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Characteristics of the Urban Poor under COVID-19 Control Measures: A Case Study in Bangkok

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Abstract

The study aims to investigate the effects of COVID-19 and highlight characteristics of the urban poor during the COVID-19 outbreak in Bangkok. The study utilizes data from community surveys with multi-stage sampling to obtain a total of 500 samples in the slums during the first lockdown in Bangkok and displays results in descriptive statistics and empirical tests using binary and order logit models. Results show that the poor have faced the most adverse socioeconomic impacts during the COVID-19 outbreak with restrictive controls, such as experiencing the largest income reduction and deficit as well as an increasing debt ratio. Binary logit estimations indicate that the poor are likely to be those with low education and be unemployed both during and after the lockdown periods. Unemployment during the lockdown had the largest significant effect on poverty and an even greater effect in the post-lockdown. In addition, age is another significant factor for the poor after the lockdown, indicating the possibility for older-aged workers and the elderly to become poor in the post-COVID period. Ordered logit estimations also reveal that aging has a negatively significant relationship to income level after the lockdown, while women tend to drop their income levels significantly during the lockdown when there was high unemployment. Therefore, policies should be prepared to mitigate adverse effects of the vulnerable groups. Not only should short-term policies and welfare schemes be provided during the lockdown, but policies must also be considered with a long-term human development approach in the post-COVID world. This study suggests social protection policies with comprehensive and potential concerns.

Keywords: COVID-19, Urban Poor, Poverty, Slums, Social Protection Policy, Bangkok, Thailand

JEL Classifications: M30, M310, M370

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1. Introduction

Since the World Health Organization (WHO) declared the new COVID-19 disease as a Public Health Emergency of International Concern in early 2020, countries have responded to the widespread pandemic by announcing and implementing restrictive control measures. As a result, the world has been severely affected by the restrictive controls not only through direct effects on health but also indirectly on economics and social-related problems.

The adverse impacts of controls have had enormous consequences, with multiple channels of transmission to many dimensions of development. The COVID-19 pandemic specifically requires social and human measures, which are non-pharmaceutical interventions (NPIs), such as social distancing, self-sanitation, mask protection, and more, as mentioned in Hevia and Neumeyer (2020). Many daily economic and social activities have been severely affected by the social distancing that was strictly required to prevent the contagion. This includes international and domestic travel and the transportation sector. Moreover, the decline in overall consumption and production in the economy from the manufacturing and services sectors resulted in significant and sudden job losses and underemployment in the economy. These measures of health prevention in turn affect social activities and the economy.

Loayza and Pennings (2020) interpreted COVID-19 as a massive and highly contagious global shock. Otker-Robe and Podpiera (2014) point out that adverse effects from an economic recession can increase poverty and inequality as well as social and political problems such as mental health, violence, migration, and the neglect of fragile groups. In addition to the economic impacts of income and markets, Bundervoet et al. (2021) also indicate that disruptions to service delivery, particularly health and education services, have significant long-run effects, especially the negative impact of health and education in childhood on future socioeconomic well-being. Thus, adverse impacts on the economy and services inevitably affect social issues through the loss of individual and family income, employment, and rising poverty.

Restrictive measures to control the spread of the virus have exacted high costs on the global economy and poverty. Laborde et al. (2020) expected global GDP to fall by 5% in 2020—much deeper than during the global financial crisis of 2008–2009—which affected global poverty. In a new scenario analysis, the authors estimated that if adequate responses in poorer nations were absent, close to 150 million more people globally could fall into extreme poverty (those living under $1.90 a day) in 2020—an increase of 20% from pre-pandemic levels. The World Bank (2020a) reported that COVID-19 was likely to push between 88 and 115 million people into extreme poverty around the globe in 2020.[1] A joint United Nations (UN) statement[2] mentioned that tens of millions of people are at risk of falling into extreme poverty; while the number of undernourished people currently estimated at nearly 690 million could increase up to 132 million by the end of the year, and nearly half of the 3.3 billion global workforce are at risk of losing their livelihood.

[1] Also in Yonzan et al. (2020) https://blogs.worldbank.org/opendata/impact-covid-19-global-poverty-under-worsening-growth-and-inequality

[2] https://www.who.int/news/item/13-10-2020-impact-of-covid-19-on-people's-livelihoods-their-health-and-our-food-systems. Joint statement by ILO, FAO, IFAD, and WHO.

However, as a result of the long-term impacts of COVID 19 on poverty, Kharas and Dooley (2021) [3] estimates that by 2030, 588 million people globally could still live in extreme poverty, an additional 50 million people compared with pre-COVID-19 estimates. This rising global poverty is a setback to reaching the SDGs. However, according to them, these trends could change if countries used the opportunity brought about by COVID-19 to put in place social protection programs to support the most vulnerable As the International Labour Organization (ILO) (2020) observed, the COVID-19 outbreak offered the opportunity to substantially strengthen social protection and policy action and support should be provided for the poorest and the most vulnerable groups who are the hardest hit (UN 2020). It is hoped that with well-managed social protection, the situation may not be that worse.

Countries responded to the pandemic with large social spending programs to mitigate the worst of the economic shock. Advanced economies provided trillions of direct and indirect fiscal support, equivalent to 28% of their GDP. Emerging and developing economies spent 7% and 2% of GDP, respectively. The World Bank estimated that in March 2020, there were 103 active social protection programs in 45 countries, but this number jumped to 1,414 programs in 215 countries by December 2020—the first year of the pandemic. These measures likely kept many families from falling back into poverty (Kharas and Dooley, 2021).

However, there is heterogeneity as the degree of impacts and responses or coping strategies of different areas and occupation groups are different (e.g., Bukari et al., 2021; Josephson et al., 2021; Laborde, at et., 2021). Impacts are most likely to hit the poor relying on urban services, the informal sector, and those living in dense urban areas. Those in rural areas engaging in own-account agriculture or subsistence farming may have minimal exposure to the virus and its labor impacts; thus, their responses to this shock are also different. In addition, there are also different gender impacts from COVID-19.

Disproportionate effects in poor countries and groups exacerbate existing disparities. A World Bank paper by Bundervoet et al. (2021) using data from 34 low- and middle-income countries indicated that the short-run distributional impacts of the COVID-19 pandemic in developing countries are inequitable, with vulnerable segments of the population being disproportionally affected by the pandemic-induced economic crisis. As the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) (2021) pointed out, poorer countries and more vulnerable groups were more severely affected by the socioeconomic shocks of the pandemic. Almost 90 million people in the Asia-Pacific region have fallen into extreme poverty because of this crisis, which is erasing years of progress in poverty reduction. Furthermore, the ESCAP survey finds that in the wake of epidemics or pandemics and trade shocks, countries with low health and social protection expenditures and widespread vulnerable employment faced larger setbacks in economic growth, poverty, inequality, and human capital. Moreover, pre-existing vulnerabilities can amplify shocks and make recoveries more difficult.

