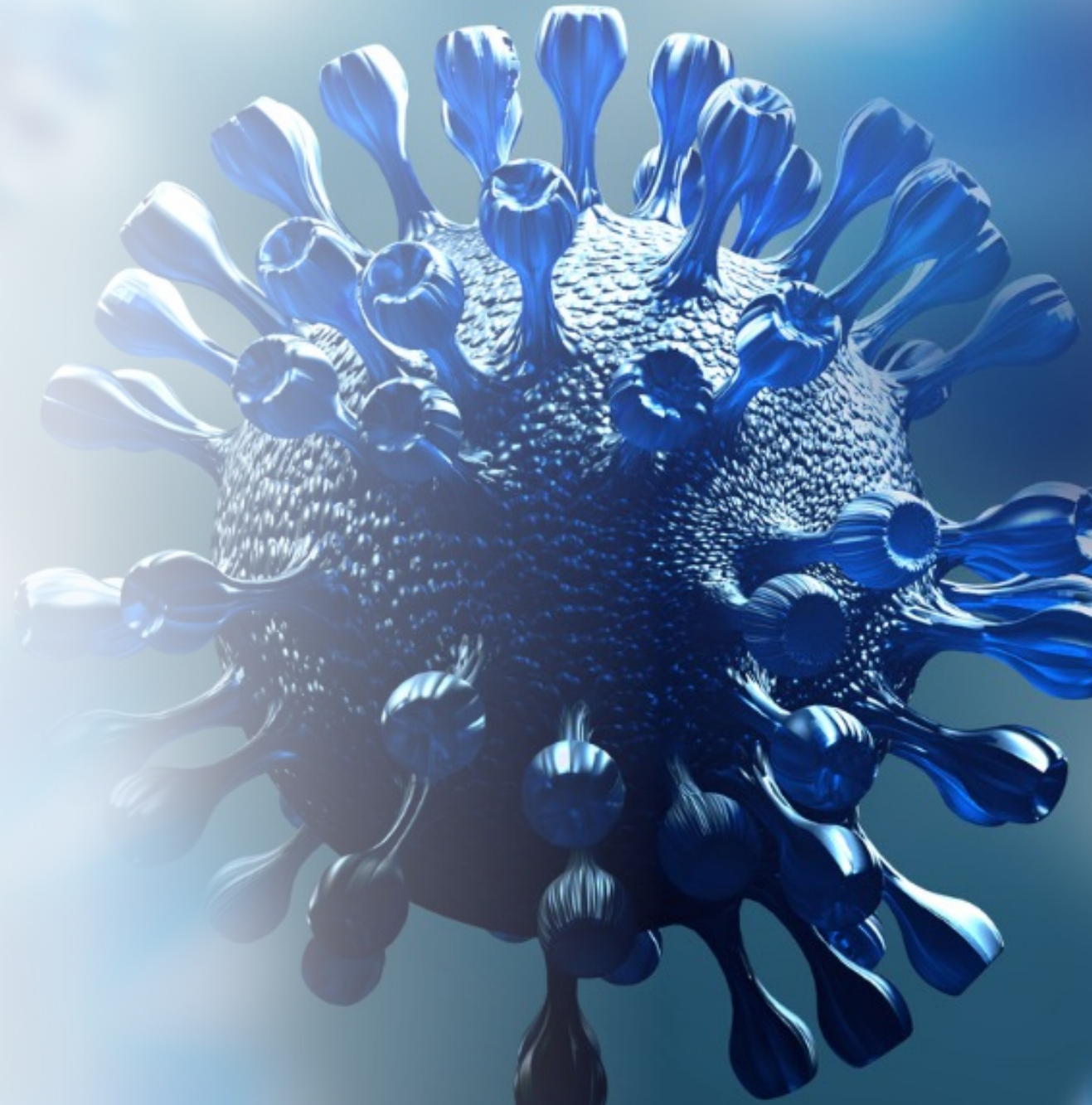


Impact Analysis of COVID -19 Using Alternative Indicators

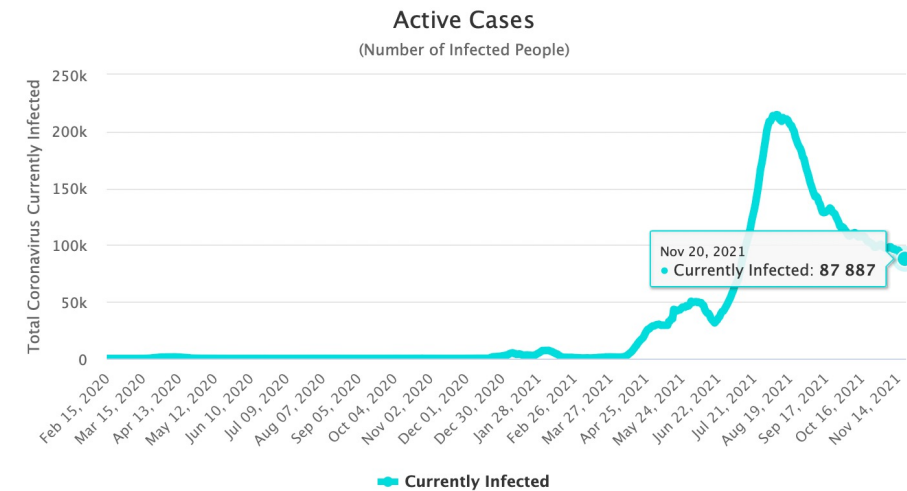
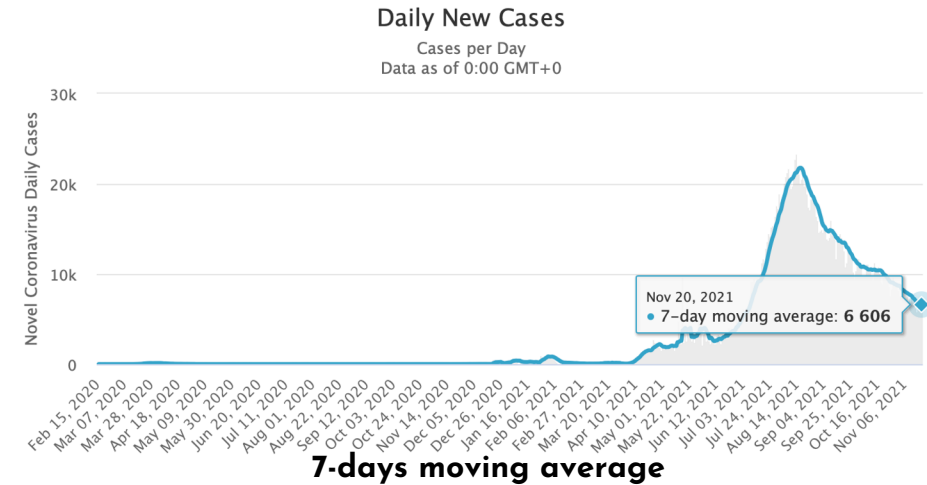


