

Impact analysis of COVID19 using alternative indicators

Team member

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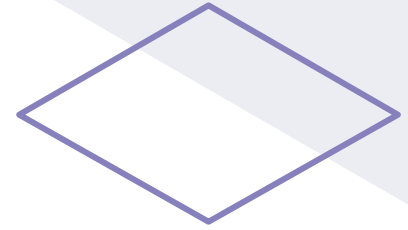
Prima Donmuang 6104640401

Pattera Rattananatevilai 6104640211

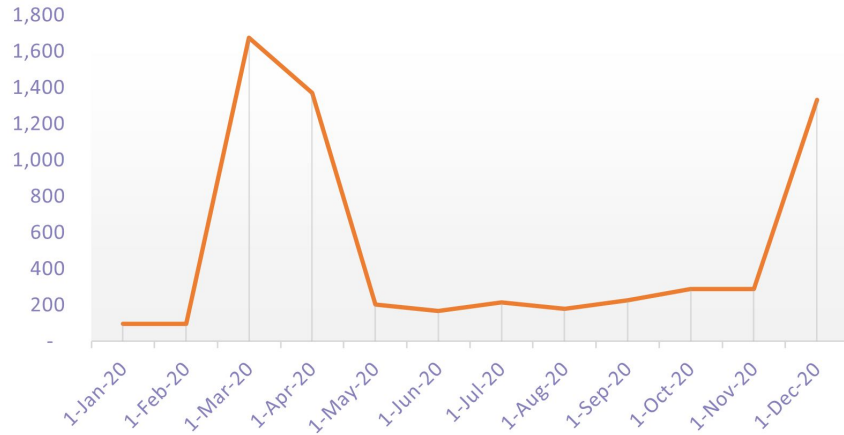
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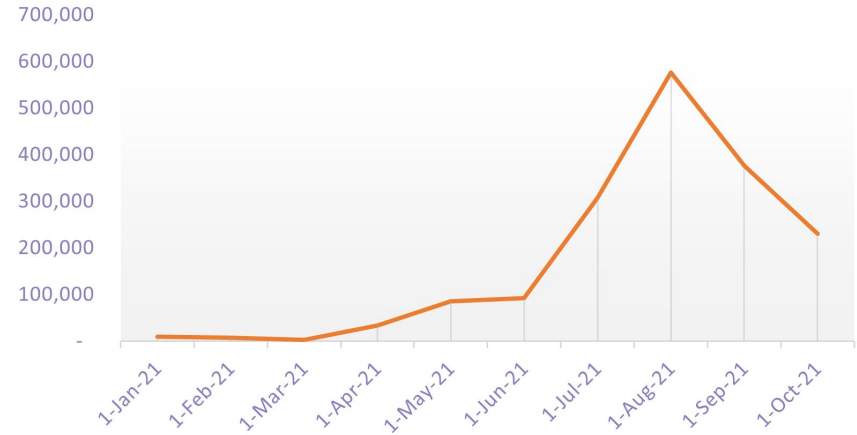
COVID19 Infected Cases



Infected COVID19 Cases in Thailand 2020



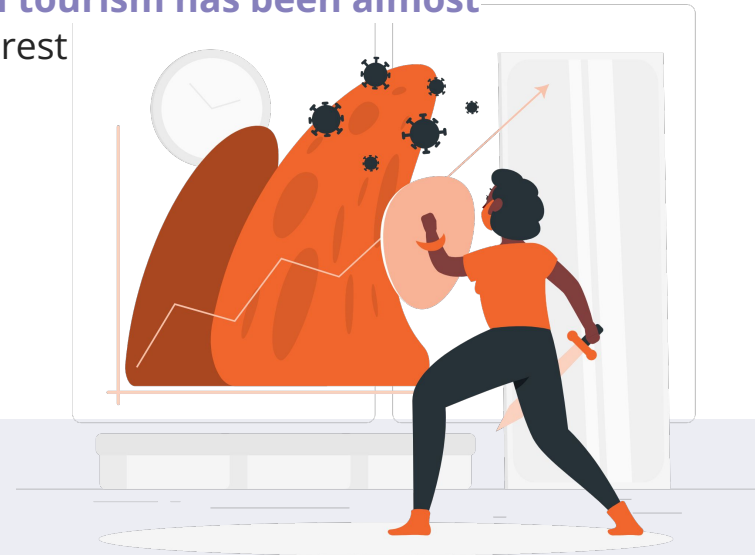
Infected COVID19 Cases in Thailand 2021



Thailand's first wave of COVID-19 in **March 2020** was triggered from boxing events and nightclubs in Bangkok, which spread to 68 provinces and spiked up the number of infected case to almost 2000 cases.

