*DLSU Business & Economics Review 32(2) 2023 p. 33-44*

RESEARCH ARTICLE

# Income Recovery of Thai Workers From the COVID-19 Pandemic[1]

Athakrit Thepmongkol and Amornrat Apinunmahakul
National Institute of Development Administration, Bangkok, Thailand
tong_econ@hotmail.com.

This paper examines how COVID-19 and the resultant lockdown affected Thai workers and how their income has recovered as of the end of 2020. We conducted three phases of telephone surveys to track the income dynamics of Thai workers during the months of May, August, and November 2020. The initial COVID-19 impact on Thai worker income was enormous and very broad. On average, Thai workers' income fell by 47.03%, and 69.7% suffered such a loss. Over the six months survey period, most Thai workers had just begun to stabilize their income, but only a few were actually able to recover. Quantile regression analysis revealed particular factors that influenced income recovery. For example, being a formal worker tended to help one's income to recover faster. Interestingly, COVID-19 assistance schemes from the government, although essential to those in need, had a negative impact on income recovery. On the other hand, the cheap loan policy seems to have been more effective as workers whose incomes were in the middle and the top quantiles experienced faster income recovery.

***Keywords:*** COVID-19, Economic Crises, Income Recovery, Quantile Regression

***JEL Classification:*** H12, C2, C83

We aim to identify the characteristics of Thai workers who were able to recover their earnings from the first wave of the COVID-19 outbreak in 2020. Using panel data from surveys conducted in 2020, we employed quantile regression analysis to examine how workers in different income quantiles and work statuses recovered from the economic downturn and if any available government assistance was helpful in boosting worker resilience during this time. Though a number of studies on this issue have been conducted in other countries—for instance, Cox (2020) in the United States, Hacioglu et al. (2020) in the United Kingdom, and Qian and Fan (2020) in China—most were conducted in developed countries where a large number of workers are covered under social security systems that provide income insurance against economic uncertainty. But the majority (55%) of the Thai labor force are informal workers without any income insurance coverage. As a result, Thai informal workers might suffer much more from a severe economic downturn than their counterparts in developed countries. Thus, they may need different financial assistance schemes for their income recovery. This study, therefore, aims to deepen our understanding

of how vulnerable workers in Thailand have coped with the COVID-19 pandemic and which government assistance measures have been effective in supporting their income recovery.

The COVID-19 outbreak was first acknowledged in December 2019, when the Wuhan City Public Health Office of Hubei Province in the People's Republic of China issued an official announcement reporting that pneumonia of an unknown cause but associated with a Wuhan seafood market had been identified. China and the World Health Organization (WHO) stated that the source was the SARS-CoV-2 virus, which was later called "COVID-19." On January 30, 2020, WHO declared the outbreak a Public Health Emergency of International Concern (PHEIC) as many confirmed cases were being reported around the world. The number of patients outside of China continued to rise sharply, and WHO eventually declared COVID-19 a "pandemic" on March 11, 2020[2].

For Thailand[3], the first infected person was reported on January 31, 2020—a taxi driver who had no record of traveling abroad but had provided taxi services for Chinese visitors infected with the virus. The Thai Ministry of Public Health then announced in the Government Gazette, effective from March 1, 2020, that COVID-19 was a dangerous communicable disease. On March 6, 2020, the first cluster of patients was found among those in attendance at a boxing stadium and entertainment venues in the capital city of Bangkok, which led to a government announcement of a Bangkok lockdown with the hope of preventing the spread of the COVID-19 virus. As a result, several venues that usually draw large crowds (causing close, congested contact among people, such as department stores, hotels and restaurants, sports stadiums, entertainment complexes, and so forth) were forced to close down. All this caused a huge migration of unemployed workers from the Bangkok metropolitan area. Some of these return migrants were no doubt infected already as they returned to their hometowns upcountry. Subsequently, beginning in mid-March 2020, infections throughout the country began to increase rapidly.

The Cabinet, at its meeting on March 10, 2020, resolved to establish the Centre for COVID-19 Situation Administration (CCSA), with the Prime Minister serving as chairperson of its executive committees. The CCSA issued numerous social distancing measures nationwide to prevent and curb the spread of COVID-19. Anyone traveling into Thailand was subject to a COVID-19 antigen test and a 14-day quarantine. Schools and other places where people tended to congregate were also locked down, everyone was required to wear a hygienic face mask in public, and both public and private workers were encouraged to work from home. The CCSA also announced a curfew during the evening hours as well as many other social distancing measures. Even though these measures seemed to be effective in bringing down the number of COVID-19 infections as well as hospitalizations and deaths, they also brought with them severe economic hardships to many Thai households, an unprecedented rise in the number of workers absent from work or working with reduced hours, and a significant number of jobs lost.

The health situation in Thailand seemed to be improving in May 2020, by which time the number of infections had dropped significantly, so the Thai government began to relax the lockdown regulations. By June 2020, almost all domestic economic activities had returned to just about normal, although public health and social distancing measures remained in place, such as wearing facemasks in public, checking one's temperature and rubbing one's hands with alcohol before entering a building, limiting the number of people in enclosed areas (e.g., elevators and restaurants), and so on. But businesses such as nightclubs, boxing stadiums, and wellness and spa establishments were not yet allowed to reopen. Given the contraction in export demand and the cumbersome screening of all arrivals into Thailand (which brought an abrupt halt to tourism, business travel, shipping/importing, etc.), the COVID-19 pandemic remained a crippling hindrance to any possible economic recovery in 2020. It is worth noting that although the COVID-19 outbreak in Thailand seemed to be under control for a while in mid-2020, many workers were nonetheless unable to find a new job or still had work at far fewer hours than before. Because household income no longer matched the level before COVID-19, it comes as no surprise that they could no longer maintain the same level of well-being as before. The situation became even worse at the beginning of December 2020 when the second wave of COVID-19 outbreak struck with the new Delta variant. This new wave of the COVID-19 epidemic originated with a large cluster

of migrant workers in Samut Sakhon province, where immigrant workers tended to live together in crowded dormitories where strict public health measures were not enforced.