Introduction

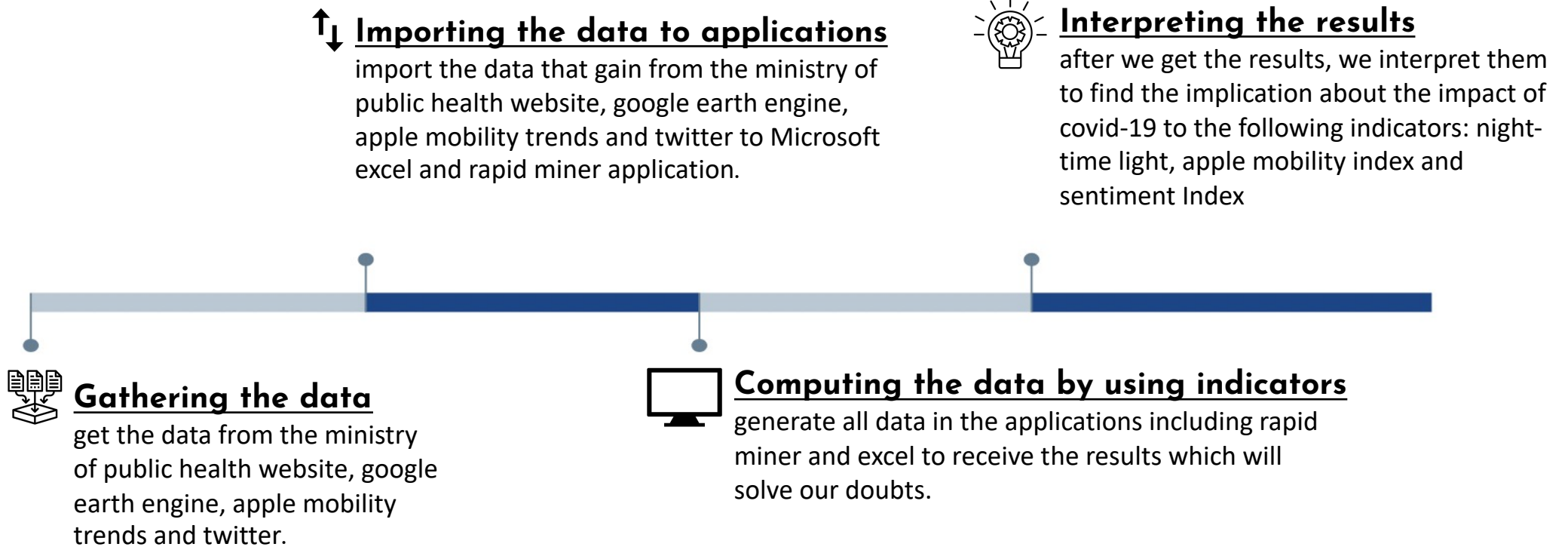
4 Provinces that we considered

		Daily	Accumulation
1	Bangkok	768	▼ 415,010
3	Chonburi	178	▼ 105,828
21	Chiang Mai	344	▲ 24,070
36	Phuket	63	▼ 15,958