Impacts of COVID19 on Thailand

- Thailand faces massive shocks from the pandemic. **Despite** marked success in controlling the outbreak and **keeping rates of infection and mortality low**.
- Thailand's economy is contracting and **international tourism has been almost entirely stopped**. The pandemic is affecting the poorest and most vulnerable the hardest.
- **Informal workers**, which account for more than **half of the labor force**, are particularly hard hit by the crisis.



Sources of data



Nighttime Light Data
(from Google Earth Engine)



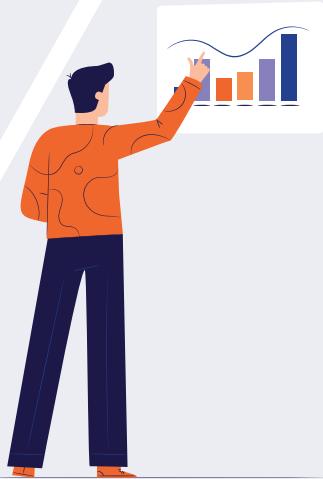
Apple Mobility Index



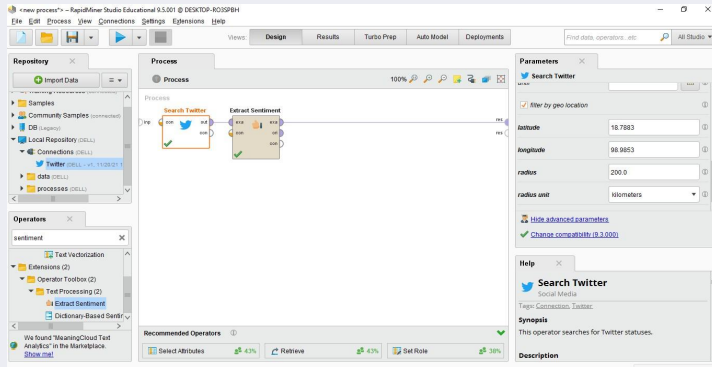
Average Sentiment Index
(Obtained from twitter)



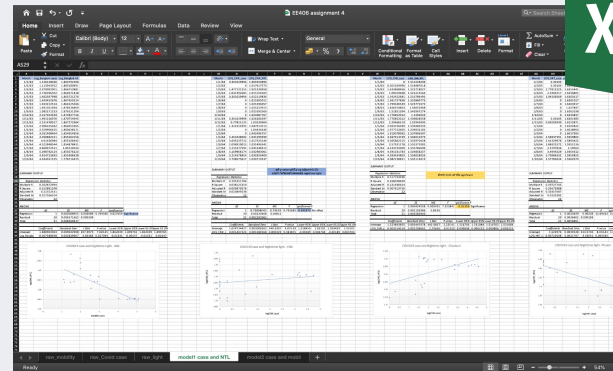
Number of infected cases
(Obtained from Ministry of Public Health)