Impacts are unevenly spread across populations and places, with poor and vulnerable groups disproportionately affected. In particular, slums, peri-urban, and informal settlements have been disproportionately impacted by the COVID-19 pandemic. Slum dwellers in many developing countries are characterized by informal workers with insecure jobs, a lack of social safety nets, and overcrowded housing conditions. Thus, the

[3] https://www.brookings.edu/blog/future-development/2021/06/02/long-run-impacts-of-covid-19-on-extreme-poverty/

pandemic and lockdowns left them without jobs and income, as well as surviving in high-risk and unsafe conditions (Boza-Kiss et al., 2021).

As Wong Sing Yun (2020) noted, although many studies appeared to highlight the economic impacts of the pandemic COVID-19, many of these studies seemingly neglected the issue of the poor, who are suffering the most from the pandemic. The poor not only worry about how to survive from the pandemic, but also about surviving the lockdown. In addition, poverty due to the COVID-19 outbreak becomes a key obstacle to achieving the UN Sustainable Development Goals and targets as a whole because poverty affects other dimensions of development. Thus, as mentioned by Kharas and Dooley (2021), adverse impacts on poverty would last a long time and it is critical to put in place social protection policies which could lessen these adverse impacts.

The crisis outlined above provides motivation why this study aims to examine the impacts of the COVID crisis on the poorest group (who are the most affected) in slum areas of Bangkok, which is the hardest-hit province in Thailand, and provide direction for social protection policies. As noted by Yun (2020), the quantitative magnitude of the economic costs varies across countries; thus, future in-depth studies should be extended and focused on individual countries. This case study, conducted in the slums of Thailand, aims to examine the magnitude of socioeconomic impacts and identify those who have fallen into poverty during the pandemic period to suggest appropriate policies. The paper contributes to the growing literature on the impacts of COVID-19 around the world.

Therefore, this study aims to fill in the knowledge gap on the impacts of COVID-19 on the disadvantaged, particularly the urban poor, as well as the preparation of social protection measures in the case of Thailand. This paper explores what occurred in a city that is hardest hit by COVID-19 with detailed information from a specific survey after the first lockdown in 2020. Special attention is focused on the most vulnerable and disadvantaged, which are the urban poor, which is particularly beneficial research in light of rare field survey information during the outbreak. Lessons learned from this case study would be useful for preparing for the longer-term COVID-19 situation with proper social protection policies.

2. Country context

In Thailand, the spread of COVID-19 in the first outbreak resulted from those coming from abroad transmitting the virus in main clusters, such as main sporting complexes and night-time entertainment in Bangkok. After the number of infected people began to quickly increase, the government enacted control measures for the COVID-19 pandemic, including fully locking down Bangkok and other cities in late March 2020. The first lockdown took about three months. By establishing the Center for COVID-19 Situation Administration (CCSA) as the central unit for COVID-19 management, the government ordered principal economic activities to close, such as department stores, restaurants, entertainment, and sports activities. In addition, the government ordered the closure of all schools, educational institutes, and offices by asking workers to work from home and learn from home. The government also implemented an emergency decree with a curfew restricting travel at night time as well as across cities at that time (including during the Thai New Year vacation in April 2020) with the fear of spreading the virus from the city to the countryside. However, the urgent announcement of the closures of many workplaces and economic activities in Bangkok led to many difficulties for workers, particularly informal workers, who have no work insurance and face uncertainties. Many workers returned home to other provinces, fearing uncertain employment and income from staying in Bangkok. However, many urban poor were

unable to leave their disadvantaged areas for better places and had to live with uncertainty in Bangkok.

In Thailand, the lockdown created problems such as unemployment and loss of income (i.e., 340,000 jobs were lost, and GDP dropped about 12–15% in the second quarter). Even after the lockdown in the third quarter, the country experienced high unemployment (about 2–3 times higher than the previous year) with a high poverty rate of 8.8% based on 1.5 million poor in 2020 (World Bank, 2021).

In 2020, the Thai economy contracted about 6.5%, with around 300 billion baht (approximately 18% of GDP) spent on cash transfers and relief measures (Ibid, 2021). Similar to most countries, these cash transfer measures were delivered in the form of temporary programs (typically three months during the first lockdown). The Thai government continued fiscal stimulus packages, expanding the fiscal deficit, to boost economic growth by stimulating consumer spending. However, general policy measures were not well targeted to address the degree of adverse effects experienced by the most vulnerable groups in various places and were not specifically designed.

Given that limited field surveys for policy design were conducted at the time of the COVID-19 outbreak, this research, therefore, aims to provide more information on the adverse socioeconomic impacts of the government measures to control the pandemic on the vulnerable group in Bangkok's slum areas. Characteristics of the urban poor are explored in this study to understand who is the most vulnerable and what factors affect poverty. Suggestions are also provided for appropriate social protection policy dimensions.

Kittiprapas (2022) examined factors affecting the overall life problems during the first lockdown period and found that significant factors were unemployment, loss in income, as well as being low-educated and female. These tend to lead to greater life problems. Kittiprapas and Theordudomtham (2021) investigated factors affecting debt after the lockdown and found that unemployment, the loss of income, and the increase in expenditures are significant factors contributing to increased debt in post-lockdown. Given existing research, this study aims to build on empirical analysis from the field survey data and fill the knowledge gap by investigating who is likely to become poor from the circumstances of the COVID-19 outbreak both during the lockdown and post-lockdown periods, who tends to be vulnerable for the long term, as well as implications for policies to provide short and long-term policy recommendations.

3. Research Approach, Sample Selection, and Methodology

The study is exploratory research utilizing data from a field survey of low-income communities or slums in Bangkok in 2020[4]. This case study identifies target groups and areas to examine the impacts of the COVID-19 pandemic crisis on the most vulnerable. As the urban poor often work in the informal sector and rely on daily income with no employment insurance from firms or the government, they are likely to be the most affected group. This study focuses on the urban poor. This study then selected Bangkok, which was the most affected by the first lockdown, as a case study.

3.1 Data Collection and Sampling Strategy

As indicated in urban economic theories (i.e., McCann, 2001; Fujita, 1989), the low-income group is likely to live in the inner city due to high transportation costs and

[4] which was conducted for the research project "Social Impacts from COVID 19 Pandemic and Economic Crisis" supported by the Ministry of Social Development and Human Security of Thailand.

economic agglomeration that benefits earning opportunities from various activities as well as available public utilities in the city. Therefore, the survey was conducted in low-income areas (slums) in the core business districts (CBD), which are highly commercialized and tourism-related, thus highly affected areas.

This case study collected data using multi-stage sampling to select the urban poor households in Bangkok's slum areas in the 11 inner districts of Bangkok, with a total population of 807,528. The sampling strategy started by first selecting urban areas/districts where the urban poor tend to concentrate on (from secondary data of the Bangkok Metropolitan Administration - BMA), then selecting communities in those districts (suggested by the Community Orgaization Development Institute or CODI of the Ministry of Social Development and Human Security), and finally selecting households with a particular focus on households with fragile members in those communities suggested by expert organizations and individuals such as health volunteers and village heads) to obtain a total of500 samples in those combined areas.