Source ministry of public health



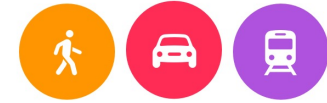
Methodologies and data



Source of Data

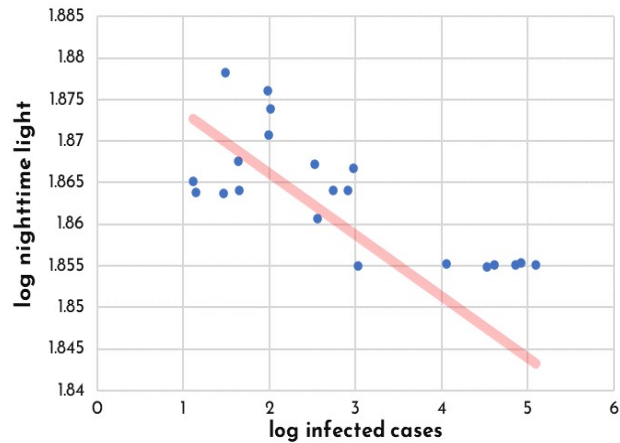


Apple Maps
Mobility Trends



Covid-19 cases & Nighttime light

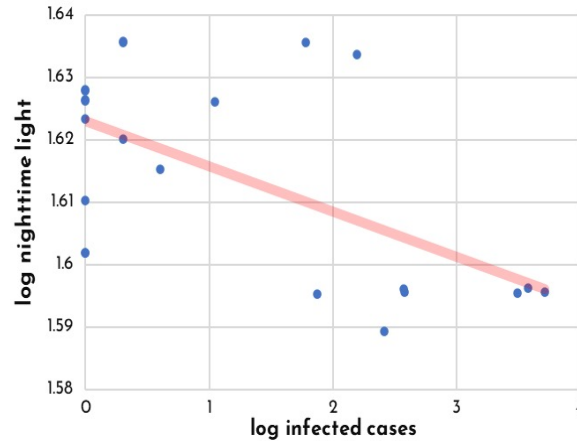
Bangkok



$$y = -0.0074x + 1.8809$$
$$R^2 = 0.2529$$

Increase infected case by 1% will
decrease nighttime light by 0.0074%

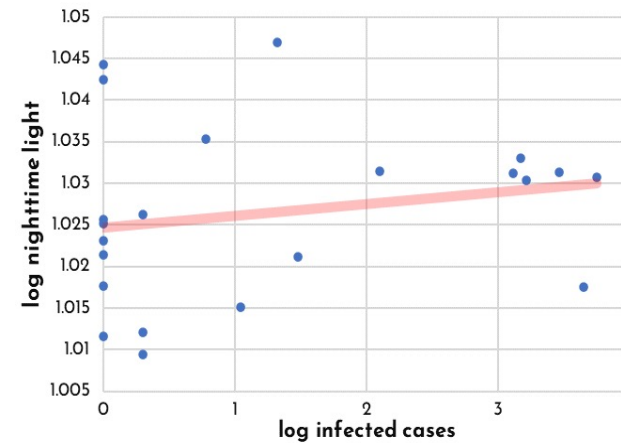
Phuket



$$y = -0.0073x + 1.623$$
$$R^2 = 0.3567$$

Increase infected case by 1% will
decrease nighttime light by 0.0073%

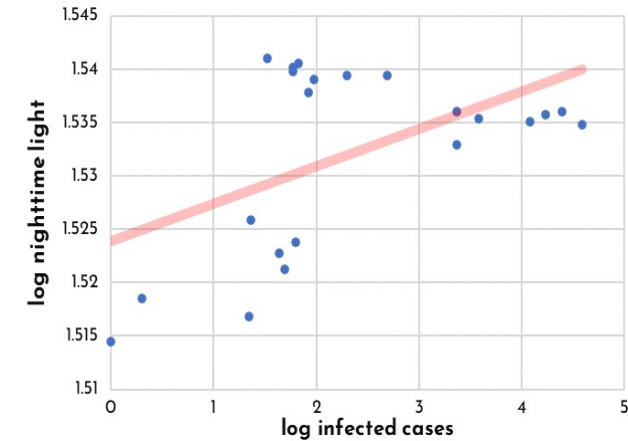
Chiang mai



$$y = 0.0014x + 1.0247$$
$$R^2 = 0.0381$$

increase infected case by 1% will
increase nighttime light by 0.0014%

Chonburi

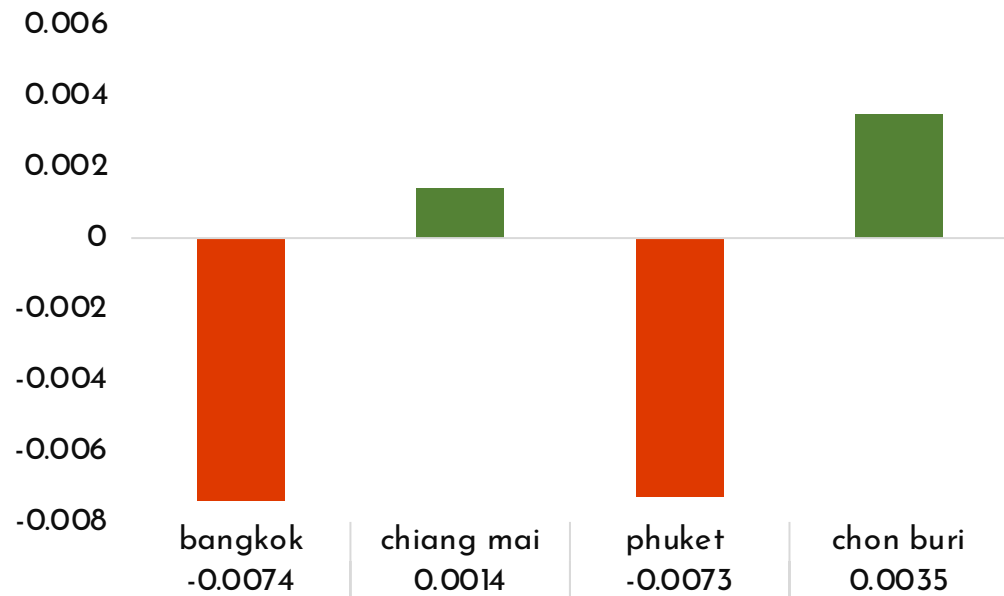


$$y = 0.0035x + 1.5239$$
$$R^2 = 0.266$$

increase infected case by 1% will
increase nighttime light by 0.0035%

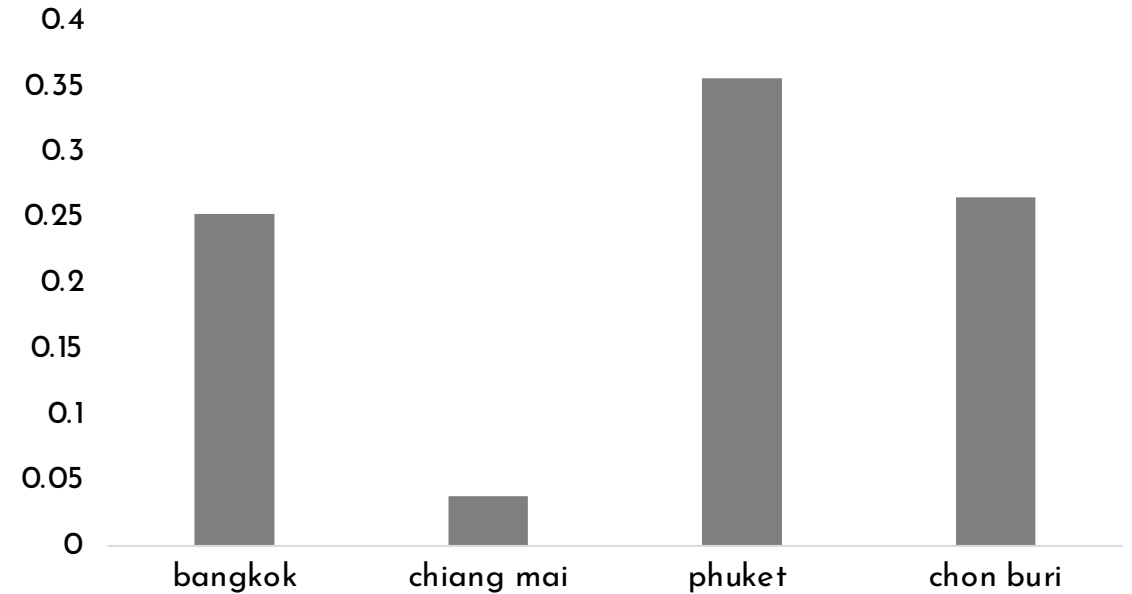
Result comparison - Covid-19 & Nighttime light