Methodologies



Rapidminer

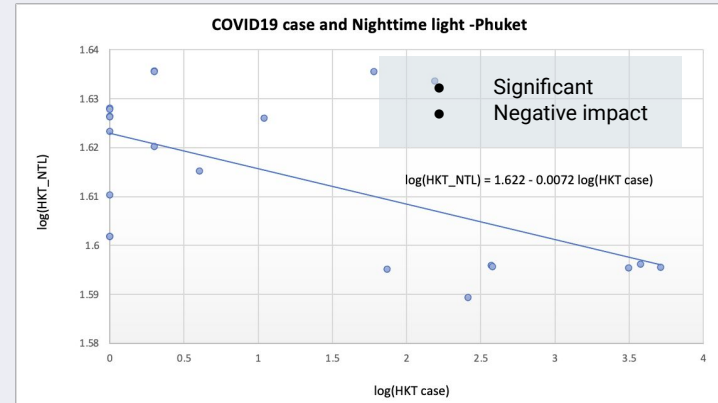
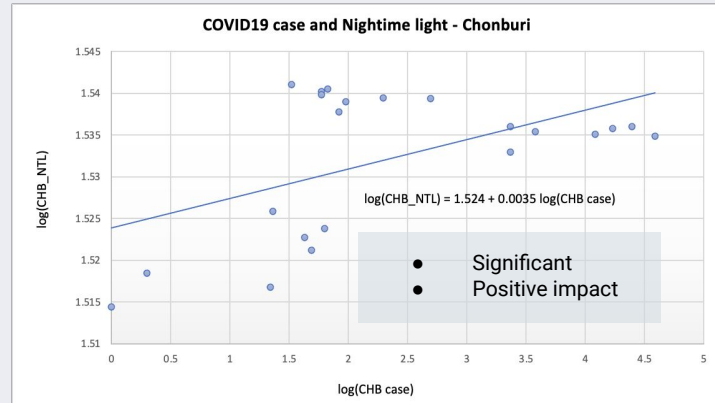
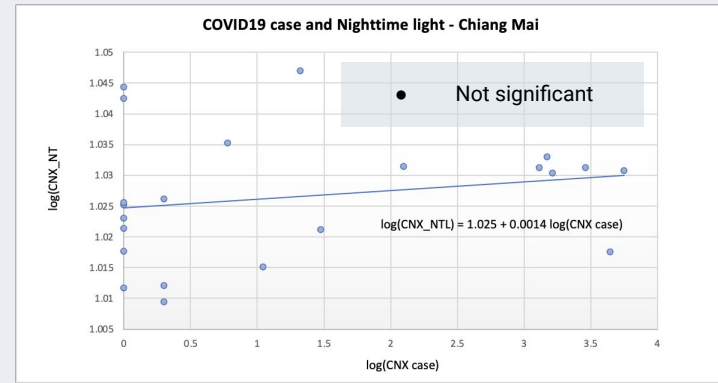
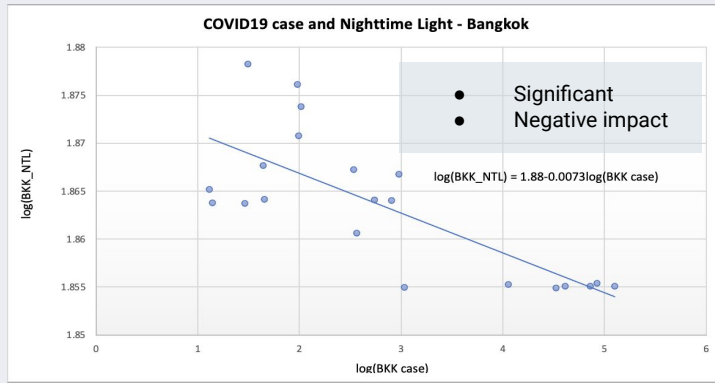


Excel

- Compute the provincial sentiment index by using Rapidminer
- Conduct the regression/create graph for alternatives indicators analysis by using Excel