The survey was conducted from late August to mid-September 2020, which was the period after the first lockdown in Thailand (implemented late March to June 2020), but questions were asked to collect data since the pre-lockdown period to compare the magnitude of changes in economic and social indicators over three periods; before the lockdown, during the lockdown, and after the lockdown. As shown by data and the literature review, the poor suffer most during the lockdown. As a result, it is important to understand their situation during the lockdown period, though we also consider long-term effects after the lockdown. Thus, information from these periods is also covered for the analysis.

3.2 Methodology

The analysis employed both descriptive statistics and empirical tests using the binary logit model and the ordered logit model. Changes are reported in descriptive statistics to compare magnitude the of impacts over the time span during the pre-lockdown, lockdown, and post-lockdown periods in terms of socioeconomic indicators such as income, expenditure, debt, savings, poverty rate, and characteristics of the poor

The cut-off poverty line operated in the study was adjusted from the latest poverty line (at that time of the survey) established by the National Office of Economic and Social Development Board (NESDB) in 2018, which was 3,214 baht a month. Considering about a 1% yearly inflation rate, the study used a poverty line for Bangkok in 2020 of about 3,300 baht a month (about USD $100–$110 with exchange rates fluctuating between 30 to 33 baht per USD $1). Thus, a 3,300-baht monthly income is the cut-off poverty line applied as the operational definition of the '2020 Bangkok urban poor' in this study. Therefore, the 'urban poor' in this case refers to those having a monthly income below 3,300 baht. In addition, the near poor group is defined as those who have an income not exceeding 20% above the poverty line, so we use the income range of 3,301–4,000 baht for the near poor.

For empirical tests, we used the model $Y = f(X_i)$ to test factors affecting the poor both during the lockdown and post-lockdown. Two models are used for empirical tests. The first model is binary logit to test the characteristics of the poor during and post lockdown. Binary logit model can be used for a dependent variable with two outcomes (i.e., Long, et al., 2006; King, 2008); thus, it is employed for estimations with a dependent variable Y having 2 discrete outcomes (1=those under the poverty line or being poor and 0 = those above poverty line or non-poor). Y represents the poor (or those who fall into poverty or have an income under the poverty line) while X_i represents independent demographic factors such as sex, age, education, and employment.

The second model employed for the additional analysis of those who are likely to become poor with the change in income is the ordered logit model, estimating factors that tend to affect income level, where Y is the level of income in 6 order scales and X_i are the same set of demographic factors (namely, sex, age, education, and employment). This is to examine what factors are more likely to influence the increased in income level and directions. As the dependent variable (Y) is ordinal, it is reasonable to use the ordered logit model (i.e., Williams, 2016; Grilli and Rampichini, 2014).

Table 1: Description of Variables Used in Both Models.

Variable	Description	Measurement
Dependent variables (Y)		
1. For binary logit - Poor and non-poor	The poor and non-poor, separated by income level.	2 Dummy variables 1= being poor (monthly income less than 3,300 baht) 0 = non-poor (monthly income above 3,300 baht)
For ordered logit - Income levels.	Income ranges	Ordinal scales from low to high: 1= below 3,300 baht, 2 =3,300 -4000 baht, 3 =4,000 -7,000 baht, 4 =7,000-10,000 baht, 5 =10,000 -15,000 baht. 6 =above 15,000 baht
Independent variables (X)		
Demographic factors		
- Age	Age	Years of age
- Sex	Sex	1= Male, 0= Female
- Education levels	Levels of education attainment	Ordinal from low to high levels, 1=lower than primary 2=primary level 3=secondary level 4=higher than secondary
- Employment Status	Distinguish the employed and the unemployed due to COVID-19 lockdown	1= Unemployed 0= Employed

Note: Both logistic models were analyzed by the STATA statistical program. The sample size is 500, which beyond the required sample size of 400 set by Yamane (1967).

4. Results and Discussions

Before presenting results from empirical tests and analyzing factors affecting poverty during and post- lockdown periods, the study provides some background on socio-economic changes in key indicators from the survey's descriptive statistics.

4.1 Economic indicators

Data shows that the COVID 19 situation has largely affected the vulnerable and the urban poor, as we can see changes during the three periods with the most adverse effect happened during the lockdown. Table 2 presents changes in economic indicators, namely, income, expenditure, debt, and saving.

Table 2: Changes in Monthly Average Levels of Income, Expenditure, Debt, and Savings (in baht and percentage): Pre-lockdown, Lockdown, and Post-Lockdown

Periods	**Average monthly income**	**Average monthly expenditure**	**Monthly debt obligation**	**Average savings**
Pre-Lockdown	8,167	6,296	17,929	−16,059
During Lockdown	3,233	4,067	19,098	−19,932
Post-Lockdown	5,218	5,170	22,737	−22,690
% changes between pre-lockdown and lockdown	−60 %	−35%	7%	−24%
% changes between pre-lockdown and post-lockdown	−36%	−18%	27%	−41%

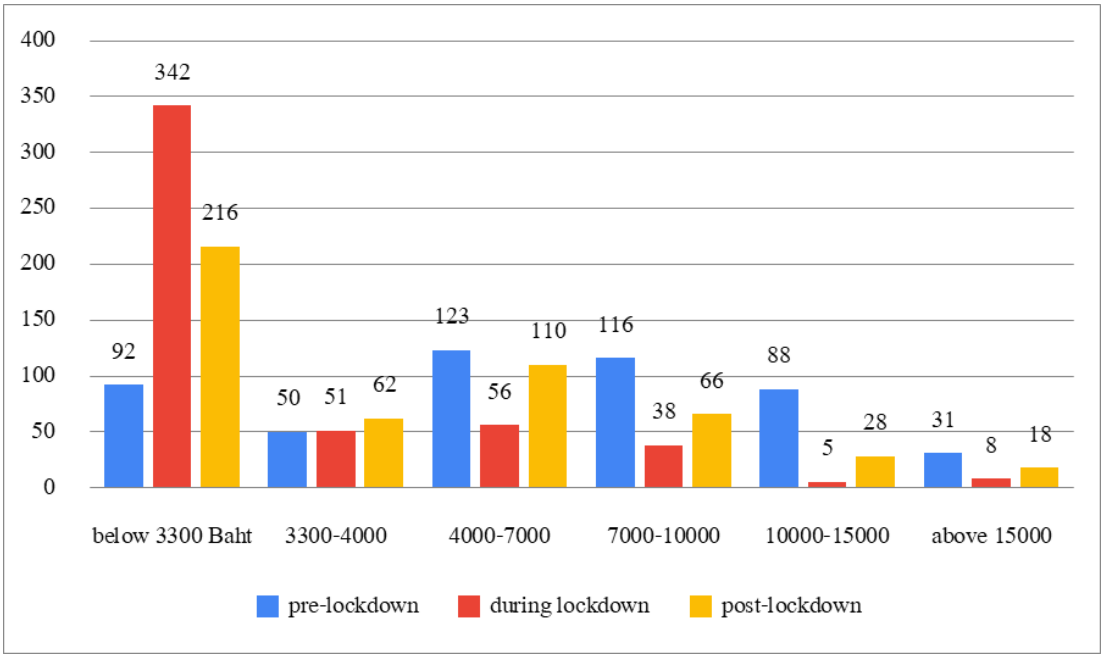
Source: Rearrange Table 3 in Kittiprapas, S. (2022)

Table 2 shows that average income has dropped as much as 60% during the lockdown. Even after the lockdown was eased, average income was still much lower than pre-lockdown, accounting for a 36% drop. Expenditure also similarly declined (though on a smaller scale than the income drop) during the lockdown and post-lockdown periods compared to pre-lockdown because people were likely to spend less due to fewer outside activities and a lack of income. Although adverse impacts seem to be lessened after the lockdown, the debt burden[5] continues to increase with an opposite trend in saving.