Compare the impact of Covid-19 to Nighttime light



Covid-19 has a negative impact on Bangkok and Phuket Nighttime light. But it has a positive impact on Chiangmai and Chonburi Nighttime light

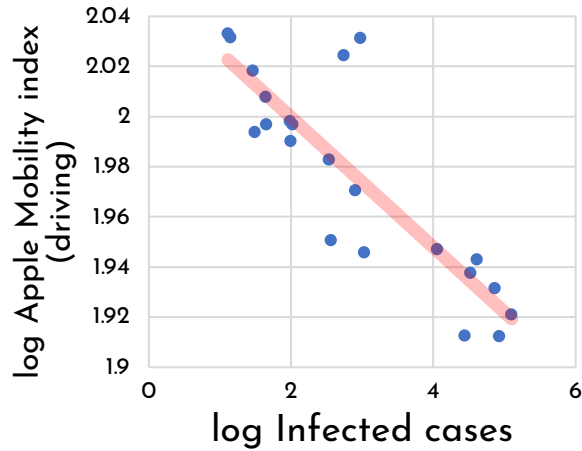
Compare the R^2 by provinces



However, the R^2 of all 4 provides are low, especially in Chiangmai and Chonburi that show a positive impact. This might be caused by a small number of observation or there is not enough variable to explain Nighttime light

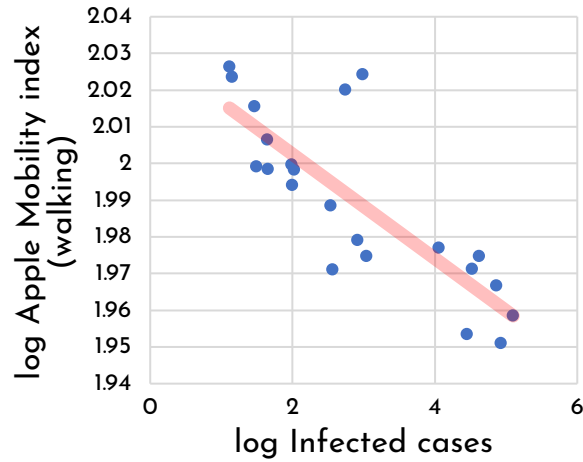
Covid-19 cases & Apple mobility index - Bangkok and Chiangmai

Bangkok



$$y = -0.0259x + 2.0515$$
$$R^2 = 0.744$$

Increase in infected cases by 1% will decrease driving index by 0.0259%



$$y = -0.0142x + 2.0309$$
$$R^2 = 0.6648$$

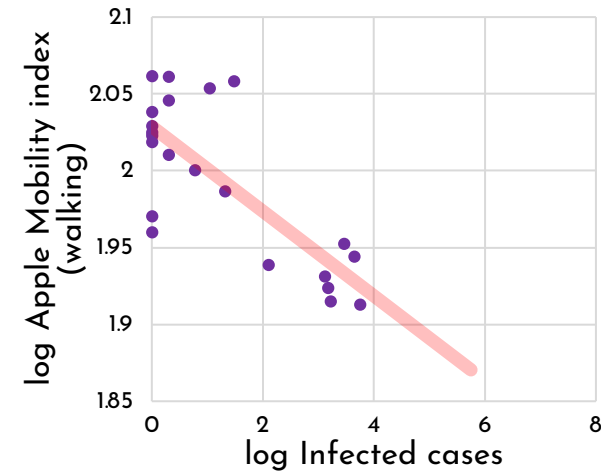
Increase in infected cases by 1% will decrease walking index by 0.0142%