The Office of the National Economic and Social Development Council (NESDC) estimated that 8.4 million Thai workers were affected during the COVID-19 outbreak in Q2 and Q3 of 2020. This number is generally in line with the International Labor Organization's (2020) report of approximately six million or more workers in Thailand's tourism industry losing their jobs due to strict transmission control and social distancing measures. Likewise, the Labor Force Survey (LFS) conducted by the National Statistics Office (NSO, 2020) during the same time period found that the unemployment rate in Thailand had increased to 2% in Q2 of 2020, more than triple the average 0.6% unemployment rate over the last decade.

In response to declining economic transactions and a GDP growth rate of -6.2% in 2020, the Thai government launched various financial assistance schemes to stimulate the economy and support households' cost-of-living expenses. The first financial assistance program was called *Rao Mai Ting Gun* (No One Left Behind), which required affected workers who were not covered by the social security system, such as self-employed workers or any other informal workers, to register on the program's website. Qualified persons would receive a payment of 5,000 Thai baht a month for three months. Meanwhile, wage workers covered under social security could register for their unemployment compensation directly. The government also subsidized electricity and water bills as well as internet providers to upgrade the speed of fixed broadband for subscribers and provide internet free of charge for three months to support users' ability to work or learn from home. Household debt payment was also suspended for three months. In addition, soft loans were provided to boost cash flow for eligible people and SMEs. A 50% tuition fee subsidy was granted to all Thai students at all educational levels. Moreover, the government also put into place economic stimuli by means of allowance measures to support consumer spending on travel, namely, through the *Rao Tiew Duay Kan* (We Travel Together) campaign, in order to support local tourism sectors. Though some financial assistance seemed to meet the needs of households, it lasted only for a short period. And some people could not access government financial assistance due to a number of obstacles and deficiencies, ranging from lack of access to an online device, not knowing how to register for assistance, being rejected by the program because they did not meet the criteria, or the number of applicants already exceeded the program's limit, and so on.

To investigate how some workers gained back their income levels in the context of COVID-19, we conducted a three-phase survey in May, August, and November of 2020 to track Thai worker incomes over the first year of COVID-19 and collect as much relevant data as possible. The quantile regression was analyzed, and we found that, as expected, being a formal worker and receiving a loan were beneficial for income recovery. Surprisingly, however, returning to one's home province and training to acquire new skills did not really help workers to regain their incomes. Though a free government assistance transfer might be necessary as a one-time emergency measure, empirical results show that such assistance, if ongoing, actually slows down income recovery for the middle and the top quantile workers, perhaps because those who have enough savings to support themselves are less motivated to find new jobs given the availability of government support.

Since the COVID-19 outbreak, many scholars have examined various aspects of the virus's effects on the economy and have suggested possible responses. Acemoglu et al. (2020), for example, proposed isolating specific social groups (via lockdowns) as a means of optimally controlling the incidence of COVID-19 and reducing economic losses. Such a lockdown policy was widely implemented in many countries, although some scholars commented that a uniform lockdown without sufficient financial assistance causes excessive suffering and financial loss, especially for the poor (Tisdell, 2020). Indeed, the impact of COVID-19, including measures to restrict its spread among the population, has been disastrous to the economy. Partitioning the world into many regions, Brada et al. (2021) predicted that it will take two years from the onset of the recovery from the crisis for the employment levels of at most only 31 out of the 199 regions to fully recover. Thorbecke (2020) argued that in the United States, sectors such as airlines, aerospace, real estate, tourism, oil, brewers, retail apparel, and funerals would remain turbulent as long as COVID-19 is not contained. Due to health concerns, Chetty et al. (2020) pointed out that the stimulus aimed at raising

spending may not be effective. Alternatively, Barrero et al. (2020) argued that more effort should be invested in supporting workers to move to sectors whose products are still in high demand.

In China, Liu (2021) found that the most severely affected sector in 2020 was accommodation and catering, followed by the wholesale and retail sectors, whereas the IT sector and financial services sector were still growing. China's strict lockdown and focus on boosting employment with various fiscal, monetary, credit, and institutional reform policies resulted in positive economic growth even in 2020. But weak recovery is still seen in retail sales, imports, and manufacturing investment. Jiang et al. (2022) calculated the resilience index of China in 2020 and found that the index turned from negative in the first half of the year to positive in the second half of the year, which implies the success of China's economic recovery.

The paper is organized as follows. Section 2 describes the three-phase survey of Thai workers during the 2020 era of COVID-19. Section 3 describes the impacts gleaned from the survey. Section 4 analyzes the quantile regression to understand what determines income recovery for Thai workers. Finally, Section 5 illustrates and discusses the regression results and policy implications.

## Survey Method and the Sampling Frame

Samples used for our analysis were derived from "A Rapid Assessment of the Impact of the COVID-19 Pandemic on Vulnerable sectors in Thailand," funded by a grant from the Asia Foundation to the National Institute of Development Administration (NIDA). The School of Development Economics at NIDA collaborated with NIDA Poll to administer a nationwide telephone survey. In our opinion, a telephone survey has three major advantages. First, a telephone survey enables an assessment that effectively reaches out to the target samples, who are located throughout Thailand. Second, it allows for follow-ups on the same respondents and the tracing of changes in the levels of their economic hardships and of how they overcome these hardships over time. Third, a telephone survey does not suffer from selection bias, as is often found with electronic surveys.

