

Increasing unemployment rate during the Covid-19 period

Introduction

COVID -19, which began in China and has subsequently spread over the world, is now a pandemic. The impact of the virus on Thailand's labor market is the focus of this paper. The effect of the virus has brought the traditional routes of economic output to a halt in Thailand, as well as abroad, with significant declines or stops in the movement of individuals, including tourists, and badly interrupted flow of products and services across worldwide supply networks. Tourism and export-oriented manufacturing continued to be key components of Thailand's economy in 2019, accounting for 18% and 39% of GDP, respectively. Amid demand and supply-side shocks connected with the COVID-19 crisis, these two sectors are among the most vulnerable, putting millions of tourism-related and manufacturing jobs in Thailand in jeopardy.

Thailand's economy was already faltering in 2019, with a GDP growth rate of only 2.4% and employment estimates that were 250,000 lower than in 2018. The new IMF projection of a 6.7% drop in GDP in 2020 indicates the magnitude of the COVID-related shock to the Thai economy. Workers and people who rely on their income are already feeling the effects of the COVID-19-caused economic catastrophe.

The labor market's ability to withstand external and policy shocks is determined by its structure - where and how individuals work, as well as the form of employment relationships. It also depends on the country's labor market institutions' capabilities and the availability of social protection measures to safeguard firms and employees and mitigate the income losses caused by the crisis.

Thailand's labor force participation rate in 2019 was 67.0 percent, with an extremely low unemployment rate of 0.7%. Total employment was 37.6 million, with women accounting for 45.6%. The number of youth (15-24) who are not in education, employment, or training (NEET) totaled 1.4 million, for a NEET rate of 14.9%. Women made up slightly less than two-thirds of the NEET population, with most of them married.

Over the last few decades, Thailand's economy and labor market have shifted from rural and agricultural dominance to urban industrial and service-orientation. By 2019, many employees were remained self-employed, despite a dramatic fall in the percentage over time. In 2019, Thailand had 19.0 million self-employed employees, compared to 18.7 million wage and salaried workers.

Furthermore, transition to the post-COVID-19 world will create a new way of life (New Normal) in many forms such as the use of technology that has changed leaps, especially, the behavior of using online (Online Platform) is clearly increasing. Thereby, the challenge of the Department of Employment must adjust its operations according to its mission to keep up with the situation and to accommodate changes in the labor market. As a result, the working situation of the labor force has been in stagnation for a long time due to the economic recession because of the COVID-19 epidemic and epidemic control measures since the beginning of 2020. Epidemic control measures have been adjusted to increase - reduce various conditions according to the epidemic situation under the control of the outbreak which these measures limit and enhance people's daily lives. Making occupation more

difficult to run a business include the omission of certain types of business that are at high risk of spreading the disease.

As a result of the epidemic and epidemic control measures, the unemployment rate increased from 1 percent to 2 percent for five consecutive quarters from the second quarter of 2020 to the second quarter of 2021 (Table 1); and working hours are reduced in all industries.

Table 1: Quarterly trends in the number of unemployment and the unemployment rate during the COVID-19

Details	2020				2021	
	Quarterly 1	Quarterly 2	Quarterly 3	Quarterly 4	Quarterly 1	Quarterly 2
Number of unemployed (person)	394,520	745,176	737,649	727,050	758,056	731,828
Unemployment rate (percent)	1.0	2.0	1.9	1.9	2.0	1.9

Source: Data from the Labor Force Survey

Employment after the first year of the covid crisis, employment is slowly recovering, according to forecasts from several analyst firms which the recovery of employment and the condition of having a job. It is one of the key indicators showing the direction of economic recovery. Overall employment in the second quarter (Year 2021) has recovered by 2 percent. Employment of full-time workers (40+ hours per week) in the second quarter. Overall, it recovered by 13.7 percent (Q2 YOY 2020-64), with the highest recovery in the service sector, the agricultural sector and the industrial sector, accounting for 18, 10, and 6.4 percent, respectively (Table 2). Increased proportion of downtime and part-time work decreased by 70.6 percent of full-time job, but non-working workers returned to work and those whose hours were reduced to 1-19 hours per week saw a decrease of 70.6 percent. 17.8 percent of overall in the second quarter of 2021, the employment recovery is in a good trend. More workers returned to full-time work.

Table 2: Examples of employment in various fields, both positive and negative

Positive	Negative
 • Food • Drink • Accommodation, hotels, restaurants • Financial services	 • Transportation/Storage Services • Medical equipment • Software business/electronic parts • E-commerce business

Therefore, it is imperative to study the increase in unemployment during the current COVID-19 period. including the role that should be in the future which in this study received cooperation from many sectors including employee's Employers/entrepreneurs and officials of the Department of Employment who cooperate in answering research questionnaires. Experts in various fields who have participated in discussions gave opinions and recommendations are very useful for the development of the role of the Department of Employment. The Department of Employment will review the organizational structure and human resource management system in accordance with the changes so that the Department of Employment can perform its roles and missions to their full potential as a result, the labor force has jobs for all ages.

Literature review

This research points to rising unemployment rates during COVID-19 with theoretical concepts and literary reviews related to Employment Promotion of the Department of Employment Ministry of Labor Economics. If the market can allocate resources efficiently, the government does not need to intervene in the market at all. But if the market fails (Market failure), the allocation of resources will be inefficient. It is the duty of the government sector to use tools to intervene in the market. The labor market is the most important market. One type also has a failure. which failures in the labor market can be caused by many.

