COVID-19 Pandemic and Its Effects on Household Income in Malaysia During Lockdown

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Abstract

The goal of this study is to identify the most vulnerable socioeconomic group of people to the effects of the pandemic as well as to examine the socioeconomic group that is more likely to be affected due to income loss during pandemic. Data were collected via online questionnaire with a total of 395 respondents in Malaysia. The dependent variable involved in this study was income loss due to COVID-19 outbreak while the predicted variables included were age, gender, gross household income, employment sector, residential environment, education level and status of 'Bantuan Sara Hidup' (BSH) one-off relief. Based on Multinomial Logit Regression (MLoR) analysis, it was found that the most significant was employment sector (P = 0.000), where those who were business owner, self-employed and unemployed were the most susceptible to the income loss due to COVID-19. In addition, findings indicated that business owners or self-employed people were 4.098 times more likely subjected to income decrement (P = 0.002). At the same time, unemployed respondents were 6.725 times more likely to have their income decreased (P = 0.014) rather than not having changes in income during COVID-19 outbreak.

Keywords: COVID-19, economic, lockdown, pandemic

1. Introduction

COVID-19 case was initially reported on 30th December 2019 at Hubei province, China, becoming the first epicentre for COVID-19 pandemic (Wu et. al, 2020). Since then, the highly fatal and contagious

virus had outspread throughout the world, forcing the World Health Organization (WHO) to declare it as a global pandemic on 11th March 2020 (World Health Organization [WHO], 2020). The COVID-19 pandemic has led many governments, including Malaysia, to resort in lockdown on curbing the uncontrolled viral spread and fallout of public healthcare systems in accordance with WHO guidelines.

In Malaysia, the initial outbreak of the pandemic started when the first confirmed COVID-19 case, involving a tourist from Wuhan province, China was reported on 25th January 2020 (Elengoe, 2020) As of March 2020, the total confirmed cases of COVID-19 surged to 428 cases, with daily reported cases peaked on 16th March 2020 with 235 cases. The most significant infection cluster was the four-day religious gathering at Masjid Sri Petaling which included 16,000 participants (Barker, 2020). Malaysian government established the nationwide Movement Control Order (MCO) on 18th March 2020, implying stringent measures such as social distancing, movement restrictions, international border closure, closure of non-essential services and quarantine (Bunyan, 2020). The MCO had been extended three times, before being replaced by a more lenient conditional MCO (CMCO) on 4th May 2020, to recovery MCO (RMCO) on 10th June 2020.

Due to the government-mandated social distancing order, COVID-19 had caused severe disruption in various economies around the world. According to the World Bank survey, 11 million people in East Asia and Pacific are at risk of falling into poverty (Martin et al., 2020). The current situation has led the economy to collapse, causing severity on employment, wages, and livelihoods, undermining supply chains and upsetting industries, as well as provoking inequality, suffering and difficulties, especially among the poor Lin (2020). In Malaysia, the gross domestic product (GDP) exhibited reduction by 17.1% in the second quarter of 2020 (Arifin et al., 2020). The limited economic activity was due to restriction imposed during the MCO periods, which affected the industrial productivity in Malaysia. Department of Statistics Malaysia (DOSM) had reported that all sectors, excluding agricultural sectors, shows negative growth resulting from implementation of MCO (Arifin et al., 2020). The most affected sector was tourism, factoring from lack of international and local tourism activities. International tourism activities had contributed to half of the national tourism sector, according to DOSM. In conjunction with this, GDP recorded suffered a major loss, passing GDP in fourth quarter of 1998 (11.2%) (Arifin et al., 2020).

Besides that, upsurge in low export demand and disruption along the supply chain was recorded due to restriction of movement measures. Many of Malaysia's close trading partners such as Singapore, India and China are still recovering from the impact of COVID-19 outbreak Djlante et al. (2020). Globally, major stock market suffers from the impacts of COVID-19, displaying high volatility due to the lockdown measures taken. The negative impacts of the COVID-19 pandemic have also affected the

Malaysia's stock market, Bursa Malaysia. Negative sentiments revolved around the COVID-19 outbreak in Malaysia had led many investors to flee and panic sell stocks from Bursa Malaysia. The fear of infectious disease among investors in Bursa Malaysia was also reported previously during the SARS outbreak Chia et al. (2020). Airline, banking and tourism-linked stocks were among the worst performing stock reported in Bursa Malaysia Chia et al. (2020).