The following data presents changes in income level by the number of respondents in each income and expenditure level during the three periods (Figure 1) as well as the ratio of expenditures to income to demonstrate the economic burden of each income group (Figure 2) over the three periods.

[5] This is the amount of debt obligation, which is not necessarily the same as the debt monthly payment.

Figure 1: Number of Persons in Each Income Group: Pre-, During, and Post-Lockdown

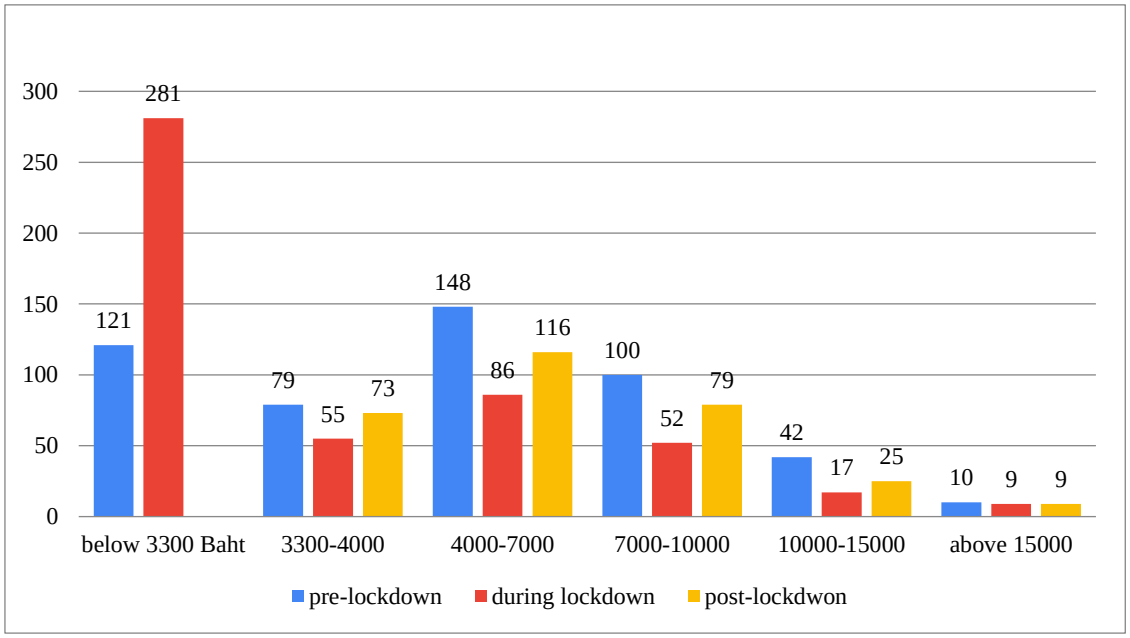


Source: Converted from Table 4 in Kittiprapas, S. (2022).

Figure 1 shows that since the lockdown period, the majority of respondents have had an income lower than 3,300 baht (under the poverty line), and it is evident that the numbers of this income group have increased sharply during the lockdown. Thus, the poor have increased sharply since the lockdown period (68.40% from 18.40% before the lockdown). However, it is obvious that the number of the poor remains high after the lockdown (43.20%), showing that an adverse impact on the economy still exists. It is also obvious from the figure that the numbers of people with an income higher than 4,000 baht (particularly those above 10,000 baht) have decreased from the lockdown period. Even in the unlocked period, their income could not rise back to the same pre-lockdown level.

However, another important economic indicator is the level of expenditure. Post-lockdown expenditure increases while income does not accordingly increase. Figure 2 compares changes in expenditure levels by the number of respondents over the three periods.

Figure 2: Number of Persons in Each Expenditure Group: Pre-, During, and Post-Lockdown

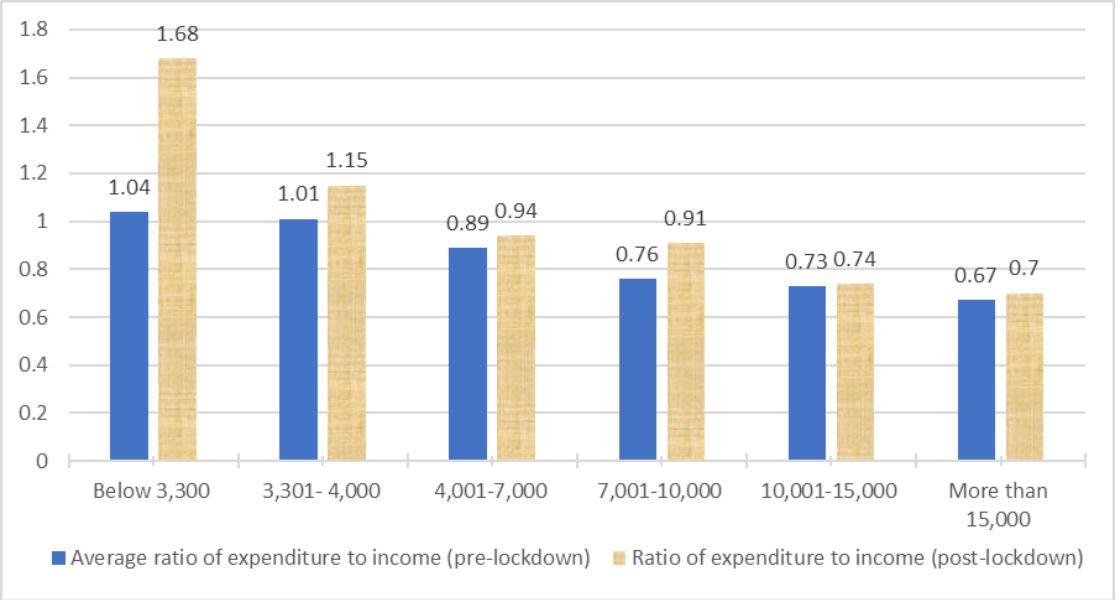


Source: Converted from Table 13 in Kittiprapas, S. et al. (2020)

Figure 2 presents expenditure levels by income group, indicating that the majority of respondents spend less than 3,300 baht monthly for their living expenses during the lockdown, when most of them lost income and had to cut back on spending. However, after the lockdown, all subjects spent more than 3,300 baht. It is clearly seen that at other spending levels, expenditure in the post-lockdown period is higher than during the lockdown. This situation can reflect the significant economic burden reflected in the post-lockdown period.