Chiangmai



$$y = -0.013x + 2.0385$$
$$R^2 = 0.5023$$

Increase in infected cases by 1% will decrease walking index by 0.013%

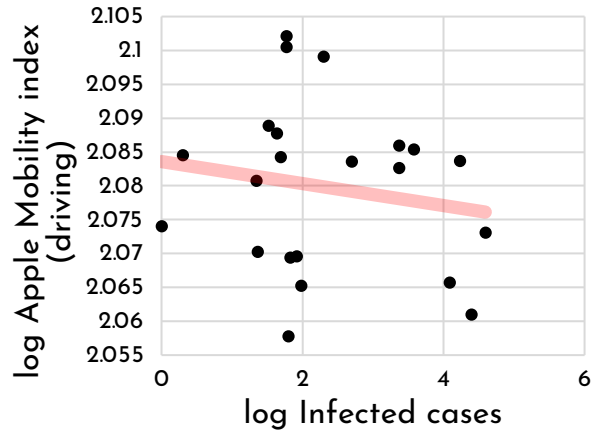


$$y = -0.0275x + 2.0287$$
$$R^2 = 0.597$$

Increase in infected cases by 1% will decrease walking index by 0.0275%

Covid-19 cases & Apple mobility index - Chonburi and Phuket

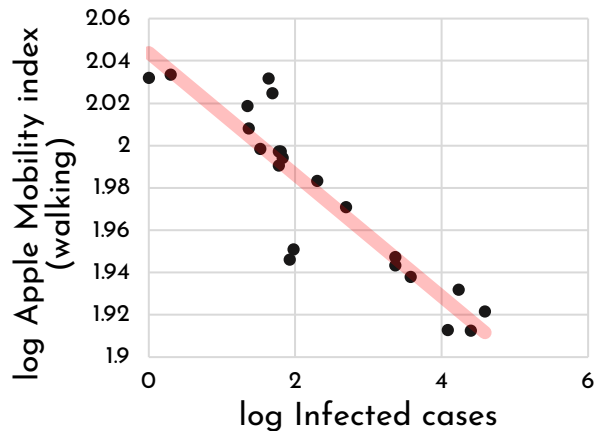
Chonburi



$$y = -0.0016x + 2.0836$$

$$R^2 = 0.0281$$

Increase in infected
cased by 1% will
decrease driving
index by 0.0016%

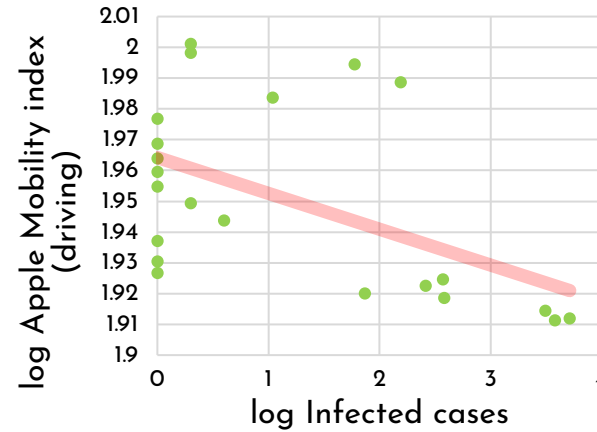


$$y = -0.0288x + 2.0438$$

$$R^2 = 0.8254$$

Increase in infected
cased by 1% will
decrease driving
index by 0.0288%

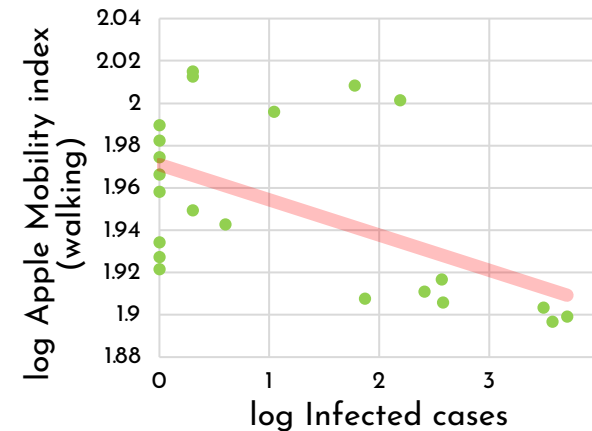
Phuket



$$y = -0.0117x + 1.9642$$

$$R^2 = 0.2676$$

Increase in infected
cased by 1% will
decrease walking
index by 0.0117%



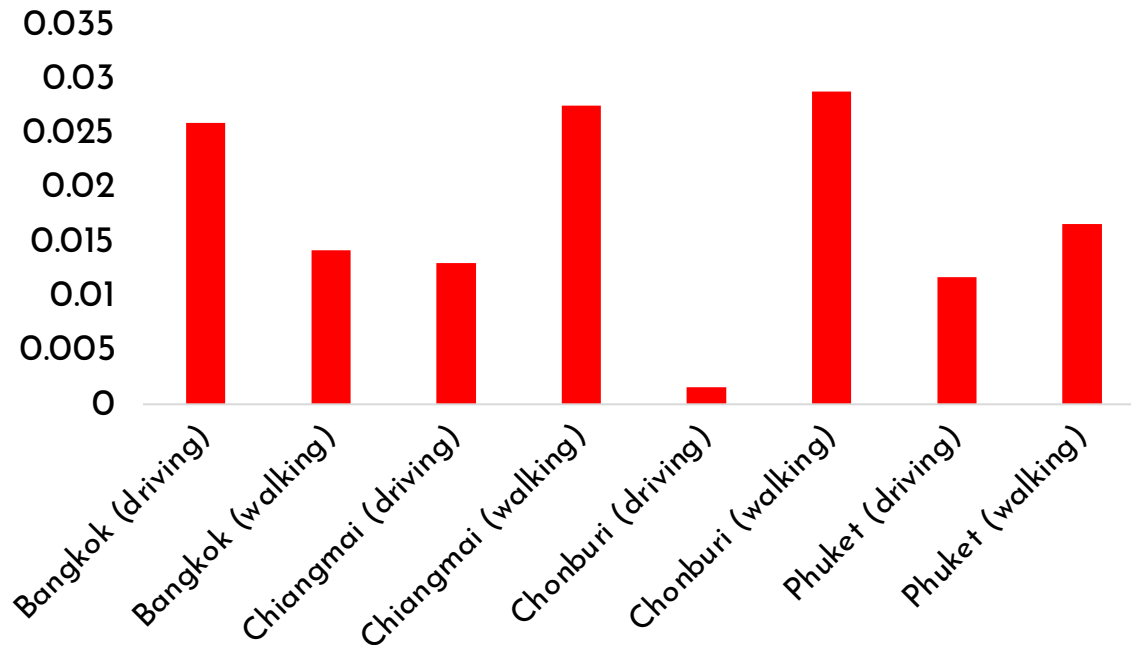
$$y = -0.0166x + 1.971$$

$$R^2 = 0.3013$$

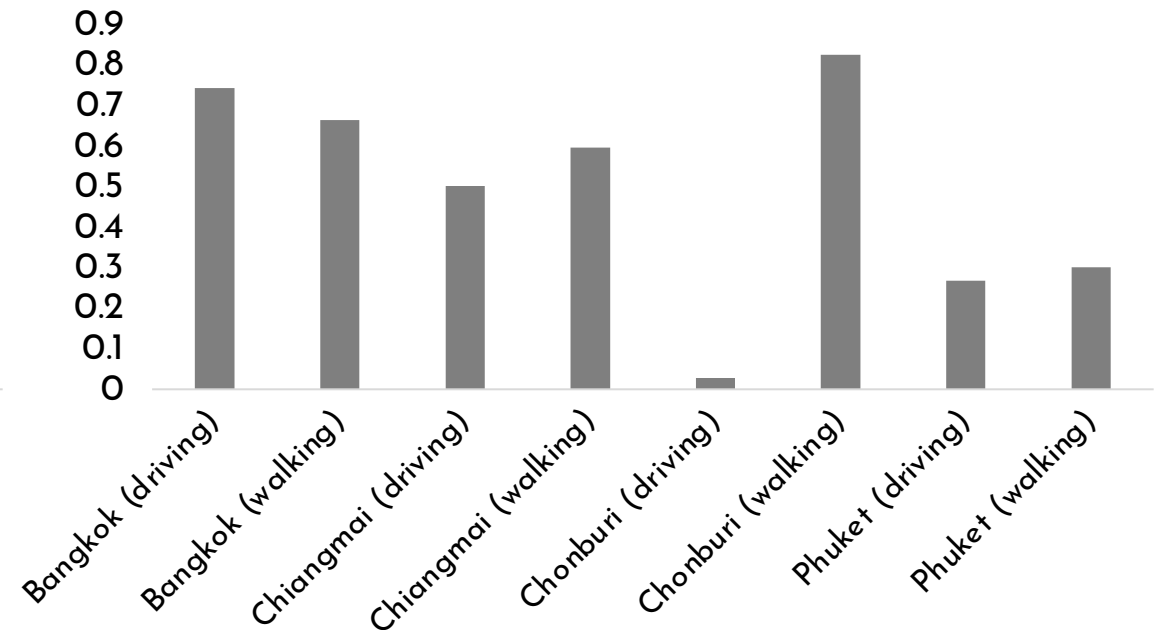
Increase in infected
cased by 1% will
decrease walking
index by -0.0166%

Result comparison - Covid-19 & Apple mobility index

Compare the impact of Covid-19 to Apple mobility by provinces (negative)