Besides the economy of the country as a whole, the statistic raises worrying questions on poor families being hit by income shock as well. According to the DOSM 2020 poll, half of them only had enough savings to last for two weeks, while only 28% had enough to last for two months Nordianah, 2020). Nordianah (2020) also cited that the average expenditure on household consumption during MCO was expected to decrease by 48 per cent. The stringent measures enforced by the Malaysian government have greatly affected the livelihood of many Malaysians.

The socioeconomic factors may affect the population's livelihood. Quite a number of studies have been conducted regarding the socioeconomic impact of Covid-19 on the households in Malaysia. Morgan and Trinh (2021) conducted a study to suggest coping strategies for the B40 class to sustain during MCO. They suggested that the B40 class people should be provided with a long-term and more oriented approach through skills and training by the government to ensure their sustainability. Morgan and Trinh (2021), in another study, called in an interview on eight developing countries including Malaysia. They discovered that various household variables, including household income class (prior to COVID-19), household socioeconomic factors, and COVID-19-induced factors, such as seeing at least one person lose their job or living in lockdown regions, increased the likelihood of an income loss. Martin et al. (2020) developed a micro-economic model to evaluate the socioeconomic impact of Covid-19 on individuals. The findings revealed that the poverty rate in the sampled city, San Francisco Bay Area, will temporarily rise from 17.1% to 25.9%, with the lowest wage earners suffering the most.

Monica et al. (2020) studied the implications of COVID-19 on household income and food security in two East African countries, namely Kenya and Uganda. Similar to other studies, it is proven that the respondents experienced income shock during the COVID-19 crisis. In addition, the food availability and dietary consistency was deteriorated. Other countries such as Myanmar were not excluded from being affected by COVID-19. Daio and Mahrt (2020) assessed the impacts of COVID-19 on the household using a micro simulation model based on the Myanmar Poverty and Living Conditions Survey (MPLCS) conducted in 2015. It was found that the pandemic had led to a significant increase in poverty during the lockdown month. According to Daio and Mahrt (2020), Myanmar's poverty rate was expected to rise in 2020, above its pre-pandemic level with many poor households are likely to be more impoverished. Comparable study was conducted by Jansenns et al. (2020) with household in

Kenya as sample. The data were analysed using household-level fixed-effects regression model. Subsequently, the findings showed that since the pandemic began, income from jobs as well as from gifts and remittances decreased by about one-third and above one-third respectively. The household spending on food, however, remained unaffected from pre-COVID stage.

The impacts of COVID-19 on the socioeconomic factors were also discussed in a few studies. For instance, it has been said that well-educated people generally exhibit better resilience towards household income loss Qian and Fan (2020). Employment sectors also play a significant role as a buffer against the effects of income loss. Employment in government sector is associated to a more stable income and better job security. Private sector employment as well as Small and Medium Enterprises (SME) businesses owner are more susceptible to the recession. This forces many companies to restructure by retrenching and laying off private sector employee due to economic downturn during COVID-19 (Shah et al., 2020). This has left many Malaysian unemployed and struggling financially. Type of residential environment, which include urban, suburban and rural areas, is often associated with the cost of living. Urban areas such as Kuala Lumpur is expected to have a higher living cost compared to rural areas (Kurre, 2003). This makes the urban dwellers to be more vulnerable to the negative economic impacts of COVID-19 compared to the rural dwellers.

While studies on the economic implications of COVID-19 is underway, majority of these studies are based on the coronavirus' macroeconomic and financial effects. This study, on the other hand, was aimed to identify the socioeconomic factors affecting the income loss during COVID-19 pandemic. The relationship between income loss and socioeconomic factors which include age, gender, gross household income, employment sector, residential environment and highest education level was examined. However, we focused only on the most affected group of people which was the B40 class. This study can be extended to other class of incomes in the future.