However, the economic hardship is considered from the ratio of expenditure to income, which reflects the level of cash shortfall they faced. For the poor, this could reflect the inadequacy of basic needs. Figure 3 Shows the ratio of expenditure to income of each income group both in pre-lockdown and post-lockdown periods to compare the effects of the COVID-19 situation.

Figure 3: Ratio of Expenditure to Income of Each Income Group both in Pre- and Post-Lockdown Periods.



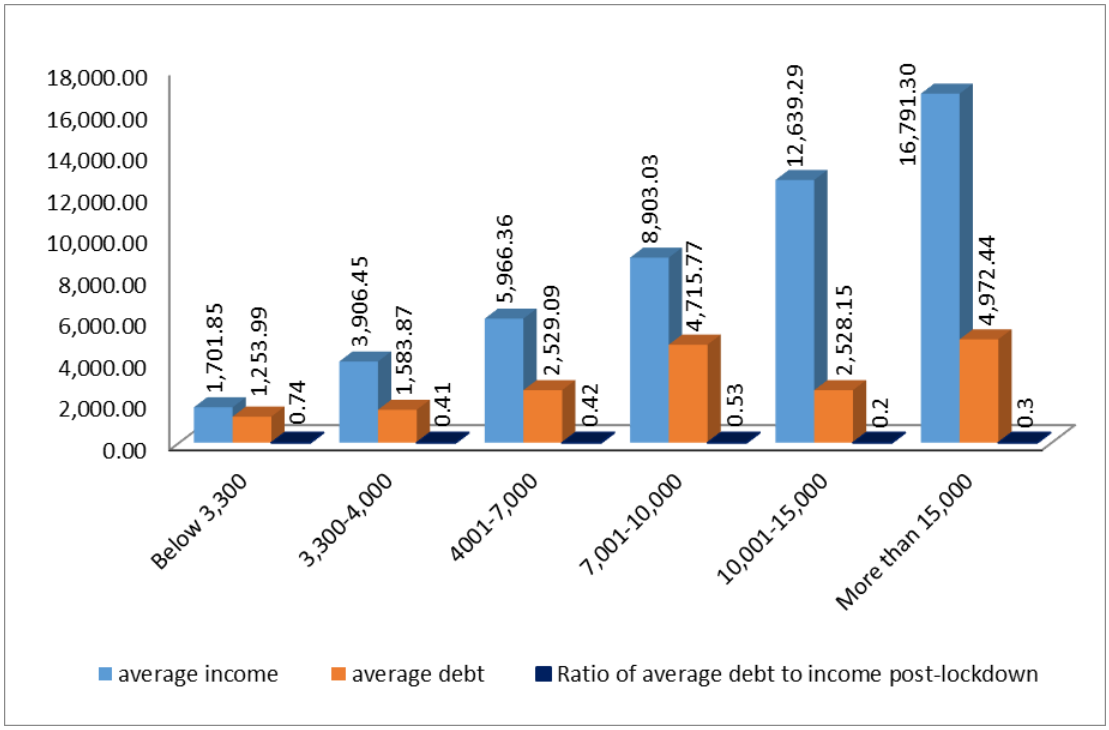
Source: Converted ratios from Table 6 and Table 7 in Kittiprapas, S. (2022)

Figure 3 concludes that the poorest group has the highest ratio of expenditures to income, or the largest shortfall of money. That is, the poorer they are, the higher the ratio of expenditures to income, which increased consistently in both pre- and after-lockdown periods. However, the latter shows that the ratio is relatively higher than the former for all income groups, which may be because during the period after lockdown, these vulnerable groups have to pay more expenditure but still cannot match with the low income and employment from the downturn economy, which seems not to recover after the lockdown compared with those before the outbreak. The poorest group (income below 3,300 baht) faced a remarkable increase, with the highest ratio of expenditure to income in post-lockdown (rising to 1.68 compared to 1.04 before the outbreak). This increase reflects greater economic hardship after the outbreak, resulting in more expenditures but a loss in income. Even before the government's lockdown measure, the ratio of expenditure to income of the poorest group was already high—and the highest among the income groups—reflecting their economic hardship and the gap in basic needs.

Effects on Debt

One serious impact due to COVID-19 after the lockdown is debt. This study found that the size of debt has continued to increase in the post-lockdown period, as reflected in Table 1. The ratio of debt to income is highest in the lowest-income group, as presented in Figure 4 as follows.

Figure 4: Average Monthly Income and Debt, and Ratio of Debt to Income by Income Group in post-lockdown



Source: Converted from parts of Table 3 in Kittiprapas,S and Terdudomtham, T (2021)

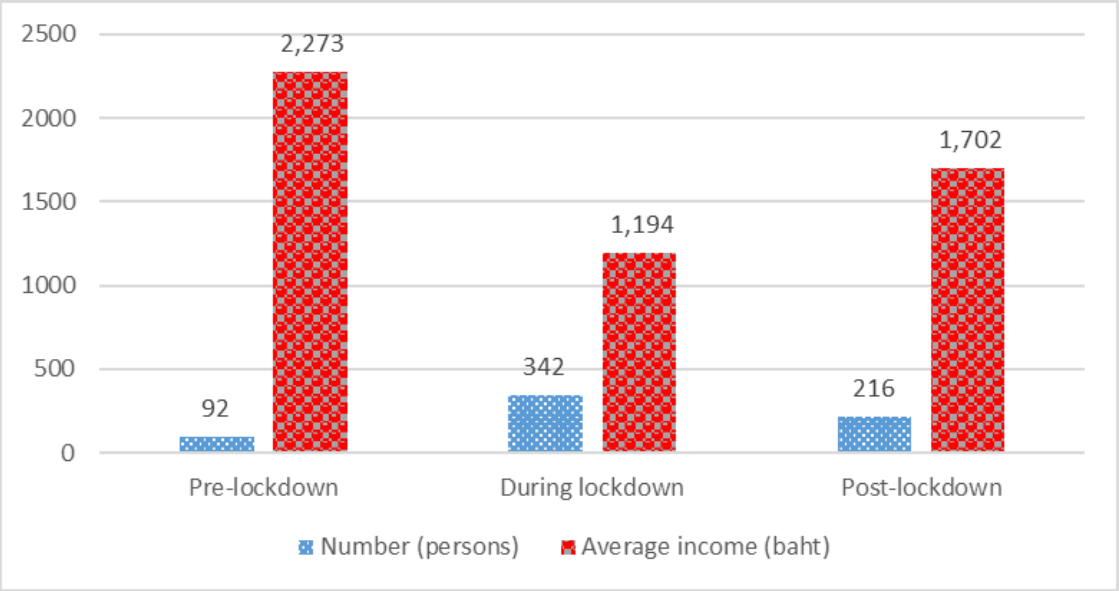
Figure 4 shows average income and debt levels in each income group post-lockdown. It is clearly seen from the figure that debt and income levels are close for the poorest. Thus, the lowest income group has the highest ratio of debt to income at 0.74. That result reflects that almost three quarters of their low earnings have to be paid for debt.

