑ จองโรงแรม / โรงแรม หรุ / โรงแรม วิวสวย
- ❑ ที่พักถูก
- ❑ ที่เที่ยว
- ❑ **ตัวเครื่องบินราคาถูก**
- ❑ อากาศ เชียงใหม่/ภูเก็ต/พัทยา/เขาใหญ่
- ❑ **agoda, booking.com, expedia, traveloka**
- ❑ รีวิว เชียงใหม่/ภูเก็ต/พัทยา/เขาใหญ่
- ❑ โรงแรม วิวสวย / คาเฟ่ วิวสวย
- ❑ ร้านอาหาร อร่อย/ ร้านอาหาร ถูก
- ❑ เที่ยวในประเทศ
- ❑ จังหวัด น่าเที่ยว
- ❑ เที่ยวไทย

Google Mobility index

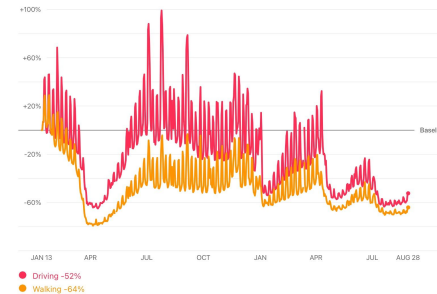
Retail & recreation

-27%

compared to baseline

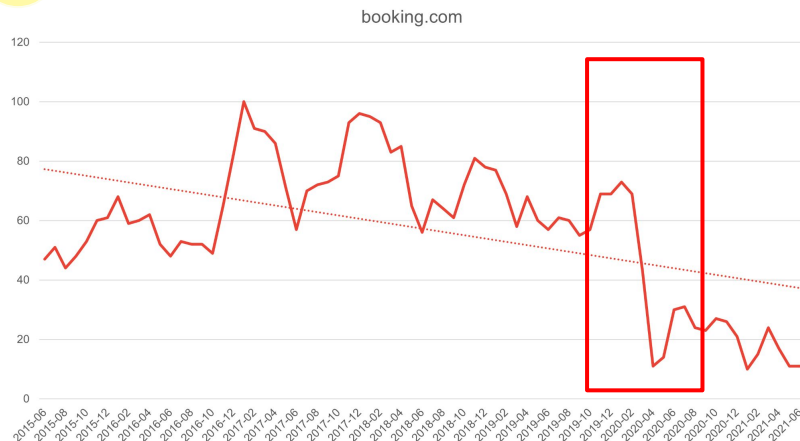


Apple Mobility index

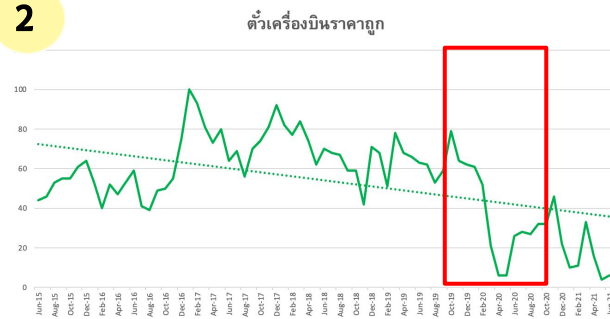


Historical trends of conventional indicator

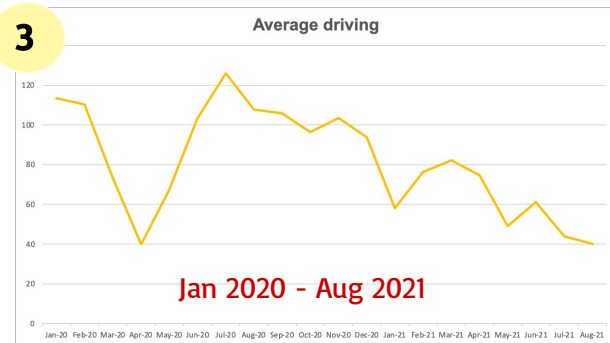
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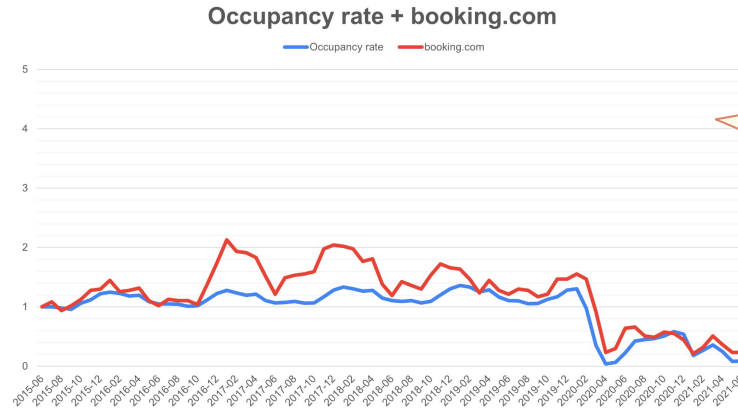
2



3



Relationships between conventional and alternative indicators



conventional indicators
: Occupancy rate