2. Methodology

2.1 Research Methdology

This study was conducted from 5th to 17th September 2020 via online platform. The population involved are all Malaysians aged between 16-65 years old. Convenience sampling method was implemented to choose the sample due to unavailability of the sample frame. Online questionnaire was disseminated to 395 selected respondents in Malaysia with varying background of their household incomes (RM). The questionnaire consists of 13 close-ended questions. These questions include the demographic profiles of the respondents as well as all socioeconomic factors being measured. For the outcome variable, the respondents were asked whether they have suffered any income loss during the

COVID-19 pandemic. Each respond was categorized into no income loss ("higher" or "about the same"), income loss ("somewhat lower") and no income at all.

2.2 Statistical Analysis

In achieving the goal of this study, a Multinomial Logit Regression (MLoR) method was implemented to assess probability of the risk of income loss due to COVID-19 outbreak shaped by the factors considered. The dependent variable involved in this study was income loss due to COVID-19 outbreak which was classified into no income loss ("higher" or "about the same"), income loss ("somewhat lower") and no income. Therefore, MLoR was chosen due to its ability to present nominal response variable with more than two levels (Agresti, 2019). In MLoR, the dependent variable is a logistic transformation of the odds or also known as logit. According to Agresti (2019), the logit model can be written as

$$\text{logit}\left[P\left(Y=1\right)\right]=\alpha+\beta_1x_1+\beta_2x_2+\beta_3x_3+\beta_4x_4+\beta_5x_5+\beta_6x_6+\beta_7x_7+\beta_8x_8+\beta_9x_9 \quad (1)$$

where x_1 = age, x_2 = gender, x_3 = marital status, x_4 = residential area, x_5 = BSH or KGP receival status, x_6 = race, x_7 = religion, x_8 = education, x_9 = employment sector and is the effect of on the log odds that Y=1, adjusting for the other. Similar to the binary logistic regression model, MLoR compares between two categories by categorizing the outcome variable into a series of comparison between two categories (Hua et al., 2021). In this study, "no income loss" was chosen as the reference category. Therefore, comparisons were made as followed:

$$\text{logit}\left[\frac{P\left(Y=\text{Income Loss}\right)}{P\left(Y=\text{No Income Loss}\right)}\right]=\alpha+\beta_1x_1+\beta_2x_2+\beta_3x_3+\beta_4x_4+\beta_5x_5+\beta_6x_6+\beta_7x_7+\beta_8x_8+\beta_9x_9 \quad (2)$$

Income loss ("somewhat lower") versus no income loss:

$$\text{logit}\left[\frac{P\left(Y=\text{No Income}\right)}{P\left(Y=\text{No Income Loss}\right)}\right]=\alpha+\beta_1x_1+\beta_2x_2+\beta_3x_3+\beta_4x_4+\beta_5x_5+\beta_6x_6+\beta_7x_7+\beta_8x_8+\beta_9x_9 \quad (3)$$

3. Results and Discussion

The descriptive statistics for all factors considered in this study are tabulated in Table 1, comprising a total of 395 respondents aged between 15 and 65 years old. Since the household income groups above RM4850 (M40 and T20) were less than 2%, they were excluded from the study. Hence, the sample included are only respondents who were categorized into the B40 group (income below RM 4850).

From Table 1, more than half of our respondents (54.2%) claimed that they have suffered a loss in income during COVID-19 pandemic while 35.2 % reported with no income at the time of survey. The respondents without income consists of those who are terminated from their job during the pandemic. Most of the respondents were female (67.6%), Bumiputera (84.1%) and Muslim (77.7%). In terms of marital status, married respondents dominated the sample, which covered 68.9% of the sample. Of all respondents, 74.9% received the BPN and 73.4% claimed that they are satisfied with the financial aid provided by government.

Table 1. Descriptive statistics of variable used in this study with sample size of 395 respondents.