The reason is, firstly, the movement of labor is not free meaning that the labor market failure in this case occurred because geographic barriers prevented workers from freely moving to certain areas to work. There are various reasons such as the need to live with family, housing prices in big cities are high, visa restrictions high travel costs, language, and cultural barriers, etc. The government's approaches to solving problems include increasing the national budget to build housing for the people and controlling the rent at a low level, urban planning to have more space for living, home purchase subsidies, supporting innovation in building houses to have lower costs, and so on.

Secondly, skill gaps, the labor market fails in this case since there is too little provision of skill training for workers. This allows workers to have lower skill levels than the market demands. This is because employers lack incentives to enhance their employees' skills because of fear that the employee will move to work with a new employer resulting in labor shortages of human capital. This problem in economics is called the problem of free ticketing (Free Rider) results in low labor productivity and workers cannot change jobs due to the fact that there is not enough skill which unemployment is a structural problem. An example of solving the problem is collecting taxes for skill training from employers, providing scholarships in STEM subjects to enable workers to choose STEM courses, which are increasingly scarce in the labor market, or policy to import foreign workers with skills that are scarce in the country.

Thirdly, inequality and poverty of working people, the labor market failure in this case occurred because workers were being paid low wages beyond the poverty line because wages are low, and the stability of the work is reduced which the solution is setting lower wages above the poverty line labor protection legislation. When considering the details, it found that the decline in inequality was due to the closer income of workers graduating

to primary and secondary school. Workers with graduate degrees work in middle-skilled jobs instead of those who graduated from high school. As for workers who graduated from high school, they work without skills. Employees who start working with low wages There will be wages that do not increase much throughout the working life.

Fourthly, lack of motivation to enter the labor market of the labor market failure in this case occurs because the working-age population is studying full time work, chronic illness needs to take care of the patient, or full-time childcare desperate to find work which results in the country having fewer workers. The solution to the problem is tax exemption cages for preschool nurseries to enable parents with children to work in the labor market minimum wage to increase motivation to find a job. Government investment in sanitation keeps people healthy and able to work. Welfare reform to promote work in place of dependency influencing unemployment.

Lastly, government Failure, the labor market failed because of attempted state intervention. This could be caused by a lack of motivation because state functionality is not a behavior for profit which results in a lack of incentives to cut costs and improve work efficiency, a poor quality data since politicians involved may not be direct experts on the services of government agencies, a political interference is a short-term policy decision that can see results quickly for the purpose of political gain, a lack of continuity in policy implementation that often changed with each change of government causing a lack of continuity long term, and a conditions in which regulatory bodies are held captive processes that government agencies are controlled by operators in the industrial sectors over which they are overseeing for the benefit of entrepreneurs more than the public interest.

Therefore, this research will highlight the rising unemployment rate during COVID-19 which there are many related research as follows:

1. **Pongmanat Dued (2020)** has studied the impact of the coronavirus disease 2019 epidemic on food delivery service occupations. aims to study:
 - Study the working conditions of service providers deliver food in the condition of the corona virus epidemic 2019 in Bangkok to Nakhon and perimeter.
 - Study the opinions on government measures and the concerns of service providers delivering food during the coronavirus disease 2019 epidemic. The first research findings showed that the overall Covid-19 epidemic working council is at the mid-range level, meaning food delivery service providers are still able to adapt to the spread of the virus from the food delivery service provider to the accommodation itself. They must protect themselves to prevent the spread of the epidemic and the company has various preventive measures to help, such as keeping distance and risk of touch, so on. As a result, food delivery services to accommodation continue to carry on many occupations. Later, the issue of relief measures from the government, food delivery service providers agree that the government should take other remedial measures and there should be more money to heal people. As for the measures to manage the good situation and measures that people can easily access, it was found that the government was unable to manage and make it easy for people to access government measures.

Moreover, in the issue of anxiety, it was found that most food delivery service providers were most concerned about the economy. The outbreak of the coronavirus has a widespread impact, not only in one country, but also affecting all countries around the world. This affects the economic uncertainty, making entrepreneurs reluctant to invest (Scott R. Baker et al., 2020), and the trend of the global economy has slowed down greatly which causing a recession (Baldwin, R. & Tomiura, E., 2020).

2. Lekfuangfu, Piyapromdee, Porapakkarm and Wasi (2020)

- Study the impacts of the epidemic on workers in Thailand by dividing Thai workers into the ease of changing the workplace and an index of the nature of work that must be done in close contact with others. The researchers found that 31.5% of Thai workers work in jobs that rely on machines and cannot work through communication technology. When comparing male and female workers, most male workers engaged in machine-related work than female workers. Hence, male workers are more likely to be affected than female workers. Moreover, workers in the age group of 46 years and older tend to work inconvenient to use alternative communication technology, thus encountering obstacles in adjusting. Working from home, the group that was least affected was the group of workers with a bachelor's degree or higher because their work style allows them to work from home and they can use technology. The lockdown in March left 1.6 million workers under 12,000 per month the hardest hit. Examples of occupations that are most affected are cleaners, teachers, tour guides and dentists.