In order to have a data structure similar to that of the Thai labor market, we first need to categorize our 3,000 observations into Bangkok and all four regions in Thailand using the proportion of workers reported in the Thailand Labor Force Survey (LFS) in January 2020[4] as our framework. According to the LFS report, there are 37.486 million workers in Thailand's labor market: 14.0% in Bangkok, 31.2% in the Central region, 16.3% in the North, 25.2% in the Northeast, and 13.3% in the South.

As a result, the number of observations we need to collect from Bangkok and each region are prorated as follows. There were 420 (= 0.14*3000) observations from Bangkok, 935 (= 0.312*3,000) from the Central region, 489 (=0.163*3,000) from the North, 756 (= 0.252*3,000) from the Northeast, and 400 (=0.133 *3, 000) from the South. To choose provinces as representatives of each region, we employed the 2018 Thailand Population Census Survey, conducted every 10 years by the NSO, to rank the size of all provinces (from largest to smallest) within each region. Provinces with no COVID-19 cases found (Nan, Kamphaeng Phet, Bueng Kan, etc.) were excluded. Within each region, we randomly chose three large provinces (i.e., with populations ranking among the top five provinces of the region), three medium-size provinces (i.e., those with populations ranking around the median for the region), and two small provinces (i.e., those ranking among the bottom five of the region). Together there were eight provinces from each region or a total of 33 provinces included in this survey.

Population numbers in these eight selected provinces were employed to calculate the proportion of observations we needed from each province. For instance, from the 935 observations in the Central region, because Chonburi province accounts for 21.43% of the total population among these eight provinces in the Central region, we needed 935*0.2143 = 200 observations from Chonburi province. The same logic was applied to all other provinces.

In addition, the final report of the survey of informal workers in 2019[5] presented by the NSO indicated that 45% of the Thai labor force were formal workers, and the other 55% were informal workers. "Formal workers" refers to the private workforce covered by social security, and "public workers" refers to those covered under government-provided welfare. "Informal workers," on the other hand, refers to those without any social insurance coverage regardless of their working status or sector of employment. The survey of informal workers in 2019 classified formal

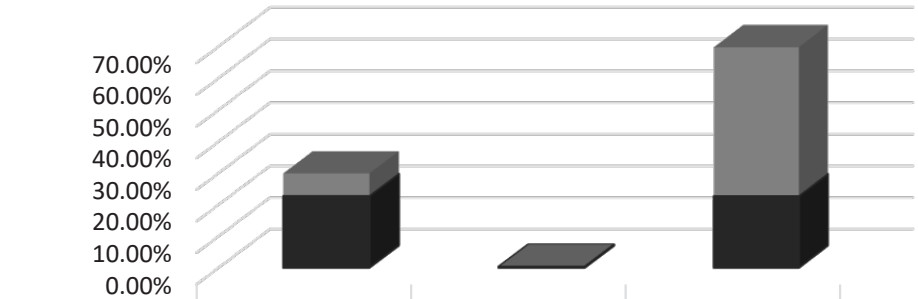
and informal workers in each region by gender and age group. We hence use the percentage share indicated in that report to classify formal and informal workers by region, gender, and age group in each province so as to ensure the survey sample we draw upon is a proper representative of the labor market in Thailand.[6] The same observations were followed up for three consecutive rounds, that is, in May, August, and November of 2020.

## Impacts of the COVID-19 Outbreak in 2020 on the Thai Economy

According to macroeconomic data[7], COVID-19 caused the Thai economy in 2020 to contract by 6.1%, which is the worst performance since the Tom Yum Kung crisis in 1997. Looking into each economic sector, we find that the shares of the agriculture, industry, and service sectors were approximately unchanged for the previous five years (8.63%, 33.1%, and 58.27%, respectively, in 2020). This suggests that the COVID-19 shock affected all sectors across the Thai economy more or less evenly.

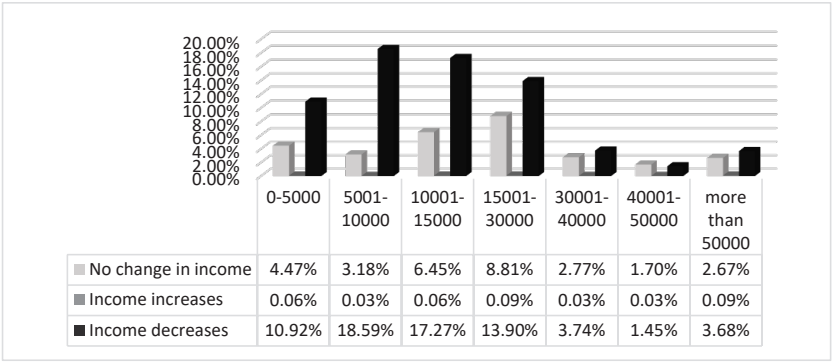
Tourism might be the most dramatic example of the severity of COVID-19 on the economy and unemployment. During the first half of 2020, Thai tourism businesses were shut down completely, whereas during the second half of the year, most tourism-related businesses were kept (barely) afloat merely by the patronage of Thai tourists. The lockdown and social distancing measures created extra costs for all service-based entrepreneurs. Many accommodation businesses had to close down temporarily, and some eventually had to be liquidated altogether. Consequently, food, wellness, and other recreation and entertainment businesses that used to flourish mainly from tourists suffered great losses. Because it comprises about a quarter of Thailand's GDP, the tourism industry, together with its supply chain and related enterprises, accounted for up to 60% of the downturn in the 2020 GDP[8]