Variable	Number of Respondent (%)
Income Loss	
No income loss	42 (10.6)
Income loss	214 (54.2)
No income	139 (35.2)
Gender	
Male	128 (32.4)
Female	267 (67.6)
Race	
Bumiputera	332 (84.1)
Non-Bumiputera	63 (15.9)
Religion	
Muslim	307 (77.7)
Non-Muslim	88 (22.3)
Age	
Marital Status	
Single	74 (18.7)
Married	272 (68.9)
Widowed/Divorced	49 (12.4)
Employment Sector	
Government	12 (3.0)
Private	112 (28.4)
Business Owner/Self-Employed	157 (39.7)
Unemployed	114 (28.9)
Highest Education Attained	
No formal education	51 (12.9)

PMR/SPM/SPMV	281 (71.1)
STPM/Matriculation/Foundation	20 (5.1)
Diploma/Degree	43 (10.9)
Residential Area	
Urban	224 (56.7)
Suburban	66 (16.7)
Rural	105 (26.6)
Received BSH or GKP?	
Yes	296 (74.9)
No	99 (25.1)
Are you satisfied with the government financial aid?	
Yes	290 (73.4)
Not sure	84 (21.3)
No	21 (5.3)

A multinomial regression analysis is performed to present the relationship between sets of identified factors and income loss (no income loss, income loss and no income). The "no changes" category is chosen as reference. Therefore, the multinomial regression analysis estimates the probability of having income loss over no income loss and the probability of having no income over no income loss. All decisions made are based on 0.05 criterion of statistical significance.

Table 2 and Table 3 depict results of the analysis. As shown in Table 2, a statistically significant result of the likelihood ratio Chi-square test ($p<0.05$) indicates that the estimated model fits the data adequately. Looking at the overall contribution of each predictor to the model in similar table, only marital status ($p = 0.001$) and employment sector ($p = 0.000$) contribute significantly to the model. Table 3 shows the significance of each predictor when comparing the group of respondents with income being affected by the COVID-19 outbreak (income loss and no income) with the group of respondents with unaffected income (no income loss). As indicated by the p-values, employment sector was the only significant predictor of income loss.

Table 2. Unique Contribution of Each Predictor

Predictor	χ^2	**p**
Age	0.628	0.730
Gender	0.076	0.963
Marital Status	18.909	0.001
Residential Area	3.282	0.512

BSH or KGP receiver?	1.417	0.492
Race	0.281	0.869
Religion	0.903	0.637
Education	7.433	0.283
Employment Sector	106.952	0.000

Note: P-values for the likelihood ratio Chi-square test and Pearson goodness-of-fit Chi-square test are 0.000 and 0.537, respectively. Pseudo R2 = 0.328.

Table 3. Multinomial Logit Models Predicting the Log Odds of Income Loss Vs. No Income Loss and No Income Vs. No Income Loss.

Predictor	Parameter Estimates, P-value, Odds Ratio	
	Income Loss vs. No Income Loss	No Income vs. No Income Loss
Age	-0.019, 0.444, 0.981	-0.014, 0.632, 0.986
Gender		
Female vs. Male	0.004, 0.992, 1.004	0.089, 0.849, 1.093
Marital Status		
Single	-1.412, 0.102, 0.244	-0.792, 0.404, 0.453
Married	-0.447, 0.525, 0.639	-1.299, 0.091, 0.273
Widowed/Divorced (Reference)		
Residential		
Urban vs. Rural	0.085, 0.841, 1.089	-0.298, 0.545, 0.743
Suburban vs. Rural	-0.018, 0.976, 0.982	0.180, 0.788, 1.197
Rural (Reference)		
Received BSH or KGP?		
No	0.002, 0.997, 1.002	-0.409, 0.427, 0.664
Yes (Reference)		
Race		
Non-Bumiputera	-0.209, 0.708, 0.811	-0.338, 0.598, 0.713
Bumiputera (Reference)		
Religion		
Non-Muslim	0.483, 0.355, 1.622	0.471, 0.421, 1.602
Muslim (Reference)		
Employment Sector		
Business/Self-employed	1.411, 0.002, 4.098	2.981, 0.000, 19.699

Unemployed	1.906, 0.014, 6.725	4.867, 0.000, 129.889
Government/Private (Reference)		
Highest Education Attained		
No Formal Education	1.556, 0.089, 4.739	1.792, 0.074, 5.999
PMR/SPM/SPMV	0.734, 0.168, 2.083	0.343, 0.587, 1.409
STPM/Matrikulasi/Asasi	1.432, 0.235, 4.187	1.213, 0.349, 3.363
Diploma/Degree (Reference)		