alternative indicators
: booking.com

Key finding:

High correlation between Occupancy rate and booking.com

SUMMARY OUTPUT
start = 2015-06

End = 2021-06

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.146559711	0.052523573	2.7903606	0.006756284
booking.com	0.671409954	0.039952459	16.805222	1.89465E-26
R Square 0.799103323342125 , Adjusted R Square 0.796273793				

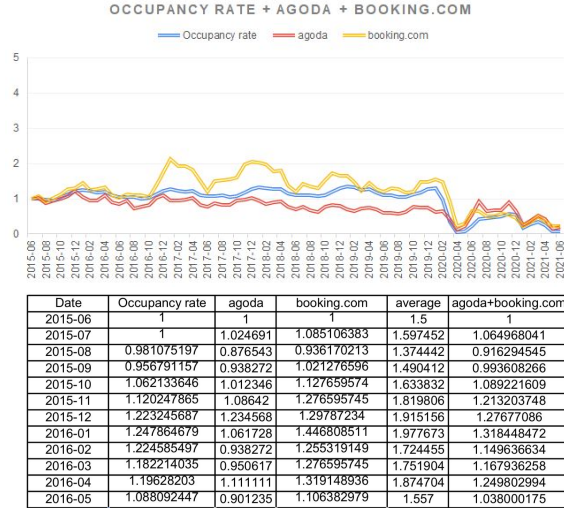
	Coefficients	Standard Error	t Stat	P-value
Intercept	-0.013625063	0.03639608	-0.374355	0.709288052
Y(t-1)	0.697719502	0.067328453	10.362922	1.05143E-15
booking.com	0.242507752	0.048627522	4.9870473	4.38307E-06
R Square 0.922714966247449 , Adjusted R Square 0.92047482				

simple regression analysis

autoregressive model

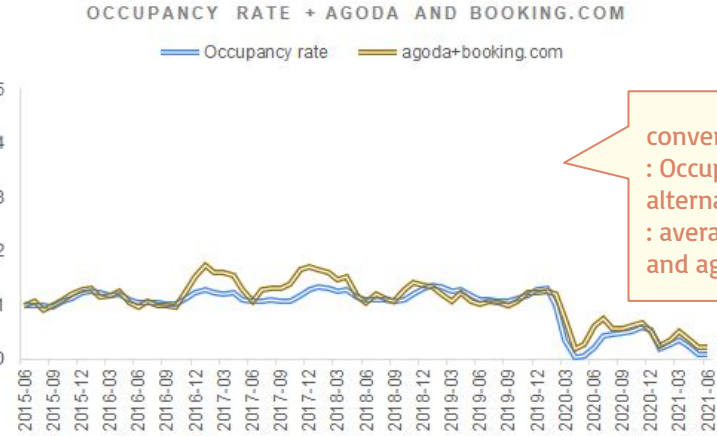
Relationships between conventional and alternative indicators

Adding agoda into model



Key finding:

High correlation between Occupancy rate and average of booking.com and agoda



conventional indicators
: Occupancy rate
alternative indicators
: average of booking.com
and agoda

SUMMARY OUTPUT

start=2015-06

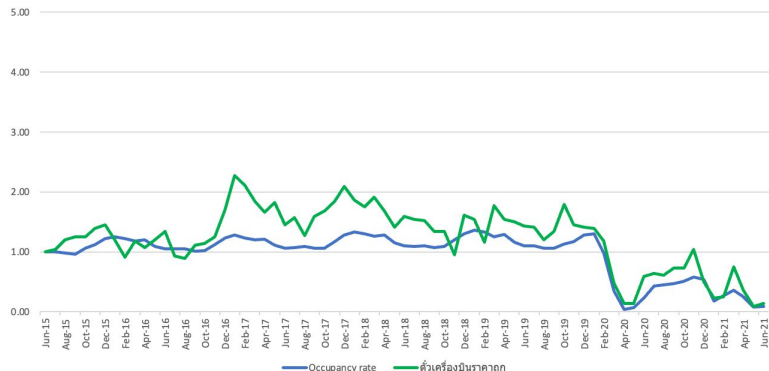
End=2021-06

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.024206021	0.053337856	0.453824	0.651339
average of booking.com and agoda	0.880444469	0.046990593	18.73661	3.41E-29
R Square 0.83177710126642 ,Adjusted R Square 0.829408382				

	Coefficients	Standard Error	t Stat	P-value
Intercept	-0.061663791	0.034462274	-1.789313	0.077953
Y(t-1)	0.640857564	0.060998639	10.5061	5.86E-16
average of booking.com and agoda	0.373969563	0.056561435	6.611741	6.67E-09
R Square 0.935636003260636 ,Adjusted R Square 0.93377038				

Relationships between conventional and alternative indicators

Occupancy rate and ตัวเครื่องบินราคาถูก



Conventional data: Occupancy rate, Alternative data: ตัวเครื่องบินราคาถูก

Key finding:

High correlation between Occupancy rate and ตัวเครื่องบินราคาถูก

Simple Regression model

SUMMARY OUTPUT

Start 2015-Jun

End 2021-Jun

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.18176922	0.05696964	3.19063347	0.00211456
ตัวเครื่องบินราคาถูก	0.63636111	0.04281668	14.8624569	1.7285E-23

R Square = 0.756759870253723

Adjusted R Square = 0.753333952933353

Autoregressive model

SUMMARY OUTPUT

Start 2015-Jun

End 2021-Jun

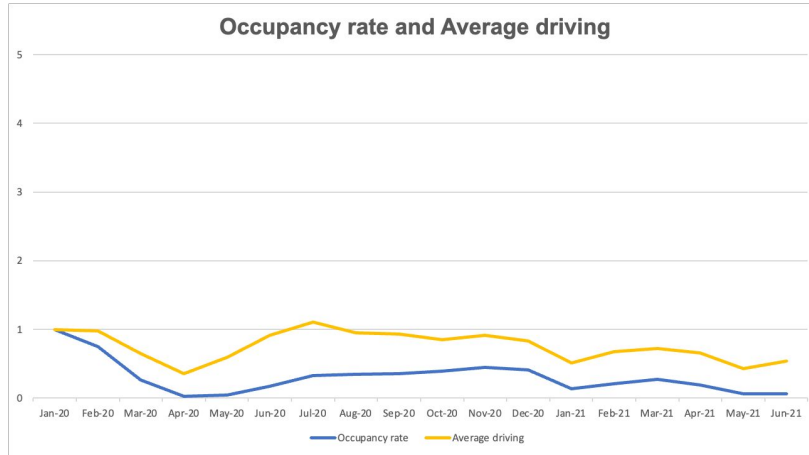
	Coefficients	Standard Error	t Stat	P-value
Intercept	-0.0196072	0.03622602	-0.5412462	0.59008118
Y(t-1)	0.72772215	0.05969522	12.1906264	7.0997E-19
ตัวเครื่องบินราคาถูก	0.22104683	0.0420113	5.26160466	1.5271E-06

R Square = 0.923925105069676

Adjusted R Square = 0.921720035651406

Relationships between conventional and alternative indicators

Apple Mobility Index



Conventional data: Occupancy rate, Alternative data: Average driving

Key finding:

Correlation between Occupancy rate and Average driving is lower than 60%.