3. Kaplan, Moll, and Violante (2020)

- They focus on the impact on different labor groups in the United States by dividing occupations according to the nature of work into four groups based on the ease of changing the workplace and patterns of interaction with people. The researchers used an economic model to predict the impact of the virus epidemic on revenue, if the US government does not implement any policy, the research concludes. In addition, if there is no lockdown, workers who are unable to work at home and whose work patterns are interacting with others. The biggest hit was the 27% drop in income, while workers in highly interactive jobs were able to work from home. Revenue down 15% and the rest of the workers had a 5 percent drop in income.

4. Coibion, Gorodnichenko, and Weber (2020)

- Studied the Nielsen Homescan database of US households and found that the impact of the viral epidemic affects the unemployment rate in the United States higher than the official figure for unemployment benefits. This is because some of the unemployed workers are not counted in the labor market because they are not looking for a new job during this period. Thus, the unemployment rate will only rise to around 1 percent, although, in fact, more than one percent of the workers exit the labor market.

Data & Research methods

1. Data

The study analyzes the unemployment rate rising during COVID-19. Compare that to the number of people unemployed from January 2019 - March 2020. This article attempts to narrow down the variables that will affect the unemployment rate. Note that the number of unemployed people is from January 2019 - March 2020 to analyze the impact of the COVID-19 situation affecting the unemployment rate.

The mainly data used in this paper are from Google trend analysis and Bank of Thailand (BOT) data of unemployment rate in selected period. The Google trend data provides the rate per search click of each keyword we picked. In this case, there are several keywords in both Thai and English language that related to unemployment rate in Thailand such as part-time job, job, หางาน, สมัครงาน, จำนวนคนว่างงาน, Job finding, Covid-19 recession consequences, Unemployment, Social disadvantage, Socially, Disadvantaged communities', Vulnerable communities', Current economic recession, and Negative labor market outcomes. All these words are a signal to those people who trying to find a job. However, I picked only 5 words to scope down and specify the data which are “สมัครงาน”, “งาน”, “หางาน”, “part-time job”, and “job”. Furthermore, the data from Twitter is mentioned in this paper as well due to the fact that I tried to focus on the keyword impacted by the COVID-19 crisis in most popular platform of social media, Twitter. The only word we used is “job” (since the program cannot generate the data with Thai keyword) to see how many people were mentioned this word on their Twitter accounts. For the last data we used is the unemployment rate data from BOT, this data is already provided in class and have been mentioned in the first assignment example. Those data will be covered in this paper as the previous and following tables.

Table 3: Source of Data

Job finding	Job application	Unemployed person	Rate of unemployment	Rate of unemployment (*100)
53	73	389.61	1.02	102
51	68	299.96	0.78	78
49	68	346.48	0.9	90
55	74	363.99	0.96	96
64	79	426.05	1.11	111
60	76	363.13	0.94	94
56	72	436.07	1.14	114
53	69	381.74	1	100
50	62	384.98	1.02	102
46	58	354.74	0.95	95
43	56	429.33	1.12	112
38	49	366.95	0.96	96
52	66	405.51	1.07	107
50	62	419.5	1.09	109
45	52	391.77	1.03	103

2. Research methods

- Google trend analysis (keywords search click) versus Thailand's unemployment rate during the epidemic:
 - i. Use Google trends data to predict the present of conventional economic indicator, "Unemployment rate in Thailand index", which we picked five alternative indicators: "สมัครงาน", "งาน", "หางาน", "part-time job", and "job".
 - ii. Import both data into Excel to match with selected year range (January 2019 – March 2020) and normalize it all (Table 4).
 - iii. Analyze the relationship between the keyword search and economic indicators.
 - iv. Get graphs from Excel (Figure 1 - Figure 6) and r-squared of all data, we ran all X and Y variables in STATA program (Table 5).
- Twitter and Sentiment analysis comparing unemployment rate of Thailand:
 - i. Compute the sentiment index by using RapidMiner program (14 December 2021) with "Job" as a keyword mentioned in Twitter in past 7 days.
 - ii. Limit 5,000 number of tweets in English.
 - iii. Input the geo-location of Thailand (latitude and longitude are 13.736717 and 100.523186, respectively).
 - iv. Run all data to get the number of tweets, average sentiment score (Figure 7) to analyze whether it has positive or negative attitude toward the keyword, and distribution chart (Figure 8).
- Related Theoretical Model