The effects on debt may be seen more clearly after the lockdown, which witnessed a higher gap of expenditure to income, especially for the poorest (Figure 3). Table 1 reveals that the average level of debt increased after the lockdown (22,737 baht post-lockdown, increasing from 19,098 baht during the lockdown and 17,230 baht pre-lockdown), which may have resulted from the longer term of unemployment and greater income deficits. The number of indebted people also increased. Thus, the debt problem was likely to be more serious in the post-lockdown period when the vulnerable still could not find jobs and had to use informal borrowing with high interest rates. As empirically shown by Kittiprapas and Theordudomtham (2021), unemployment, higher expenditures, and income loss significantly affected the increase in debt after the lockdown.

Effects on poverty and characteristics of the poor

It is obvious that poverty substantially increased with the lockdown measures. Figure 5 shows the number and percentage of the poor over the three periods for comparison.

Figure 5. Number of People Below the Poverty Line and Average Monthly Income Levels: Pre-Lockdown, During Lockdown, and Post-Lockdown



Source: Converted from Table 5 in Kittiprapas, S. (2022) and Kittiprapas,S and Theordudomtham, T (2021); Figure 12 in Kittiprapas, S et.al (2020)

Figure 5 compares the number of the poor (those falling under the poverty line) and average income over the three periods. It is evident that the number and percentage of those falling under the poverty line increased sharply during the lockdown period (from 92 to 342 people, or 68.4%) when average income fell almost 50% (from 2,273 to 1,194 baht), adding 250 new poor. The data reflects a significant adverse effect on poverty as the crisis brought the near-poor (within 20% of the poverty line) to become the poor. Even after the lockdown, the number of the poor is still high, with 216 people, reflecting the limitations in earning income and fewer job opportunities. It is clearly seen from the level of income in the post-lockdown period (1,702 baht, or about a 25% drop from pre-lockdown); thus, adverse effects still remain in the post-lockdown environment, with a high poverty rate of 43.2%.

This significant increase in poverty in slum communities is consistent with the rise of poverty in Bangkok in general. United Nations Thailand (2020) reported that of the rise in urban poverty due to the COVID-19 situation, Bangkok was the worst affected location.

Not only the increased numbers of the poor, this survey data also found that numbers of the near-poor group (between 3,301–4,000 baht) have also increased in the post-lockdown, while the number of respondents with income greater than 4,000 baht has decreased since the lockdown.

It can be concluded from the results in the earlier mentioned tables and figures that the pandemic and the control measures, especially the lockdown, added more numbers of the poor, who have problems with the income to expenditure deficit more than any other group, as well as the highest debt to income ratio. The poor, or the lowest income group in this study, is the most vulnerable. More respondents fall into the poor and near-poor categories. This is a call for policy management in dealing with poverty and informal debt in post-lockdown that adverse effects still remain.

4.2 Who are the poor?

The following data shows the demographic numbers of the poor relative to the total sample size during the lockdown and post-lockdown periods before showing some empirical tests for both periods. Table 3 presents demographic characteristics of the poor classified by sex, age, education level, and employment status during the lockdown in comparison with the respondent's descriptive statistics of the 500 samples. Table 4 similarly presents those characteristics in the post-lockdown period.

Table 3: Characteristics of the Poor Classified by Sex, Age, Education Level, and Employment Status During the Lockdown

(1) Demographic factors	(2) Numbers of the poor (342)	(3) Percentage (%) of the poor	(4) Percentage (%) of all samples (500)	(3)/(4) Ratio of the Poor to all samples
Sex				
Female	219	64	65.4	0.979
Male	123	36	34.6	1.04
Age				
30–15 years	27	9.7	7.8	1.28
45–31 years	58	17	20.4	0.83
60–46 years	140	9.40	42.2	0.97
75–61 years	94	5.27	24.6	1.12
Over 75years	23	7.6	5.0	1.34
Education level				
Lower than primary	54	8.15	13.2	1.333
Primary	174	9.50	46.6	1.20
Secondary	86	1.25	27.4	0.92
Vocational	20	8.5	7.4	0.78
University	8	3.2	5.4	0.43
Employment status				
Employed	156	45.6	54.0	0.84
Unemployed	186	54.4	46.0	1.18

Source: Author's calculation

To examine characteristics of the urban poor who are vulnerable in the lockdown situation, the third column shows percentages of these demographic factors who are poor, compared to that of all the samples in the fourth column. The ratio of the poor to the samples in the last column reflects characteristics higher or lower than the average of the sample (greater than 1 or less than 1, respectively). The ratios reflect that dominant characteristics of the poor are the unemployed, the lower-educated, the elderly above 60, and workers between 15–30 years old. The poor exhibit a higher percentage of lower-educated people, with about 67% having a primary education or lower. Regarding age, the most vulnerable populations are likely to be senior groups with an average age of between 46–60 and retirees aged 61–75 years old. The table also indicates that the majority of the poor, 54.4%, are unemployed (of which 38.9% lost jobs due to the COVID 19 crisis). Women account for 64% of the poor, consistent with the dominance of women in this sample.

Additional data from the survey indicates that most of the employed work in the informal sector, such as street vendors or daily services. The working group aged 46–60 seems to be significantly affected by job losses due to effects from COVID 19, as they cannot easily change jobs, which is consistent with Lekfuengfu, et al, (2020), who indicated that workers older than 46 are most unlikely to be able to work from home. Our survey data also shows that COVID 19 unemployment effects the 46–60 age group the

most, at 80%, which is the highest ratio. The highly vulnerable of this group would affect their family members as they seem to be heads of households who have to earn income for their family members. Furthermore, to further examine characteristics of the unemployed by education, the survey data shows that the lower educated groups have higher rates of being unemployed with about 56 % of the lower-primary education and 48% of the primary education.

Considering the post- lockdown situation, Table 4 presents demographic characteristics of the poor categorized by sex, age, education, and employment status in post-lockdown in comparison with respondents of the samples.

Table 4. Characteristics of the Poor Categorized by Sex, Age, Education, and Employment Status in Comparison with Overall Samples in Post-Lockdown.

(1) Demographic factors	(2) Numbers of the poor	(3) Percentage of the poor	(4) Percentage of all samples	(3)/(4) Ratio of the Poor to all sample
Sex				
Female	141	3.65	65.4	0.998
Male	75	7.34	34.6	1.002
Age				
30-15 Years	14	5.6	7.8	0.833
45-31 Years	29	4.13	20.4	0.657
60-46 Years	85	4.39	42.2	0.934
75-61 Years	69	9.31	24.6	1.297
Over 75 Years	19	8.8	5.0	1.760
Education Level				
Lower than primary	38	6.17	13.2	1.333
Primary	114	8.52	46.6	1.133
Secondary	51	6.23	27.4	0.861
Vocational	7	2.3	7.4	0.592
University	6	8.2	5.4	0.519
Employment status				
Employed	63	29.2	54.0	0.541
Unemployed	153	70.8	46.0	1.539

Source: Author's calculation from survey data

Table 4 shows that sex is almost indifferent, but age reflects that the higher-age groups have a higher ratio of becoming poor. This shows that the retired and elderly (over 60 and especially beyond 75 years old) are more affected by poverty, particularly in post-lockdown, when some may not have enough income considering their limitations. A difference from the lockdown situation in the preceding table is that the youngest age group is less likely to become poor, which means that they have much more opportunity than seniors to be able to return to work. Young workers from 31–45 years old have the smallest ratio of poverty. As for education, the lower the education, the higher the chance of falling into poverty. As reflected in the data, the lowest-educated have the highest ratio of the poor. Clearly, the unemployed have a high rate of the poor. Although the number of the poor declined after the lockdown, those who are still in poverty are mostly those who are unemployed (with the ratio of the unemployed poor being as high as 71%—higher ratio than during the lockdown period). The ratio of the unemployed poor to the average samples' unemployment is as high as 1.54, which is higher than that in the lockdown. Thus, it is not so easy that those laid-off during the lockdown can return to work and out of poverty after the lockdown.