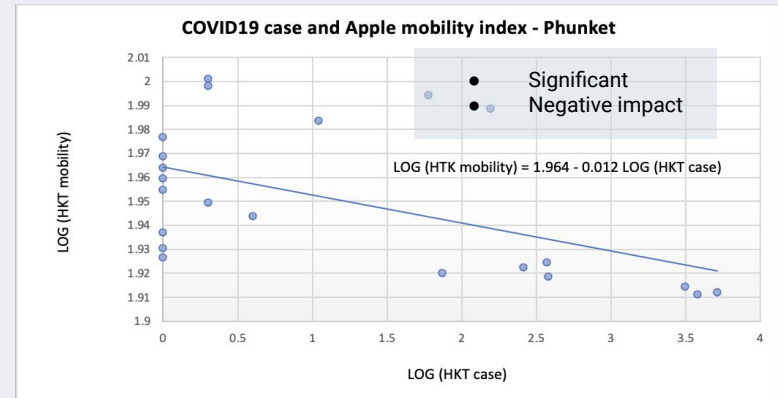
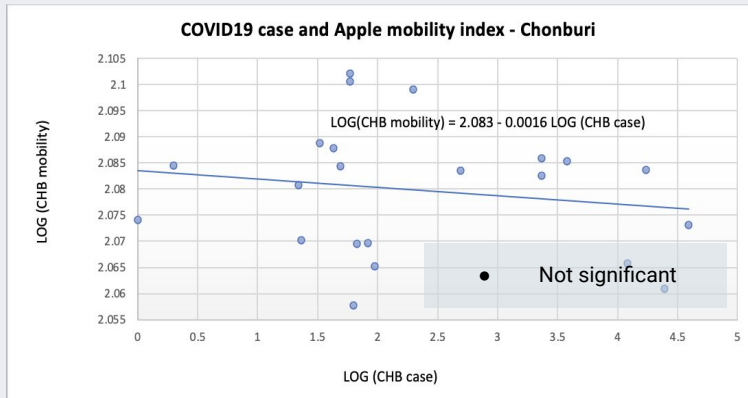
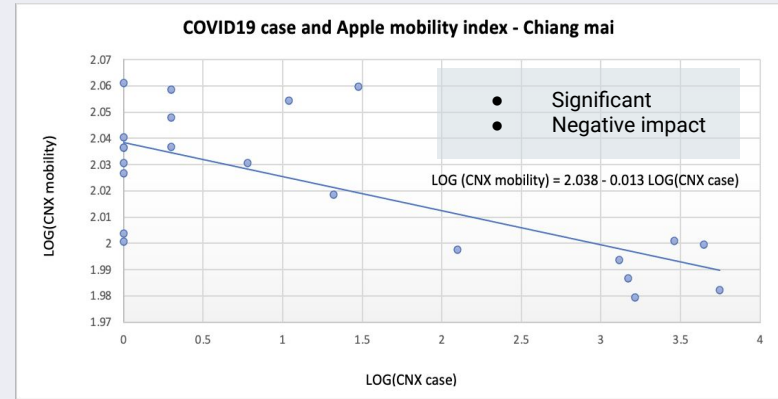
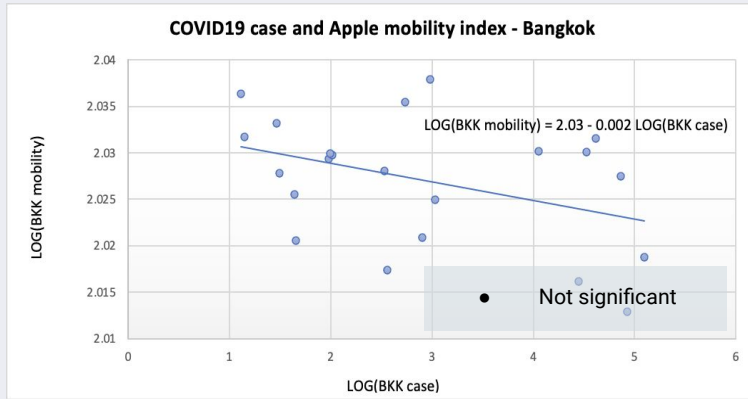
TASK 1: COVID19 and Nighttime light

Regression result between the number of COVID19 infected cases and the nighttime-light index



TASK 2 : COVID19 and Apple Mobility Index

Regression result between the number of COVID19 infected cases and Apple Mobility Index

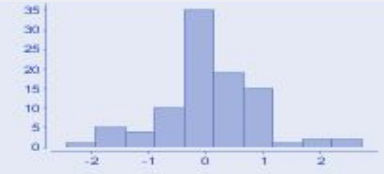





TASK 3 : COVID19 and Sentiment Index

Sentimental analysis outcome

Score	Created At	Username	Language	Message
-2.4359	Wed Nov 17 20:21:10 ICT 2021	Erich Parpart	EN	“The public prosecutor decided to prosecute Papao for public indecenty and violation of the emergency decree against Covid for taking off her cloth in protest against police brutality ” https://t.co/b7zFdkv6IO
2.717949	Sat Nov 13 21:44:12 ICT 2021	Bambule	EN	“The Four Seasons in Bangkok is really on another level and probably the best hotel I’ve experienced so far. Great deal these days incl. Hotel credit... I won’t be able to come back after COVID. 😊” https://t.co/0utn3ngtKR

Result between the number of COVID19 infected cases and the Sentiment index

Province	# of related tweets	Average Sentiment Index	Distribution chart
Bangkok	94	0.078	 <p>A histogram showing the distribution of sentiment scores for Bangkok. The x-axis ranges from -2 to 2, and the y-axis ranges from 0 to 35. The distribution is roughly bell-shaped and centered around 0, with a peak frequency of approximately 35 for a sentiment score near 0.</p>
Chon Buri	96	0.066	 <p>A histogram showing the distribution of sentiment scores for Chon Buri. The x-axis ranges from -2 to 2, and the y-axis ranges from 0 to 35. The distribution is roughly bell-shaped and centered around 0, with a peak frequency of approximately 35 for a sentiment score near 0.</p>
Phuket	4	0.122	 <p>A histogram showing the distribution of sentiment scores for Phuket. The x-axis ranges from -1.0 to 1.5, and the y-axis ranges from 0.00 to 2.00. The distribution is sparse, with three distinct bars: one at -1.0 (frequency ~1.0), one at 0.0 (frequency ~2.0), and one at 1.0 (frequency ~1.0).</p>
Chiang Mai	7	0.37	 <p>A histogram showing the distribution of sentiment scores for Chiang Mai. The x-axis ranges from 0.0 to 1.0, and the y-axis ranges from 0.0 to 4.0. The distribution is sparse, with three distinct bars: one at 0.0 (frequency ~4.0), one at 0.5 (frequency ~1.0), and one at 1.0 (frequency ~2.0).</p>