Figure 9: Compare Google Trend search frequency with unemployment data

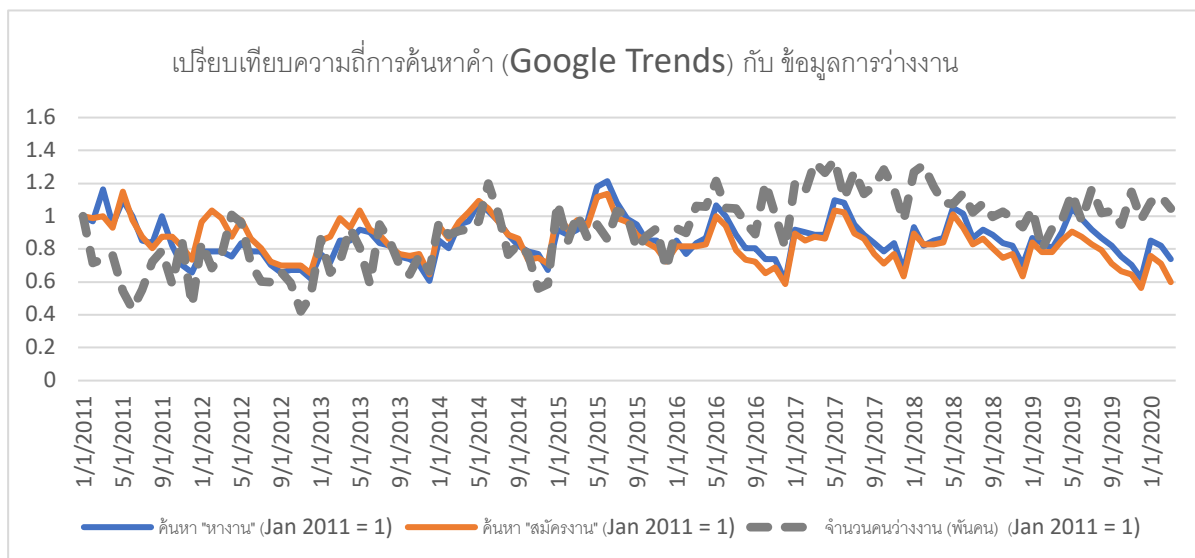
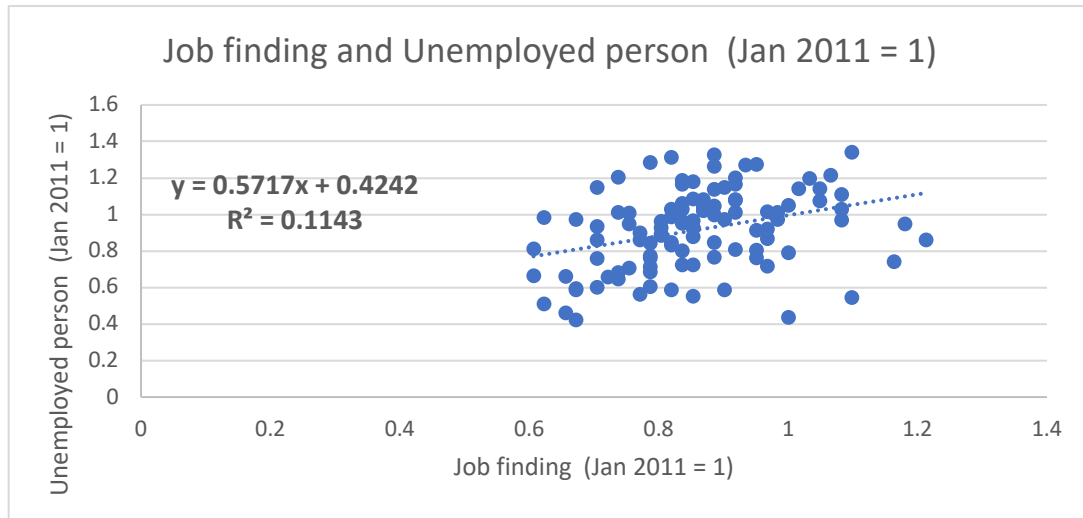


Figure 10: Compare Job finding and Unemployed person



Objective function (Table 6): $Y = 0.5717X + 0.4242$, $R^2 = 0.1143$ (limit 5000 tweets, keyword= "job", location= Thailand at latitude is 13.736717, and the longitude is 100.523186)

Results

The dependent variable refers to the number of unemployed people and the primary variable means job finding using the coefficient of determination method or the coefficient showing. Coefficient of multiple determination for multiple regression analysis to know which way most of the unemployed people use to search and have a suitable keyword search. As you can see from Figure 1 to Figure 5, the R-squares are not that high when we are comparing each keyword with the Thailand's unemployment rate within selected period. Based on Figure 6, the fluctuation of all alternative indicators' graphs tends to be in the same direction which it was increasing before and after the epidemic. "Job" is obviously the keyword search that has the highest point, or the peak point reaches to over 2.5 during the covid-19 period. It shows that Thai people finding jobs more frequently by searching "Job" as keyword in Google website.

Nevertheless, comparing all alternative indicators can explain the conventional indicator more effectively. Hence, five alternative indicators of the keywords search can predict the unemployment rate since the R-square is quite correlated at 53.6 per cent as mentioned in Table 5.

As a result of RapidMiner (Figure 7), we have a sentiment average of (+)5.744 within a sample size of 42 tweets, meaning that the selected keyword "Job" has a positive attitude inside those messages. To clarify, this is obvious that within 42 sample size which is very low number, but it impacts a highly positive attitude toward the messages. From the analysis, it can conclude that most people usually use Twitter platform to find more jobs which can indicate an increasing in unemployment rate.

The COVID-19 pandemic has affected the unemployment rates for every state, economic sector, and major demographic group. During the most recent recession, unemployment rates disproportionately increased among economic sectors delivering in-person services. Some demographic groups are overrepresented in such sectors, contributing to higher unemployment rates for those workers, displays state-level monthly unemployment rates from January 2020 to June 2021 (the state-level data for July 2021 have not been released as of the cover date of this report). The figure shows that no state was immune from economic damage early in the pandemic. At the onset of the most recent recession, the unemployment rate for every state and the District of Columbia surpassed levels seen during the Great Recession. The variation in economic damage was due to several factors, including the proportion of jobs in sectors that provide nonessential services to in-person customers, individual concerns of contracting COVID-19 causing declines in personal consumption, and the implementation of stay-at-home orders and business closure policies. As the unemployment rate for part-time workers in July 2021 (5.0%) was less than the unemployment rate for full-time workers (5.5%). There are a few considerations that may provide additional context. First, some workers who last worked part-time jobs may have left the labor force, and hence are not counted in the official unemployment. Additionally, there was a considerable increase in the number of part-time workers who reported that they would have preferred to work full-time but worked part-time because their hours were reduced, or they could only find part-time jobs.