Our survey data has also shed some light on the impact of the COVID-19 surge on Thai workers at an individual level. Figure 1 shows the percentages of workers with different types of income changes occurring from January to May 2020. We take for granted that these changes are due to the COVID-19 outbreak and the corresponding public policy responses. We found that as 69.7% of Thai workers suffered an income loss, the other significant portion of the labor force was unaffected, and a mere 0.4% experienced an increase in their income. Within the affected group, the majority were evidently informal laborers with no social insurance coverage. In detail, the percentage changes in individual labor income show a positively skewed distribution where the mean, median, mode, and the standard error are -47.03%, -40%, 0%, and 40.44%, respectively. The maximum income change is 120%, whereas the minimum is -100%. (In fact, 19.88% of our sample completely lost their jobs). However, if we focus on informal workers, the mean, median, mode, and standard error of their percentage income change are much wider, at -63.3%, -66.67%, -100%, and 36.14% changes, respectively.



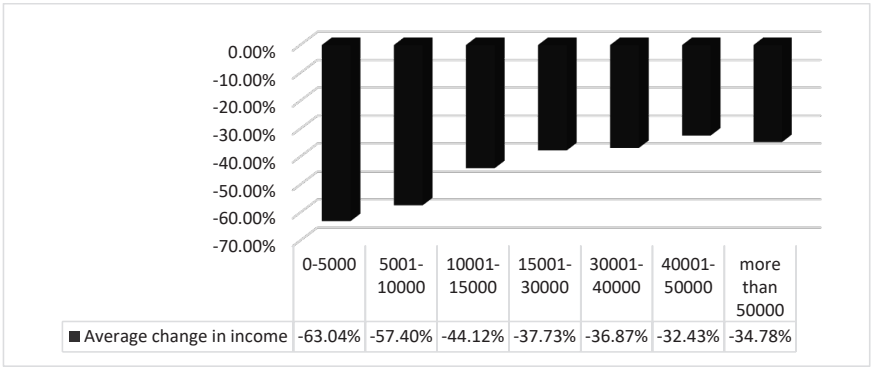

| | No change in income | Income increases | Income decreases |
|---|---|---|---|
| Informal labor | 7.15% | 0.09% | 46.99% |
| Formal labor | 22.74% | 0.31% | 22.71% |

***Figure 1.*** 2020 COVID-19 Impact on Percentage Income Change: Formal vs Informal Laborers




| | 0-5000 | 5001-10000 | 10001-15000 | 15001-30000 | 30001-40000 | 40001-50000 | more than 50000 |
|---|---|---|---|---|---|---|---|
| No change in income | 4.47% | 3.18% | 6.45% | 8.81% | 2.77% | 1.70% | 2.67% |
| Income increases | 0.06% | 0.03% | 0.06% | 0.09% | 0.03% | 0.03% | 0.09% |
| Income decreases | 10.92% | 18.59% | 17.27% | 13.90% | 3.74% | 1.45% | 3.68% |

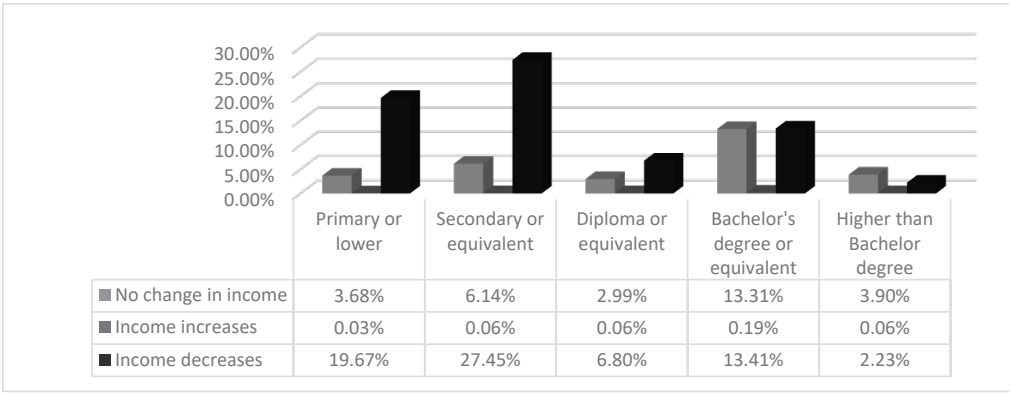
(a) Relative Frequency




| | 0-5000 | 5001-10000 | 10001-15000 | 15001-30000 | 30001-40000 | 40001-50000 | more than 50000 |
|---|---|---|---|---|---|---|---|
| Average change in income | -63.04% | -57.40% | -44.12% | -37.73% | -36.87% | -32.43% | -34.78% |