In contrast with government or private sector employee, self- business or self-employed respondents are 4.098 times more prone to suffer income loss ($p = 0.002$) during COVID-19 outbreak. Furthermore, the probability of unemployed respondents to suffer income loss ($p = 0.014$) are 6.725 times more during COVID-19 outbreak. In addition, respondents with own business or self-employed are 19.699 times more likely to suffer income loss rather than having their income remain unchanged, compared to respondents who worked in the government or private sector ($p = 0.000$). Whereas unemployed respondents are 129.899 times more probable to exhibit similar issue compared to the government or private sector employee ($p = 0.000$).

Thus, the findings indicated that the most susceptible groups to the pandemic in terms of household incomes are business owners, self-employed and unemployed Malaysian. These groups are more likely to either have their income reduced or no income at all due to lockdown imposed in the midst of COVID-19. This is due to sales reduction experienced by many business owners and self-employed. Many non-essential businesses were also not operated during the lockdown imposed by Malaysian government. International Labour Organization had reported loses between RM100,000 to RM 300,000 among small enterprises (Lim, 2020). A survey conducted by Department of Statistics Malaysia (DOSM) between 10th April 2020 – 1st May 2020, revealed that 67.8% of companies and businesses reported no income and 68.9% of businesses financing their operation using savings (DOSM, 2020). The issue worsens when around 51.1% of employer and 50.4% of self-employed were not financially ready to operate under total lockdown (DOSM, 2020). This issue is coherent with the findings as smallest companies are lack of savings to sustain their operations. Another study conducted in United States, involving 5,800 business owners, indicated that majority of the businesses had less than one-month cash on hand and acquired funding through CARES act, which is equivalent to BSH in Malaysia (Bartrik, 2020).

Another study found that social distance restrictions, combined with demand shifts caused by health

and economic variables, reduced the number of operational small businesses and enterprises in the United States of America. About 22% or 3.3 million of small businesses and enterprises were declared non-operational across all industry from February 2020 to April 2020 (Fairlie, 2020). Similar behavioural changes of consumers were reported in Malaysia, where consumers no longer opt to dine in and watch movies in cinema, as well as limiting their time for grocery shopping due to health and economic factors after lockdown was imposed (DOSM, 2020). DOSM (2020) reported that the firm size of most business owners in Malaysia is either micro (43.4%) or small (40.4%) enterprises [22]. Thus, special attention is needed for business owners from Malaysian government, especially those from small and micro enterprises, to avoid the cascading effects on unemployment number and economy. This effect can be mitigated by expanding the government cash handout, funding and loan, which are highly demanded by business owners (Fairlie, 2020).

Previous studies had also shown that the trend of household income loss was different from region to region among domestic workers, depending on the level of imposed lockdown. The severity of household income loss was dependent on the amount working hour loss, factoring from restricted mobility due to imposed lockdown (Internation Labour Organization, 2020). Malaysia imposed a very strict lockdown and movement control regulations, resulting in only a handful of essential services were allowed to fully operate. Workers from other sectors were advised to work from home instead (Mazwin, 2020). This had led to 46.6% of 168,182 respondents suffered job loss while 35.5% reported more than 90% of income loss (DOSM, 2020; Mazwin 2020).

4. Conclusion

Governments around the world had taken various measures to oppose the effects of COVID-19 on their economy and protect the most susceptible members of the society. The influence of COVID-19 pandemic on the income loss among the lower income bracket (B40) in Malaysia was examined and studied across various socioeconomic factors. From the Multinomial Logistic Regression analysis, we found that employment sector was the most significant predictor to the changes of income. We found that government employees and workers from private sector were less affected to income loss compared to the self-employed and unemployed. This is due to the social security provided by the formal employment (government employees and private worker) as compared to the business owners, self-employed and unemployed. Hence, this paper would be beneficial to those authorities, especially Malaysian government, as well as others to initiate necessary action in enhancing and upgrading life status in future, aligning with the new norm. It is imperative for Malaysian government to improve their social safety net among B40 economic bracket, especially for those who are self-employed, unemployed and business owners.

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