Policy recommendations

Before the COVID-19, Thailand was facing the high rate of unemployment which there are several ways to solve this problem in the normal situation. Policymakers should concentrate on increasing output, which may be accomplished most efficiently by raising demand. Expansionary monetary and fiscal policies aim to increase aggregate demand by lowering interest rates and taxes. Furthermore, officials may weaken the currency to promote export demand, or they may enact special legislation and initiatives that target specific sectors of the economy. The following paragraphs will explain more on each policy

- Reducing unemployment with Fiscal policy
 - I. Expansionary fiscal policy seeks to control output and employment by boosting government expenditure while cutting taxation. Lower levels of taxes result in higher levels of disposable income and higher levels of spending. An increase in consumption leads to an increase in aggregate demand and a rise in GDP (GDP). Firms will respond to increased demand and GDP by raising output, which necessitates the hiring of more people. As a result, unemployment will be reduced. Furthermore, when there is significant economic growth and increased aggregate demand, there are fewer job losses since businesses continue to operate. Thus, it is the government's responsibility to create more demand and act in order to minimize unemployment.
- Expansionary Monetary Policy to Reduce Unemployment
 - I. Expansionary monetary policy aims to boost aggregate demand and economic growth by lowering interest rates. Reduced interest rates imply a lower cost of borrowing. People spend

more and invest more when it is simpler to borrow money. This boosts aggregate demand and GDP while lowering cyclical unemployment. Moreover, when interest rates fall, so do exchange rates, and an economy's exports become more competitive.

- II. Policymakers may also launch targeted efforts aimed at certain sectors of the economy in order to reduce unemployment and boost output. These innovative measures include simplifying the approval process for government projects that create employment, providing monetary incentives to businesses for employing people, and paying firms to train individuals for certain occupations.

Due to the higher unemployment rate in labor market during the COVID-19 crisis, solving the problem of unemployment with the same conceptual framework, such as organizing a labor market, may not respond as well as in the past. Because nowadays online job search platforms have come to serve in providing information. Reduce time costs and travel expenses effectively but the current Thai labor market has more complex problems than in the past. The problem is the inconsistency of supply and demand in the labor market (Labor Market Mismatch), a result of which skilled workers do not meet market demand. causing a shortage of labor in the market and workers are unable to find work. A labor market or online job search platform alone cannot solve this problem completely. It is necessary to develop new labor skills or upgrade the skills of workers to a higher level (Reskill & Upskill). The Department of Employment therefore must work with the Department of Skill Development to adjust skills to be able to find work. One that workers do not want to work is the workplace is far from home. In this section, the Department of Employment should provide support for travel expenses. rent, accommodation, etc. It should also go to the area to provide information on jobs in communities that may not have access to labor market information as well. To clearly understand the situation and problems of the labor market at the industrial level and to solve the problems on the spot.

As for the government sector, has expedited the issuing of various important measures to remedy and mitigate impacts for the people and entrepreneurs, especially small entrepreneurs. Under the measures to take care and remedy the impact of the Coronavirus Disease 2019 on the Thai economy.

The operation has been adjusted to be able to cope with the situation as follows:

- Acceleration of the digital transformation process, in which technology will play a larger part in people's and enterprises' lives. Both business principles and working style have an impact on consumer behavior.
- Reducing the intensity of globalization and the tendency of shifting the production chain to be more localized.
- All stakeholders' awareness is becoming increasingly vital for public health, food security, and energy security.

Conclusion

The COVID-19 response measures have disrupted the economy severely. Although economic activities have resumed and measures will be lifted gradually later this year, Thailand's future remains uncertain. While recent studies have focused on evaluating the occupational exposure impact relating to the COVID-19 crisis, we amalgamate them and adjust to the selected keywords in both Thai and English languages. The results indicate that the impact of COVID-19 is highly unemployment rate across Thai's labor market. It shows the COVID-19's economic effect impacts key aspects that may enhance people's risk of financial hardship as a result of COVID-19. We discovered evidence for the growing spread of socioeconomic vulnerability in the region, with pre-existing social inequality producing a new form of inequality and impacting labor market restructuring. New jobs and rising labor demand will usher in a new way of life (the New Normal) in a variety of ways. For instance, the usage of technology has evolved by leaps and bounds, particularly the behavior of utilizing online (Online Platform), which must be improved, as must people's everyday lives.

Neglecting some sorts of enterprises that are at high danger of spreading is an example of occupation and making it harder to manage a firm. Restrictions that impede employment and have an impact on Thai employees' job status by analyzing data to determine what techniques most unemployed people look for and having the correct keywords to search. We have a sentiment mean of (+)5.744 based on a sample size of 42 tweets, indicating that the keyword has a positive attitude among those messages meaning that most individuals utilize the Twitter platform to locate additional job, which may imply a rising unemployment rate.