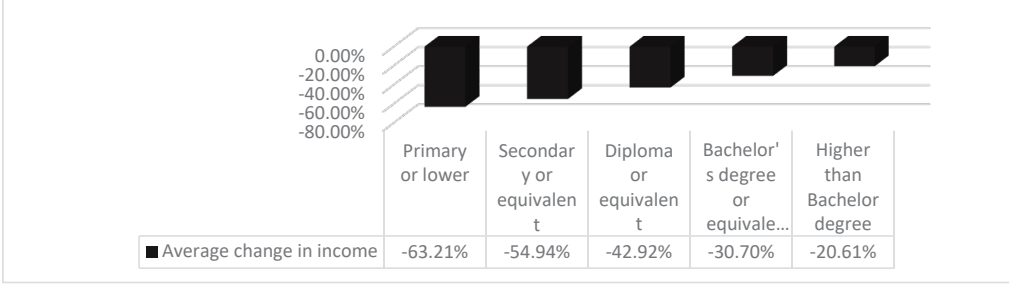
(b) Magnitude

***Figure 2.*** 2020 COVID-19 Impact on Percentage Income Change: Initial Income




| | Primary or lower | Secondary or equivalent | Diploma or equivalent | Bachelor's degree or equivalent | Higher than Bachelor degree |
|---|---|---|---|---|---|
| No change in income | 3.68% | 6.14% | 2.99% | 13.31% | 3.90% |
| Income increases | 0.03% | 0.06% | 0.06% | 0.19% | 0.06% |
| Income decreases | 19.67% | 27.45% | 6.80% | 13.41% | 2.23% |

(a) Relative Frequency




| | Primary or lower | Secondary or equivalent | Diploma or equivalent | Bachelor's degree or equivale... | Higher than Bachelor degree |
|---|---|---|---|---|---|
| Average change in income | -63.21% | -54.94% | -42.92% | -30.70% | -20.61% |

**Figure 3.** *2020 COVID-19 Impact on Percentage Income Change: Education*

Moreover, the survey data also suggest that the COVID-19 shock struck the poor harder than the rich. Figure 2a summarizes the relative frequency of income change divided by income levels before the COVID-19 outbreak (i.e., in January 2020). Notice that workers who initially had incomes between 5,001 and 10,000 baht shared the greatest proportion (18.59%) among those who suffered an income loss. For those with an initial income above 30,000 baht, the proportion of affected people does not significantly differ from that of the unaffected group. Regarding the magnitude, Figure 2b reports that workers with an initial income under 5,000 baht and 5,001–10,000 baht had to endure average percentage income changes of -63.04% and -57.40%, respectively, which makes them the two most affected groups.

Regarding education, Figure 3a indicates that the higher the educational accomplishment, the lower the probability that workers would suffer income loss during the COVID-19 outbreak in 2020. Additionally, the average percentage change in income is rising monotonically from -63.21% of the group with primary education or below to -20.61% of the group with higher than a bachelor's degree, as presented in Figure 3b. All these data show how the COVID-19 crisis in Thailand was extremely severe. Besides the fact that the income shock was enormous, it hit more dramatically on (A) the informal workers who were unprotected by any social security system, (B) those who were poor in the first place, and also (C) those who had a low educational level. Therefore, COVID-19 sharply amplified Thailand's social inequality in various aspects within just a few months.

## Income Recovery: Quantile Regression Analysis

The previous section describes how severely COVID-19 affected Thai workers in 2020. In this section, we are interested in how their incomes have been able to recover so far. During the crisis, there were several attempts from the Thai government to assist those who were affected, especially in terms of the direct financial assistance packages and soft loans mentioned earlier. Moreover, the government also encouraged workers to take advantage of upskill or reskill training programs provided through various platforms. Our panel survey data allow for testing whether these financial and non-financial assistance initiatives were of any help from the perspective of an individual worker's income recovery.

Direct financial assistance packages allowed affected informal workers and farmers to register to receive 5,000 baht per month for three months, whereas affected formal laborers could receive severance pay. These financial assistance packages were short-term direct transfers aimed at lessening immediate income losses. As for the soft loans, beginning in April 2020, the Bank of Thailand was allowed by law to lend out 500 billion baht to commercial banks to distribute the loans to entrepreneurs who sustained losses from COVID-19 to avoid putting workers out of work or closing down businesses. Such lending would ideally help create jobs and save fundamentally healthy businesses faced with unexpected liquidity shortages. Finally, the training programs were set up so that Thai workers could access various training courses from public and private institutes to develop new skills. For example, public vocational training centers offered affordable professional training throughout Thailand to help unemployed workers get new jobs.

The questionnaire used in the three-phase survey we conducted in May, August, and November 2020 was designed to include all variables that may influence income recovery from the COVID-19 pandemic. According to the Jarque-Bera test, our survey data on income levels in November 2020 were not distributed normally. This suggests that the ordinary least square regression may not be an appropriate tool for use here. Moreover, it would be interestingly useful to see other different impacts on income recovery as we compare the poor to the rich during the COVID-19 crisis. Therefore, we decided to analyze our data using quantile regression. Although we began with 3,000 observations in the first survey in May 2020, there remained only 1,287 observations that contained the tracked information for each individual from May to November 2020. We lost contact with some survey respondents as their telephone numbers were no longer in service. This could be because many people tried to cut down their expenses as they encountered job loss or a severe income decline. The econometric model is specified below, and each variable is explained in Table 1.

$$\begin{aligned}\text{Income}_i = {} & \beta_1 + \beta_2 \text{Initial\_Income}_i + \beta_3 \text{Not\_Affected}_i + \beta_4 \text{Male}_i + \beta_5 \text{Age}_i + \beta_6 \text{Degree}_i \\ & + \beta_7 \text{Formal}_i + \beta_8 \text{Tourism}_i + \beta_9 \text{Food\_Restaurant}_i + \beta_{10} \text{Service}_i + \beta_{11} \text{Trade}_i \\ & + \beta_{12} \text{Logistic}_i + \beta_{13} \text{Construction}_i + \beta_{14} \text{Manufacture}_i + \beta_{15} \text{Agriculture}_i \\ & + \beta_{16} \text{Domicile}_i + \beta_{17} \text{GovAsst\_May}_i + \beta_{18} \text{GovAsst\_Aug}_i + \beta_{19} \text{Loan\_May}_i \\ & + \beta_{20} \text{Loan\_Aug}_i + \beta_{21} \text{Loan\_Nov}_i + \beta_{22} \text{Train\_May}_i + \beta_{23} \text{Train\_Aug}_i \\ & + \beta_{24} \text{Train\_Nov}_i + u_i\end{aligned}$$