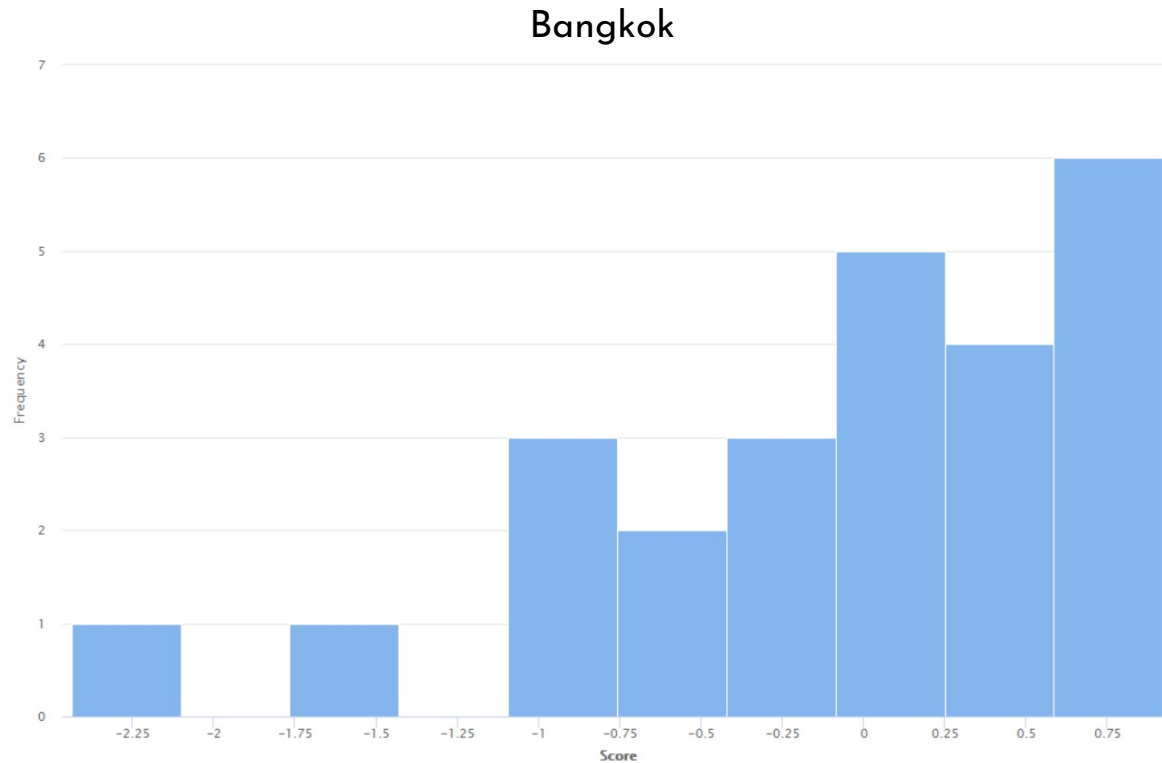


Compare the R^2 by provinces

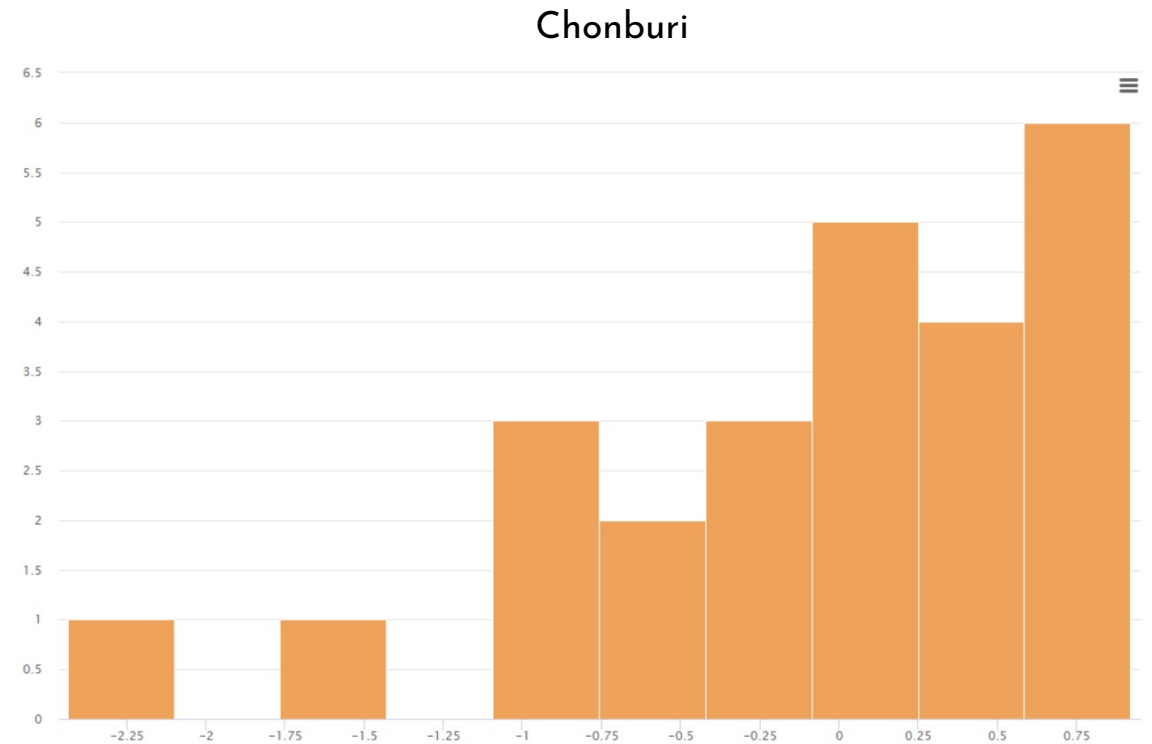


Covid-19 cases has a negative impact to Apple mobility for all listed provinces. In addition, R^2 are high among Bangkok (driving and walking) and Chonburi (walking) Apple mobility index.