In addition, tackling unemployment problems using the same conceptual framework, such as labor market organization, may not react as effectively as in the past in light of the fact that there are online job search sites that supply information services nowadays. The online system effectively decreases travel time and expenses. Last but not least, new workforce skills must be developed, or employees' abilities must be upgraded to a higher degree since the world moving forward the digital era or the New Normal lifestyle. We find that education levels, as well as income levels, play a substantial role in insulating individuals from the present crisis, with those with greater education and higher incomes faring significantly better. This conclusion emphasizes the significant role of human capital, which warrants additional investigation. Finally, not to mention, the data and information from this paper analysis can help government to solve this problem by intervenes and makes related policies to support unemployed people to have job and earn some income which may causes an improving in all economic sectors of the country in the future even though we still facing the COVID-19 crisis.

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Appendix

Part I: All tables have been mentioned in this paper

Table 4: Normalized all indicators

	Part-time job: (Thailand)	job: (Thailand)	ห ำ ง ำ น : (Thailand)	ส ำ ค ร ำ ง ำ น : (Thailand)	งาน: (Thailand)	Unemployment rate
2019-01	1	1	1	1	1	1
2019-02	0.577142857	1.087301587	0.939393939	0.932944606	0.951742627	0.769898103
2019-03	0.946285714	1.276190476	0.935757576	0.974927114	0.875067024	0.889299556
2019-04	1.582857143	0.952380952	1.036363636	1.034985423	0.806970509	0.934241934
2019-05	1.84	1.142857143	1.145454545	1.131195335	0.930294906	1.093529427
2019-06	1.499428571	1.257142857	1.107878788	1.10787172	0.920107239	0.932034599
2019-07	1.24	1.206349206	0.987878788	0.988338192	0.836461126	1.119247453
2019-08	1.302857143	1.182539683	1.012121212	0.956268222	0.892761394	0.979800313
2019-09	1.197714286	2.59047619	0.935757576	0.930612245	0.894369973	0.988116321
2019-10	1.097142857	1.103174603	0.854545455	0.795918367	0.801608579	0.910500244
2019-11	0.965714286	1.087301587	0.845454545	0.83090379	0.949061662	1.101948102
2019-12	0.955428571	0.920634921	0.736969697	0.683381924	0.791420912	0.941839275
2020-01	1.188571429	1.071428571	0.954545455	0.932944606	0.919571046	1.040810041
2020-02	1.525714286	0.992063492	0.954545455	0.915451895	0.935656836	1.076717743
2020-03	1.504	0.857142857	0.819393939	0.720699708	0.709919571	1.005544006