TASK 4 : Result Discussion #1

With the lessened restrictions of government's COVID19 containment policies, are the sentiment indices currently reflecting the positive attitude and recovering situation in those provinces?

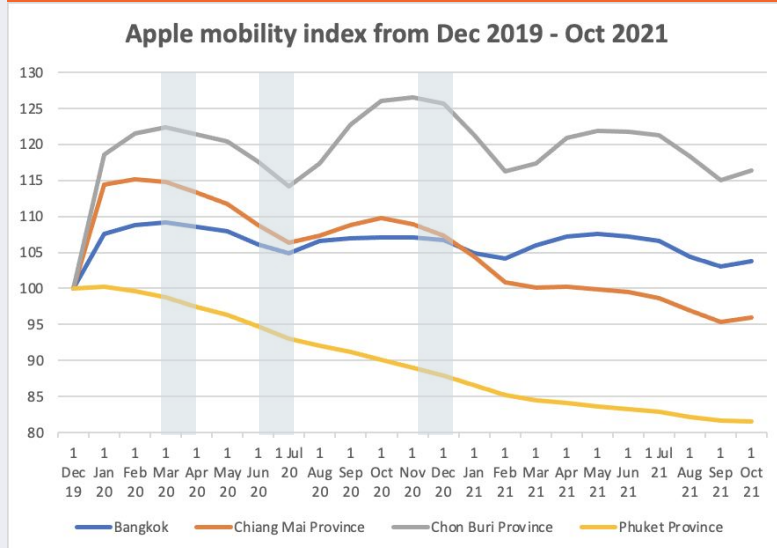
Score	Created At	Username	Language	Message
0.6923	Sat Nov 20 10:29:19 ICT 2021	MillionDollarHomes	EN	Happy Loy Kratong celebration Bangkok! First mass gathering allowed since Covid 19 #loykratong #loykratongfestival #loykratong2021 https://t.co/f1kmiovCsy
0	Fri Nov 12 12:32:05 ICT 2021	Gabrielle Burke	EN	Students at my school in Bangkok, Thailand haven't been to in person class since COVID has started. On Monday that all changes, I can't wait to meet them! https://t.co/6G8J96eUZd
1.512821	Fri Nov 19 01:05:46 ICT 2021	Tanya_Kh	EN	Birthday girl 🥰🥳🎉🎊🎁 @zeemai18_32 wish you all the happiness and thank you for fun night with you guys 😊 finally no more paranoid of Covid 💪👍 @ Barfunk https://t.co/HVi2W0JmJE

Sentiment indices can roughly reflect people both **positive and negative attitudes** after change by government and **current state and people activities** in recovering situation in **specific area**. However, if there aren't enough tweets, the results can be **biased**.

TASK 4 : Result Discussion #2

Are Nighttime Light Index and Apple Mobility Index correlated with the COVID19 cases?
Can both indicators represent the economic impact of COVID19?

Apple mobility index



- It can be observe from the graph that the **movement of Thai people from the Apple Mobility Index (Driving type) in line with the first wave of Covid in March 2020** then people mobility started to decline and drop sharply in July 2020
- **But once the lockdown was released everyone started to travel again** until the new wave of outbreaks the movement began to fall down again **but not as sharply as Phase 1**

Policy Recommendation



CONCLUSION

Phuket is the most affected province according to the indicators

Add keywords for more accuracy

Only **"COVID"** keyword cannot estimate the situation and effects that much.

Boosting Domestic tourism

Government and related organizations should use the Apple mobility index for **boosting the domestic tourism** starting from the most affected provinces.

Government satisfaction assessment

Government could use Rapidminer index **instead of satisfaction assessment towards** their services such as Phuket sandbox, Vaccination services, etc.



Thank you