**Table 1.** *Summary of Variables*

| Variables | Description | Unit | Expected Sign |
|---|---|---|---|
| Income | Income in November 2020 | 1,000 baht/month | Not applicable |
| Initial_Income | Income in January 2020 (before COVID-19) | 1,000 baht/ month | Trivially positive |
| Not_Affected | Dummy variable for not having any income loss during COVID-19 period | Not applicable | Trivially positive |
| Male | Dummy variable for being male | Not applicable | Ambiguous. Possibly insignificant as COVID-19 affects all genders equally. |
| Age | Age | Years | Negative, as it should be harder for the old to find a new job. |
| Degree | Dummy variable for having bachelor's degree or higher | Not applicable | Positive, as it should be easier for the highly educated to find a new job during social distancing policy. |
| Formal | Dummy variable for being formal laborer | Not applicable | Positive, as formal laborers are protected by the social security system and hence should be more resilient. |
| Tourism<br>Food_Restaurant<br>Service<br>Trade<br>Logistic<br>Construction<br>Manufacture<br>Agriculture | Dummy variable for belonging in a particular economic sector (public sector is the benchmark group) | Not applicable | Negative, as the public sector should be the least affected sector from COVID-19. |
| Domicile | Number of survey rounds that the sample subject was at his/her domicile | Rounds | Positive, as going back to one's hometown should be easier for the unemployed to make a living. |
| GovAsst_Mah<br>GovAsst_Aug | Dummy variable for receiving any government assistance transfer | | Ambiguous. Such a rescue package can either make it easier for laborers to find a new job or reduce their efforts to quickly find new jobs. |
| Loan_May<br>Loan_Aug<br>Loan_Nov | The amount of borrowing to relieve COVID-19 problems during March-May, June-Aug, and September-November, respectively | 1,000 baht | Positive, as the loan opens up investment opportunities to increase future income. |
| Train_May<br>Train_Aug<br>Train_Nov | Dummy variable for having any training during March-May, June-Aug, and September-November, respectively | Not applicable | Positive, as having new skills should open up more job opportunities. |

Notably, the quantile regression is estimated by minimizing the sum of absolute errors, which can easily result in non-unique numerical outcomes for a model with many regressors. Therefore, the above model specification is selected because it includes all related variables, and the estimation successfully identifies a unique optimal solution, as shown in the next section.

## Results, Discussion, and Policy Implications

To see the income recovery during COVID-19 crisis in 2020, the quantile regression is estimated using Huber Sandwich standard errors and covariance as well as kernel (residual) scalar sparsity. The result is shown in Table 2.

Table 2 summarizes how the median income in November 2020 is determined when the initial income in January 2020 and the COVID-19 income shock are controlled. Thus, these coefficient estimates of other variables indicate to what extent and at what rate they enhance income recovery from COVID-19.

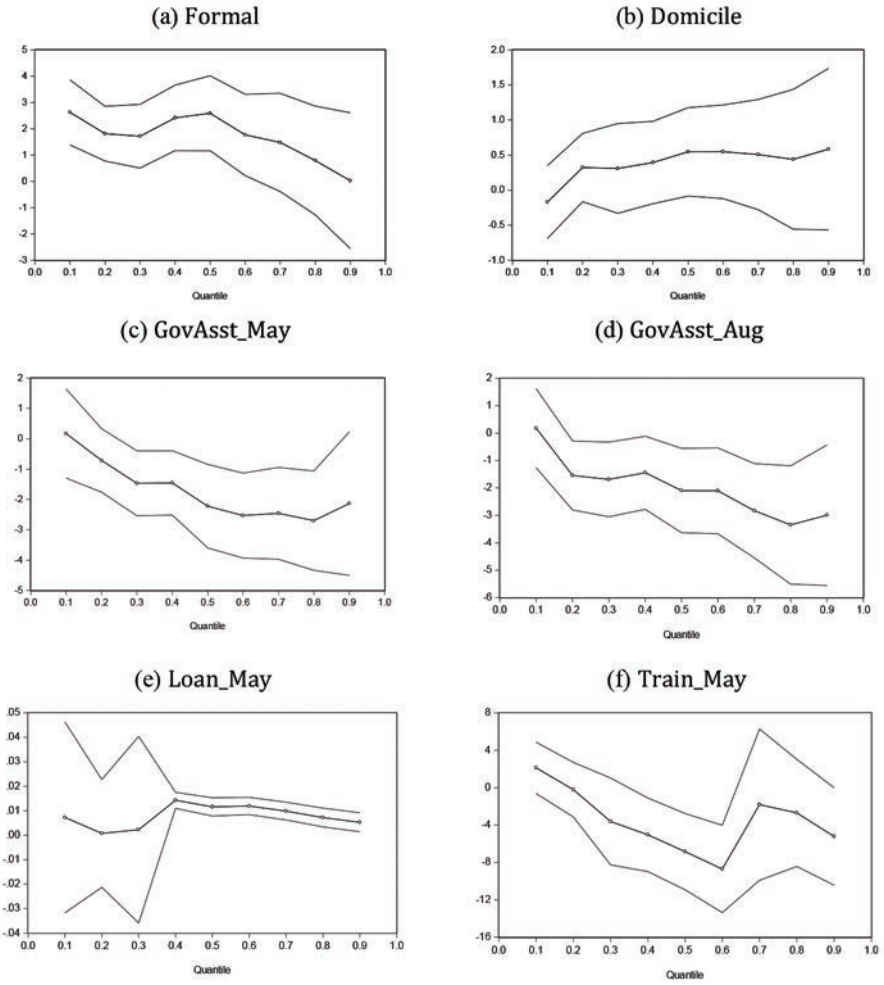
At the median, gender and age do not matter for any income recovery, whereas a bachelor's degree or higher education achievement is helpful. Working outside the public sector clearly indicates a slower recovery, as observed by the negative estimation for all sector variables, even though those of tourism and agriculture are statistically insignificant. Borrowing and training undertaken since June 2020 are statistically insignificant in terms of recovering income by November 2020, possibly due to the insufficient amount of time that had passed. For the rest of the policy-related variables, it is interesting to see their impacts on income recovery from COVID-19 in all quantiles, as shown in Figure 4.