Covid-19 & Sentiment index

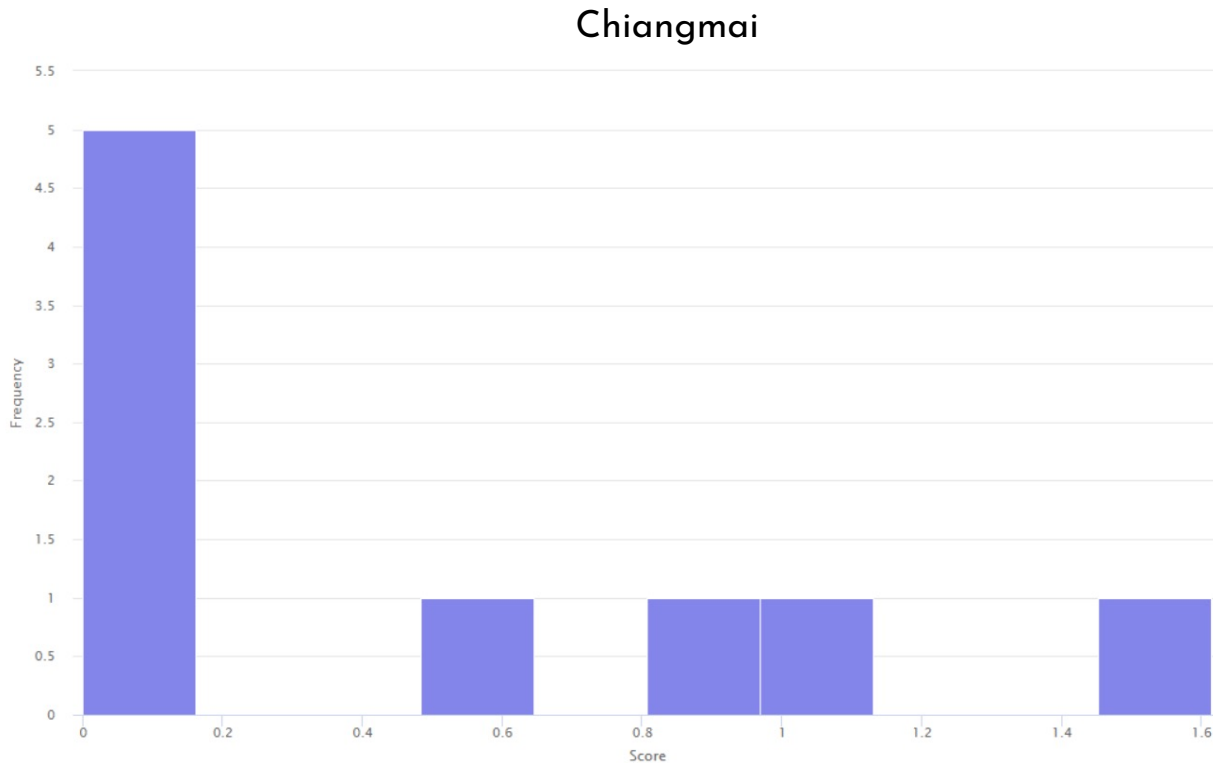


Min - 2.436
Max 0.923
Average -0.072
Deviation 0.822

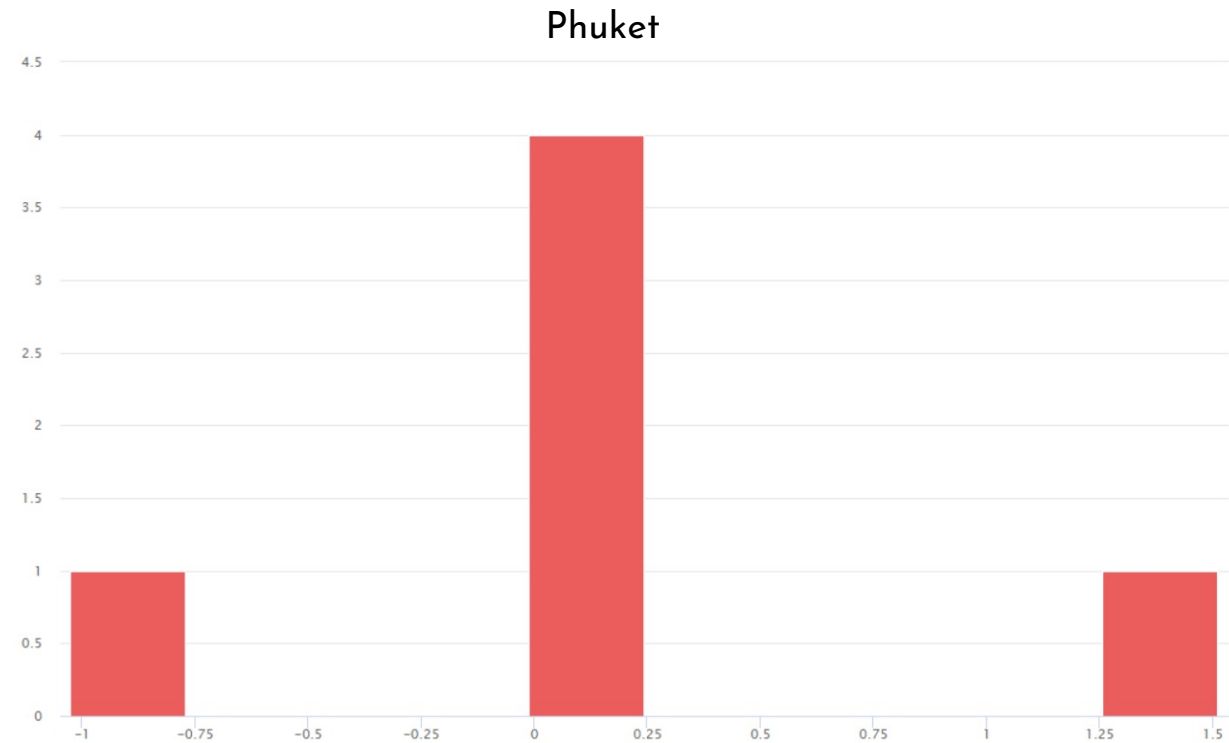


Min - 2.436
Max 0.923
Average - 0.072
Deviation 0.822

Covid-19 & Sentiment index



Min	0
Max	1.615
Average	0.467
Deviation	0.581



Min	- 1.026
Max	1.513
Average	0.103
Deviation	0.812

Introduction

Methodology & Data

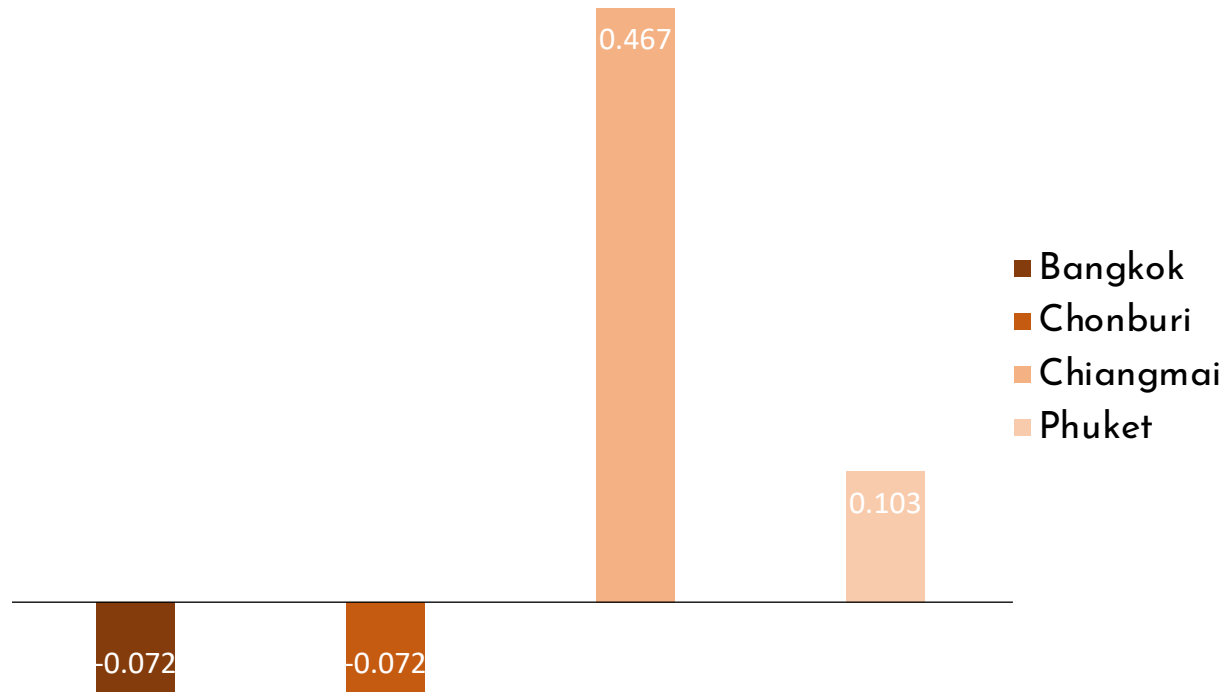
Covid19 and indexes

Result discussion

Policy recommendation

Result comparison - Sentiment index

Compare the Average Sentiment of 4 provinces



Bangkok - 0.072

Chonburi - 0.072

Chiangmai 0.467

Phuket 0.103

Policy recommendation



Distribute the effective vaccine to people as much as possible to reduce the number of infected cases. As the more Covid-19 cases rise, less people will go out as reflect from the mobility index.



Use Apple mobility index to determine **the effective the lockdown policy** and use this index to predict a future covid-19 cases



Use Apple mobility index and Nighttime light to **show the effectiveness of the policy and predict the future economic growth**



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