Table 5: Relationship between conventional and all alternative indicators

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. reg จำนวนคนว่างงานพจนJan20191 งานThailand สหคแรงงานThailand หางานThailand jobtha
> iland parttimejobthailand
```

Source	SS	df	MS	Number of obs	=	15
Model	.066418555	5	.013283711	F(5, 9)	=	2.08
Residual	.057487352	9	.006387484	Prob > F	=	0.1603
				R-squared	=	0.5360
				Adj R-squared	=	0.2783
Total	.123905907	14	.008850422	Root MSE	=	.07992

จำนวนคน~20191	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
งานThailand	.8282258	.406625	2.04	0.072	-.0916238	1.748075
สหคแรงงานThai~d	.6514208	.9821764	0.66	0.524	-1.570417	2.873258
หางานThailand	-1.488945	1.273693	-1.17	0.272	-4.37024	1.392349
jobthailand	-.0055378	.055324	-0.10	0.922	-.1306894	.1196139
parttimejob~d	.3552943	.1197842	2.97	0.016	.0843236	.626265
_cons	.636936	.3453147	1.84	0.098	-.1442201	1.418092

Table 6: Baseline Variables summary

Variable	Unit	Description	Expected
Y	Percent	Job finding	Equal / Percent
X	Percent	Number of unemployed	Equal / Percent

Table 7: Detail Part-time job

Part-time job: (Thailand)	job: (Thailand)	หางาน: (Thailand)	สมัครงาน: (Thailand)	งาน: (Thailand)
43.75	31.5	82.5	85.75	93.25