In Figure 4(a), we see that being a formal worker raised the income recovery for low and middle quantiles. Figure 4(b) points out that encouraging workers to go back to their domiciles did not really help them to raise their incomes. Figure 4(c)-(d) suggest that government assistance transfers to help COVID-19 victims actually slowed down the income recovery process for the middle and the top income quantiles, but not the low quantiles. Borrowing in May did generate additional income in November for the middle and the top, but not the low quantiles, as shown in Figure 4(e). The most surprising result can be seen in Figure 4(f), where training in May was not beneficial to income recovery and even seemingly harmful for those in the middle quantiles. This might be interpreted as acquiring new skills did not really help to get a new job easily during the economy-wide COVID-19 crisis and perhaps that it was even a waste of time that hindered income recovery in the short-run.

**Table 2.** *Median Income Regression Output*

| Regressand | Income | | |
|---|---|---|---|
| Regressor | Estimated Coefficient | Regressor | Estimated Coefficient |
| Constant | -40.3083*** | | -2.7658** |
| ln (Initial_Income) | 4.6039*** | | -3.2956*** |
| Not _Affected | 7.3192*** | | -1.4918 |
| Male | 0.4657 | | 0.5459* |
| ln (Age) | 0.9556 | | -2.2201*** |
| Degree | 3.5094*** | | -2.0935*** |
| Formal | 2.5922*** | | 0.0116*** |
| Tourism | -7.0650 | | -0.0050 |
| Food_Restaurant | -3.6765*** | | -0.0054 |
| Service | -2.3574** | | -6.8415*** |
| Trade | -4.2182*** | | -0.0370 |
| Logistic | -5.3979*** | | -0.1278 |

**, ** and *** are statistically significant at 10%, 5%, and 1% significance level, respectively.*




Intuitively, COVID-19 was thought to make many workers and entrepreneurs in almost all sectors unable to work or run their businesses. For the poor who did not have any savings, any money they received from either government assistance transfers or soft loans ended up being used for their consumption and did not diminish their efforts to find new sources of income. However, for those who had some savings at hand (middle and top quantiles), receiving free transfers from the government disincentivized them from making greater efforts to recover their income. Perhaps, they merely preferred staying safely at home during COVID-19 instead of enthusiastically searching for new jobs, using their remaining savings to live on in the meantime. Unlike the free transfer policy, providing more soft loans to such people was more effective as this encouraged them to generate enough income to repay the debts incurred from such loans.

To sum up the lessons learned from COVID-19 crisis, the government should try to reduce the size of the informal labor sector by integrating informal workers into the social security system. This will make the labor market and hence the economy more resilient in the face of any other shocks that may occur after COVID-19. In the future, when such a shock occurs, free assistance transfers from the government should be made available only to the poor with no savings, for whom it is most suitable and who would likely not survive without it. For the rest, granting soft loans would be the better policy and would help the economy recover much faster.

## Conclusion

This paper investigates the income recovery from the COVID-19 shock in Thailand. A three-phase labor force survey was conducted in May, August,

and November of 2020, which were the periods right after the first COVID-19 lockdown in Thailand. The data indicate that COVID-19 was an economy-wide catastrophic shock during which 69.7% of our sample suffered dramatic income loss (at an average of -47.03%). Specifically, the poor and less educated groups suffered higher percentages of income loss. Evidently, not only did COVID-19 lower the average income in Thailand, it also widened the inequality gap.

According to the quantile regression estimation, being a formal laborer helped the income recovery of the low and middle quantiles. For the low quantile, free government assistance transfers or soft loans were not significantly effective in raising future income. For the middle and the top quantiles, the soft loan policy was effective, but free assistance transfers hindered the income recovery process. A possible reason is that people who were still self-sufficient may have preferred to keep themselves safe from COVID-19 by staying at home instead of going out and searching for new sources of income. In addition, having access to free money transfers apparently disincentivized them from making greater efforts on their own to restore their incomes.

## Notes

[1] Panel data used in this study were derived from the survey entitled "A Rapid Assessment of the Impact of the COVID-19 Pandemic on Vulnerable Sectors in Thailand," funded by a grant from the Asia Foundation to the National Institute of Development Administration from May 11, 2020 to January 31, 2021. The authors would like to thank the Foundation for its financial support and acknowledge that all the views expressed in this article by the authors do not necessarily reflect those of the Foundation.

[2] World Health Organization (2020) "WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020" https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020

[3] Excerpted from "Situation of COVID-19 : public health measures, problems and obstacles for disease prevention and control among travelers" (a report in Thai), reported by Department of Disease Control of the Ministry of Public Health Care on August 18, 2021, https://ddc.moph.go.th/uploads/files/2017420210820025238.pdf.