Thus, by comparing the demographic factors in Table 4, it is obvious that the dominant characteristics of the poor in post-lockdown are the elderly, low-educated and unemployed

The Poor by Occupation

In addition to the unemployed, who are likely to be poor, the study further investigates who is employed in post-lockdown. Table 5 shows the number and percentage of the poor from the sample in each occupation.

Table 5. Number and Percentage of the Poor by Occupation in Post-Lockdown.

Occupation	Total Number in the Sample	Number of the Poor	Percentage of the Poor in each Occupation
Small merchants/street vendors	85	21	24.7
Private employee	32	2	6.25
Public employee	10	2	2
Daily paid workers/general services	105	25	23.8
Garbage collectors	10	8	80
Motorcycle drivers/grab bike	13	2	15.4
Others	15	3	2
Total	**270**	**63**	**23.33**

Source: Author's calculation from survey data

By classifying the number of the poor in each occupation, it is found that the garbage collectors, small merchants / street vendors, and daily workers are among the highest percentage of the poor. However, comparing the high changes in the numbers of the poor in each occupation with that in the pre-lockdown period, data reveals that the number of the poor working as small merchants/ street vendors increased about three times, and the number of the poor working as daily general workers increased about double from the pre-lockdown. Thus, these occupations are mostly vulnerable to becoming poor under the circumstances of the pandemic and control measures of social distancing, even in the post-lockdown. However, it is worth noting that the individual garbage collectors, whose average income was below the poverty line (about 2,300 baht) even before the COVID-19 control, are the poorest group, but the adverse effects on their incomes due to the pandemic control may be less obvious than the street vendors and daily work services, whose average income levels (around 5,500 and 4,500 baht, respectively) were above the poverty line before the lockdown.

Moreover, detailing into unemployment due to COVID-19 by occupation, it is also found that these two mentioned occupations (small merchants/ street vendors and daily paid workers in general services) are the most affected byunemployment due to COVID-19 as more than 80% of the groups' unemployed were due to COVID-19 circumstances. The older workers (45-60 years old) also face the highest unemployment rate, and it ismainly due to the COVID-19 situation among those in the labor force. The lower education level, also means the higher unemployment rate. Moreover, most of the unemployed have fragile family members to take care of (Kittiprapas et al., 2020).

The next section compares empirical tests on characteristics of the poor during and after the lockdown periods. This analysis statistically examines what different characteristics are underlining poverty during the two periods and factors affecting income change in the two periods.

4.3 Empirical tests

This section empirically tests characteristics of the poor by two types of models: 1) the binary logit estimation testing factors affecting poverty and 2) order logit estimation testing factors affecting income change.

Tables 6 and 7 will test the statistical significance of the relationship between demographic variables and poverty during and after the lockdown period using a binary logit model as y and two discrete choices of 1 (for the poor and 0 for not), while the independent variables are demographic factors.

Table 6. Empirical Test Characteristics of the Poor During the Lockdown Period.

Independent variables	**Coefficient**	**P > |Z|**
Sex	−.3546411	0.107
Age	.1355967	0.237
Education	−.4341383	0.000
Employment	−1.035505	0.000
Constant	2.317944	0.000

Note: Number of samples = 500
Source: Author's calculation

The results in Table 6 indicate that the education and employment variables are negatively significant. This indicates that the lower the level of education, the greater the possibility of becoming poor. This finding is consistent with Ponpunthin's (2021) finding that the lower educated workers are more vulnerable to financial insecurities and are more likely to become poor. Unemployment has the largest effect on poverty, with the largest coefficient negatively. Unemployment during the lockdown results in a shock in income, leading to the fall into poverty; that is consistent with what Laborde et al. (2020b) concluded: the major impacts of the pandemic on poverty and food security are more likely to come from shocks to household incomes.

Sex and age are significantly indifferent in determining poverty. The insignificance of both age and sex during the lockdown might be due to other key factors for remaining in employment, such as skills, particularly IT application. In the lockdown period, those who have fewer effects seem to be those who can adopt new required skills such as working from home or earning money online, no matter sex or age. Thus, during the lockdown, age groups may be significantly indifferent due to all age groups having adverse impacts on lower income and becoming poor (the youngest and the oldest groups as shown in Table 4). However, sex is indifferent significance at 95% confidence but close to significant at 90%, with the negative sign indicating women seem to be more affected. This seems consistent with the higher overall life problems of women during the lockdown (Kittiprapas, 2022). However, the aftermath of the lockdown is worth examining due to the long-term effects of the COVID.

As COVID 19 seems to have a lasting effect for several years with the contraction of the economy, another estimation with the same set of variables for the post- lockdown period is tested. Table 5 aims to test the characteristics of those who remain under the poverty line in post-lockdown with a binary logit model.

Table 7. Empirical Test Characteristics of the Poor After the Lockdown.

Independent variables	Coefficient	P> |Z|
Sex	−.1946	0.373
Age	.3458	0.003
Education	−.2833	0.017
Employment	−1.8264	0.000
Constant	.4259	0.441

Note: Number of samples = 500
Source: Author's calculation

It is indicated in Table 7 that the poor are significantly more likely to be the older age group, the lower-educated, and the unemployed. Similar to the lockdown period, the low-educated and the unemployed are most likely to be vulnerable during the lockdown and afterward. Unemployment has the largest effect (with a −1.8 coefficient) on falling into poverty, and the coefficient is even higher than during the lockdown period. As indicated in Table 3 and 4, the percentage of the poor unemployed in the post-lockdown (70.8%) is higher than the ratio during the lockdown (54.4%). Unemployment is crucial to poverty in this COVID 19 crisis, and unemployment for a long time after the lockdown could have a greater effect. Similarly, Bukari et al. (2021) strongly indicate poverty among the unemployed rather than employed households.

Age is positively significant, meaning the older they are, the more likely they are to become poor after the lockdown period. One difference between Table 7 and Table 6 is that the aging population has more effects on poverty after the lockdown, but age is indifferent or insignificant during the lockdown (as most are affected but less for the IT-skilled workers). In the post-lockdown, the senior working group seems to be the hardest hit, as they cannot return to work easily, unlike the younger generation.