25.25	34.25	77.5	80	88.75
41.4	40.2	77.2	83.6	81.6
69.25	30	85.5	88.75	75.25
80.5	36	94.5	97	86.75
65.6	39.6	91.4	95	85.8
54.25	38	81.5	84.75	78
57	37.25	83.5	82	83.25
52.4	81.6	77.2	79.8	83.4
48	34.75	70.5	68.25	74.75
42.25	34.25	69.75	71.25	88.5
41.8	29	60.8	58.6	73.8
52	33.75	78.75	80	85.75
66.75	31.25	78.75	78.5	87.25
65.8	27	67.6	61.8	66.2

Part II: All figures have been mentioned in this paper

Figure 1: Relationship between keyword “Part-time job” and rate of unemployed people

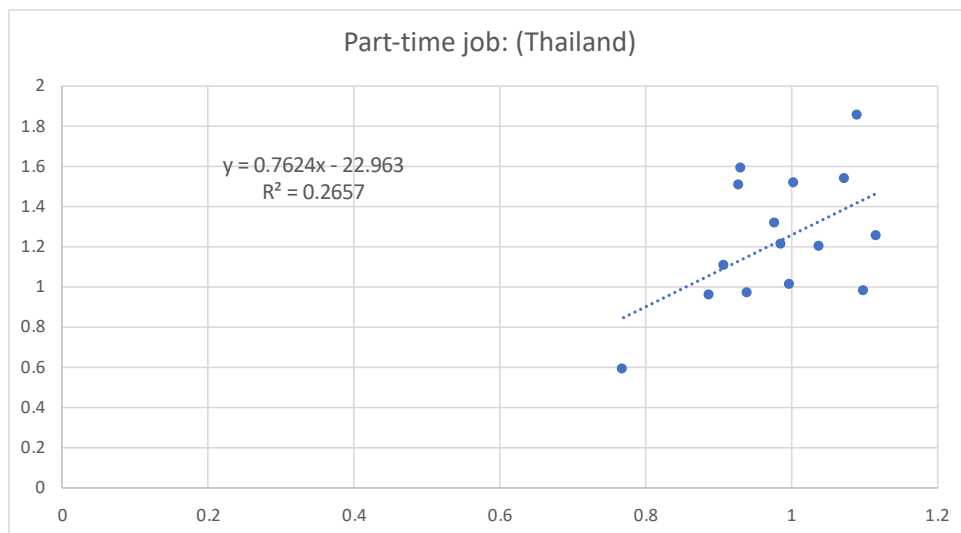


Figure 2: Relationship between keyword “Job” and rate of unemployed people

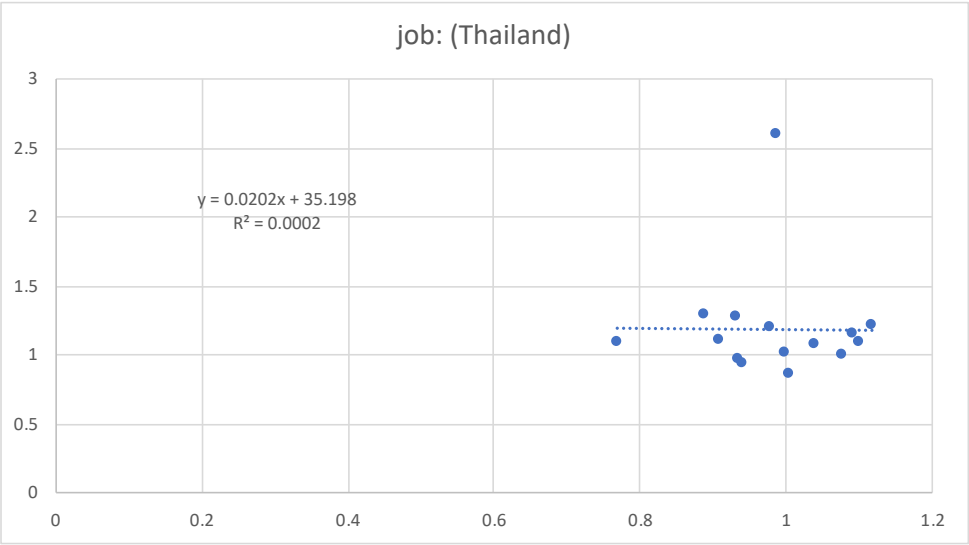


Figure 3: Relationship between keyword “หางาน” and rate of unemployed people

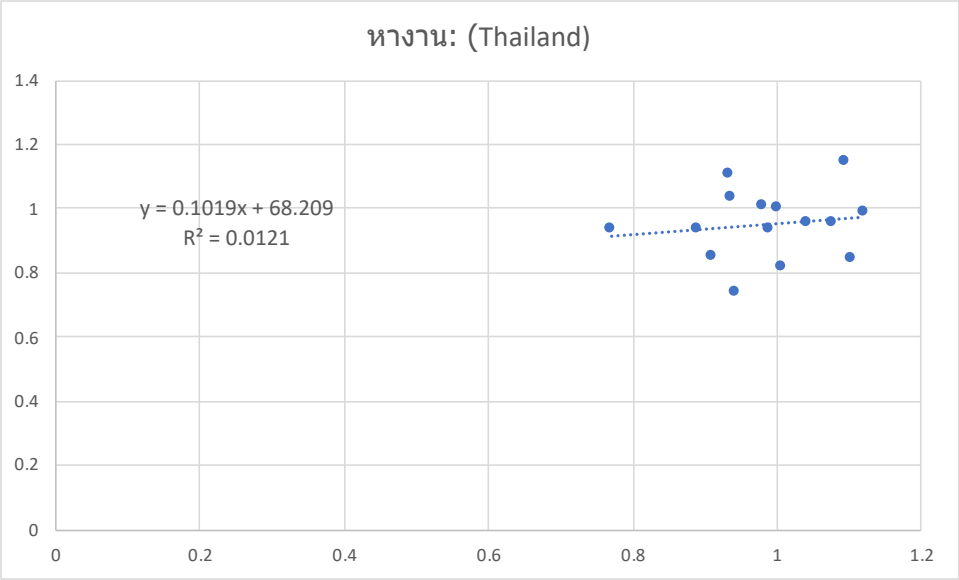


Figure 4: Relationship between keyword “สมัครงาน” and rate of unemployed people

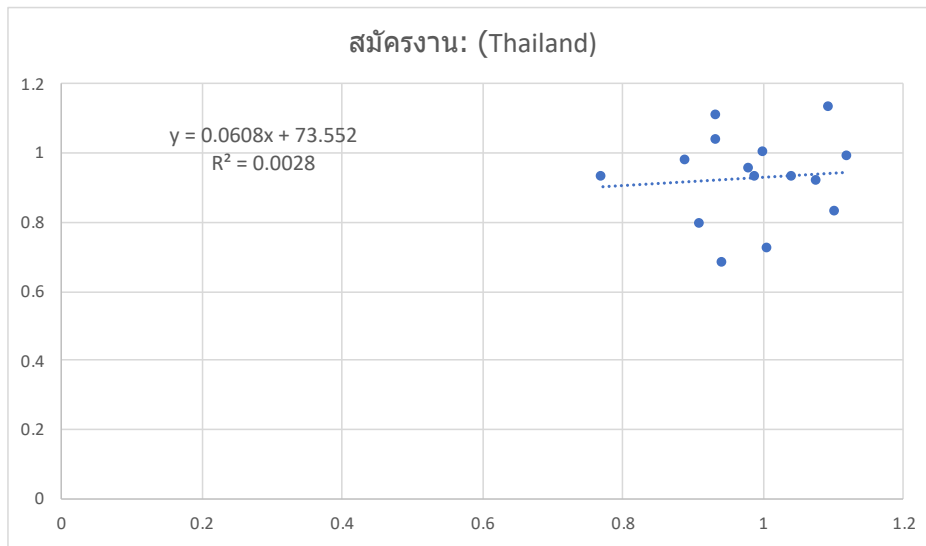


Figure 5: Relationship between keyword “งาน” and rate of unemployed people

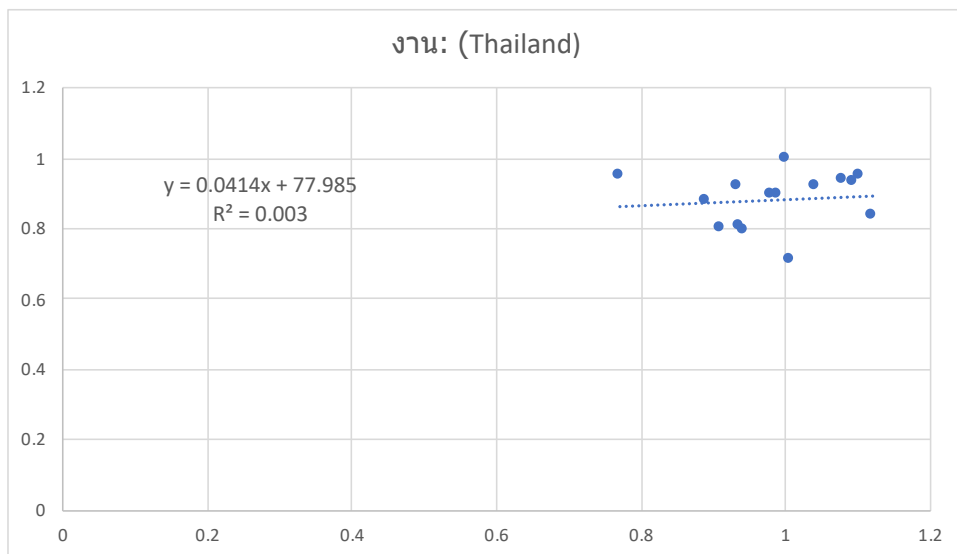


Figure 6: Relationship between all keywords and rate of unemployed people

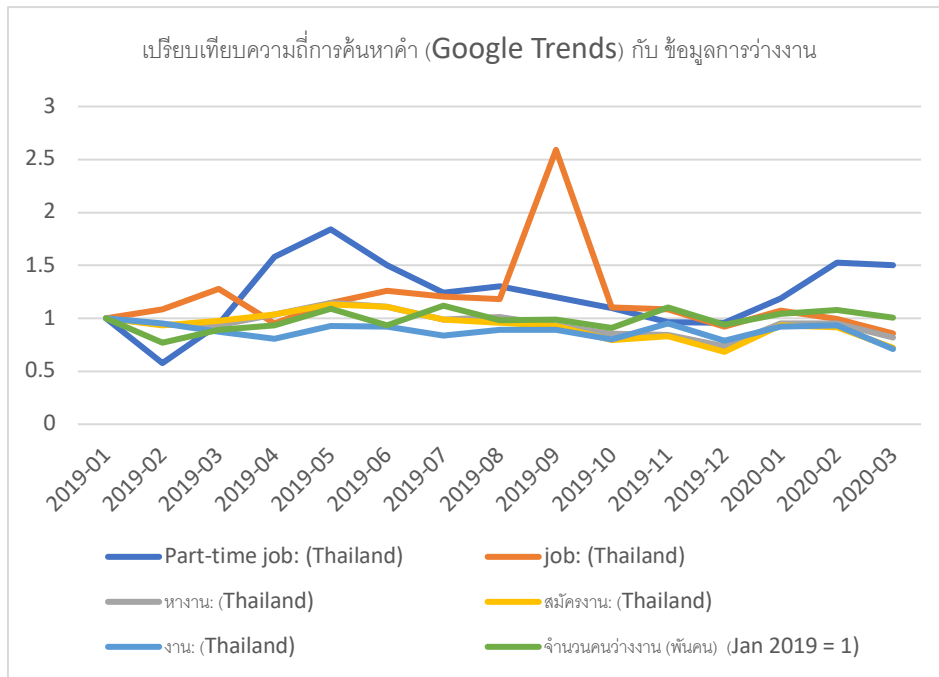


Figure 7: Average sentiment index



Figure 8: Distribution chart of Job in the RapidMiner