[4] National Statistics Office. (2020). The labor force survey whole kingdom quarter 2: April-June 2020. (a report in Thai). http://www.nso.go.th/sites/2014en/Survey/social/labour/LaborForce/2020/Full_ReportQ2_new.pdf

[5] National Statistics Office (2019). "The Survey of Informal workers." (a report in Thai). http://www.nso.go.th/sites/2014en/Survey/social/labour/informalEmployment/2019/2562_workerOutSum.pdf

[6] Due to space limitation, details of the sampling frame are not presented here but are available upon request.

[7] Bank of Thailand (2020), "Thailad Economic Report 2020", An annual report, https://www.bot.or.th/Thai/MonetaryPolicy/EconomicConditions/AnnualReport/AnnualReport/AanualReport2563.pdf

[8] Bank of Thailand (2020), "Thailad Economic Report 2020", An annual report, https://www.bot.or.th/Thai/MonetaryPolicy/EconomicConditions/AnnualReport/AnnualReport/AanualReport2563.pdf

## References


Acemoglu, D., Chenozhukov, V., Werning, I., & Whinston, M. D. (2020). *Optimal targeted lockdowns in a multi-group SIR model* (NBER Working Paper No. 27102). https://www.nber.org/papers/w27102

Bank of Thailand (2020). *RaiNgan Pawa SaeTaKit Thai Pee SongHaHoSam*. [Thailad Economic Report 2020], (an annual report in Thai). https://www.bot.or.th/Thai/MonetaryPolicy/EconomicConditions/AnnualReport/AnnualReport/AanualReport2563.pdf

Barrero, J. M., Bloom, N., & Davis, S. (2020). *COVID-19 is also a reallocation shock* (Working Paper 27137). National Bureau of Economic Research. https://www.nber.org/papers/w27137

Brada J. C., Gajewski, P., & Kutan, A. M. (2021). Economic resiliency and recovery, lessons from the financial crisis for the COVID-19 pandemic: A regional perspective from Central and Eastern Europe. *International Review of Financial Analysis*, *74*(March), 101658. https://doi.org/10.1016/j.irfa.2021.101658 .

Chetty, R., Friedman, J. N., Hendren, N., Stepner, M., & the Opportunity Insight Team (2020). *The Economic Impacts of COVID-19: Evidence from a New Public Database Built Using Private Sector Data.* Working Paper 27431. National Bureau of Economic Research. https://www.nber.org/papers/w27431.

Cox, D. (2020). *Pandemic reflection*. The International Journal of Community and Social Development, *2*(3), 349–354. https://journals.sagepub.com/doi/full/10.1177/2516602620959506

Hacioglu, S., Kanzig, D. R., & Surico, P. (2020). *Consumption in the time of COVID-19: Evidence from UK transaction data* (Discussion Paper No. 14646). Center for Economic Policy Research (CEPR). https://cepr.org/content/free-dp-download-14-may-2020-consumption-time-covid-19-evidence-uk-transaction-data

International Labor Organization. (2020). *ILO brief: COVID-19 employment and labor market impact in*

*Thailand*. https://www.ilo.org/asia/publications/labour-markets/WCMS_747944/lang--en/index.htm

Jiang, D., Wang, X., & Zhao, R. (2022). Analysis on the economic recovery in the post-COVID-19 era: Evidence from China. *Frontiers in Public Health*, *9*, Article No. 787190. https://doi.org/10.3389/fpubh.2021.787190

Liu, K. (2021). COVID-19 and the Chinese economy: Impacts, policy responses and implications. *International Review of Applied Economics*, *35*(2), 308–330. https://doi.org/10.1080/02692171.2021.1876641

Ministry of Public Health Care (2021). *Satana-kran RodTeeCherd virus Corona 2019 (COVID-19) Mart-tra-kran satarana-suk lad panha UooPaSak Kran PorKran KuabKoomRok Nai PooDengThang* [Situation of COVID-19 : public health measures, problems and obstacles for disease prevention and control among travelers.] reported by Department of Disease Control, Thailand Ministry of Public Health Care, August 18, 2021. (a report in Thai). https://ddc.moph.go.th/uploads/files/2017420210820025238.pdf

National Statistics Office. (2020). *Samroud pawa karn mee ngan tham tour rach-r-na-jak trimas song* [The labor force survey whole kingdom quarter 2: April-June 2020.] National Statistics Office, Ministry of Digital Economy and Society. (a report in Thai). http://www.nso.go.th/sites/2014en/Survey/social/labour/LaborForce/2020/Full_ReportQ2_new.pdf

National Statistics Office. (2019). *Samroud landngan nock-ra-brok* [The Survey of Informal workers.] Printed by the National Statistics Office, Ministry of Digital Economy and Society. (a report in Thai). http://www.nso.go.th/sites/2014en/Survey/social/labour/informalEmployment/2019/2562_workerOutSum.pdf

Qian, Y., & Fan, W. (2020). Who loses income during the COVID-19 outbreak? Evidence from China. *Research in Social Stratification and Mobility*. *68*, Article No. 100522. https://www.sciencedirect.com/science/article/pii/S0276562420300585

Thorbecke, W. (2020). The impact of the COVID-19 pandemic on the US economy: Evidence from the stock market. *Journal of Risk and Financial Management*, *13*(10), Article No. 233. https://doi.org/10.3390/jrfm13100233

Tisdell, C. A. (2020). Economic, social and political issues raised by the COVID-19 pandemic. *Economic Analysis and Policy*, *6*8, 17–28. https://doi.org/10.1016/j.eap.2020.08.002

World Health Organization (2020). WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020. https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020