Another empirical model is to investigate whose income tends to fall during these periods; in other words, what characteristics negatively relate to the increase in income. The order logit model is used for a dependent variable (Y) with 6 levels of income range, ordered from low to high levels, while using the same set of demographic factors (i.e., age, sex, education, and employment). The tests are run both during and after the lockdown periods.

Table 8. Empirical Test of Demographic Factors Affecting Income Changes (During the Lockdown).

Independent variables	Coefficient	P> |Z|
Age	−.1278	0.259
Sex	.3728	0.080
Education	.4889	0.000
Employment	1.0751	0.000

Note: Number of samples = 500
Source: Author's calculation

Table 8 shows that education and employment have a positively significant impact on income at 95%. This means that the higher education level, the higher income level they can get; in other words, the less educated tend to lose income during this period. Similarly, being employed is positively significant to income level, with the highest coefficient among significant variables; thus, unemployment would highly affect the drop in income. However, sex is statistically significant at 90%, implying that men tend to have higher income level; in other words, women tend to drop in income level during the

lockdown. On the other hand, age has a negative relationship with income, implying that the older age tends to fall in income.

These results are not surprising given the fact that during the lockdown, most of the educated and employed have higher income levels than those who are low-educated and unemployed who tend to be most vulnerable to income loss. The significant of sex variable, meaning that women tend to drop in income during the lockdown is also supported by Kittiprapas (2022) finding that women faced more life problems significantly during the lockdown. This is consistent with the fact that women are more vulnerable to the laid-off, the closure of daily service jobs, and having to take care of family members during the lockdown when schools, children's homesand the elderly care facilities were closed. Thus, the most vulnerable to income loss during the lockdown are the unemployed, the low-educated and women. These may relate to the characteristics of the poor in Table 6. The next estimation in Table 9 shows how these characteristics changed after the lockdown.

Table 9. Empirical Test of Demographic Factors Affecting Income Changes (after the lockdown).

Independent variables	**Coefficient**	**P> |Z|**
Age	−.2996	0.002
Sex	.2183	0.230
Education	.4936	0.000
Employment	1.7499	0.000

Note: Number of samples = 500
Source: Author's calculation

Table 9 presents that age, education, and employment are significant factors affecting income changes after the lockdown. Obviously, education and unemployment positively relate to income (with higher coefficients than in the lockdown period). A difference from the lockdown is that aging has significantly affected income in the post-lockdown. The negative relationship implies that the older they are, the higher possibility to drop in income This finding is consistent with Table 7 that the elderly tend to be the poor in the aftermath of the lockdown.

Thus, it is shown by these empirical tests that the elderly, low-educated, and unemployed will continue to be vulnerable groups in post lockdown and are likely to fall into poverty. As previously seen, most of them, even if employed, engage in informal sectors with uncertainty of daily income. This situation calls for special attention to help these vulnerable groups.

5. Conclusion and policy recommendations

This case study reveals adverse socioeconomic impacts on the poor regarding income reduction and deficit, job loss, increasing debt, and poverty from the pandemic and control measures. The most serious effects were witnessed during the lockdown. However, economic indicators show that considerable impacts from COVID-19 remain high after lockdown. Increased poverty and indebtedness are among the serious adverse impacts that are likely to remain for the long term. Empirical results reveal that those who are likely to fall into poverty both during and after the lockdown are the low-educated and the unemployed, while the elderly tend to fall into poverty in the post-lockdown and women tend to be more affected during the lockdown. Unemployment among particular groups such as the elderly, women, and the low-educated is of particular

concern. Thus, policies must be designed to help these vulnerable groups during the COVID-19 crisis, and the post-COVID-19 period to lift them out of poverty. As unemployment is a principal significant factor affecting poverty, policies creating employment for the vulnerable are essential. To have more earning opportunities, the groups must be trained to match the new world of employment: to upskill and re-skill to fit with the changes brought by technological disruption. In addition, as Thai society is moving towards an aging society and the elderly are a vulnerable group to being poor, related policies such as employment opportunities and strengthening capacities must be prepared.

Many forms of assistance can be provided to both workers and entrepreneurs/ employers. For example, necessary training should be offered to the vulnerable and the disadvantaged to empower them to work to earn a living, even in a post-COVID world. Assistance should also be given to those hiring the vulnerable to keep their jobs; for instance, government measures to help employers, particularly SMEs, to hire a larger ratio of informal workers. These offers could be a partial governmental contribution to wage payments for informal and unskilled laborers; some rent or utilities' subsidies for SMEs; long-term loan provisions; and free services for training workers and assisting with financial management in times of crisis. Both public and private sectors can help to open more spaces and a wider spectrum for their earnings. Flexible types of work, such as home-based work or on a part-time basis, can also be promoted.

As the study shows, increased poverty and debt are serious immediate problems. Debt reduction and restructuring must be dealt with to find appropriate solutions for the informal sector. Fiscal stimuli, including cash transfers, should aim for the target groups that are vulnerable to the crisis and the poor. In addition, resources should be channeled for human-centered social protection, which not only provides social safety nets in times of crisis but also empowers the needy with human and social development in the long run. As the study indicated, the low-educated, unskilled laborers, and the elderly are vulnerable to falling into poverty due to the COVID-19 crisis in post-lockdown. Thus, a longer-term human development approach towards the post-COVID-19 period is vital. This effort requires upskills and reskills for them to keep up with new global employment after COVID-19. With technology disruptions, there would be many job losses and new types of jobs with modern IT applications. Human resource policies should prepare for a shift in the required skills and must empower the urban poor workers to be able to earn a living in the post COVID and be resilient to any future crisis.

Another concern is that this trend of sharply rising poverty among the vulnerable observed in this study tends to indicate that currently high socioeconomic inequality will likely worsen. In addition, the adverse effects of COVID-19 arrive in the technology disruption era, in which the poorest and disadvantaged groups are already vulnerable. The adverse socioeconomic impacts of COVID-19 accelerate that trend, which the government and society are not well prepared to manage. Thus, the vulnerable poor have faced this double IT and pandemic crisis. Closing the disparity gap and bringing the vulnerable back to the labor market with technology disruption is not an easy task, particularly to help the most vulnerable and the disadvantaged survive in the long run in the post-COVID 19 world. This is a big challenge for the country and the world as well. Thus, the government should also consider structural reforms, financial restructuring, and reconcile public-private partnerships. Human capital is needed to build for long-term development purposes and to empower the vulnerable and the disadvantaged to be able to survive in the long run.

Thus, social protection policies should go beyond providing basic needs; those are required to be in place as the bottom line of social safety nets, to advance human

development at higher levels with particular assistance fitting to the special needs of particular groups. Social protection can be provided with comprehensiveness, addressing all risks as well as potential concerns by advancing necessary skills that could empower the vulnerable and communities to withstand uncertainty or future crisis.

Study Limitations

The survey data and related government measures in Thailand were collected in the third quarter of 2020 after the first lockdown and thus do not include the situation of the following outbreaks or any subsequent remedial mechanisms or control measures that may have occurred in response to the second or following waves of infections after the study period.

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