Simple Regression model

SUMMARY OUTPUT

Start 2020-01 End 2021-06

	Coefficients	Standard Error	t Stat	P-value
Intercept	-0.3207356	0.15707495	-2.0419268	0.05800253
Average driving	0.82770777	0.20032765	4.13176996	0.00078266

R Square = 0.516200086

Adjusted R Square = 0.485962591058084

Autoregressive model

SUMMARY OUTPUT

Start 2020-01 End 2021-06

	Coefficients	Standard Error	t Stat	P-value
Intercept	-0.2693119	0.05529381	-4.8705615	0.00024755
Y(t-1)	0.43537167	0.06291061	6.92048049	7.0888E-06
Average driving	0.5320097	0.07336003	7.25203818	4.2105E-06

R Square = 0.903970128468952

Adjusted R Square = 0.890251575



Summary and Policy recommendations

Summary

- Some of keywords that we had chosen from google trends can be use as a prediction of occupancy rate that is one of the tourism index.
 - Apple Mobility index can be partially explain occupancy rate. However, there is too small number of data.
 - For the current situation, due to the Covid-19 pandemic, occupancy rate in Thailand has decreased significantly.
- 

Policy recommendations

- The government should provide more subsidy to citizens.
 - Government should makes a policy that support the import of efficient Covid-19 vaccines.
 - Allocated the vaccines to every provinces to encourage people to travel more and increase the number of tourists.
- 

Reference

<https://www.thaiwebsites.com/tourism.asp>

<https://www.google.com/covid19/mobility/>

<https://trends.google.co.th/trends/?geo=TH>

<https://covid19.apple.com/mobility>

https://www.bot.or.th/App/BTWS_STAT/statistics/ReportPage.aspx?reportID=875&language=th

https://krungthai.com/Download/economyresources/EconomyResourcesDownload_579Research_Note_20_07_63.pdf

APPENDIX

Thank you

Table1

Year	Average of Occupancy rate
2015	62.6400
2016	66.9900
2017	68.8683
2018	71.1600
2019	71.1742
2020	29.5292
2021	12.1883
Grand Total	57.5927

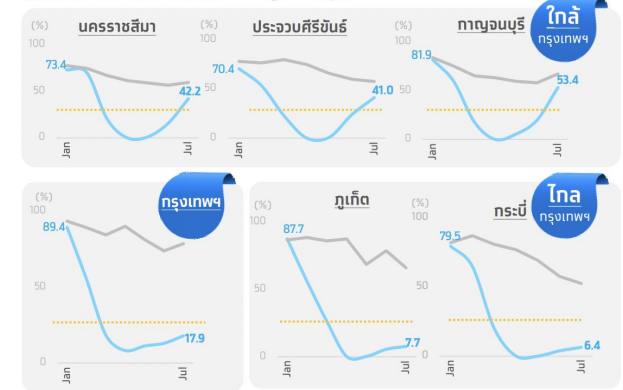
Table 1 shows average of occupancy rate in 2015-2021.

Retrieved from:
https://www.bot.or.th/App/BTWS_STAT/statistics/ReportPage.aspx?reportID=875&language=th

รูปที่ 5 อัตราการเข้าพักของจังหวัดอยุธยาในช่วงเดือน ม.ค.-ก.ค. 2019 เทียบ 2020

จังหวัดที่อยู่ใกล้กรุงเทพฯ และมีนักท่องเที่ยวเป็นหลัก ค่า OR พื้นต่ำบ้างแล้ว

● ค่าเฉลี่ย OR ทั้งประเทศของเดือน ก.ค. 2020 ● 2019 ● 2020



Comparing Occupancy rate from January-July 2019 and 2021

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