

# INFLUENCE OF THE COVID-19 PANDEMIC ON REDUCING THE INCOME OF WORKERS

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## Abstract

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In Vietnam, the impact of COVID-19 on the economy is also huge, the economy was severely affected with the gross domestic product (GDP) growth at the lowest level in a decade, and most important industries saw a decline in growth, employment, and growing income is seriously affected (Dat, 2020). The COVID-19 pandemic has been affecting many aspects of the economy and society; many enterprises, business households, and cooperatives had to suspend operations, reduce production scale or rotate production, directly affecting the income of employees. This article uses the employment survey data of the General Statistics Office in 2021 and uses labor law (National Assembly, 2019) to analyze the influence of the COVID-19 pandemic on reducing the income of workers in Vietnam. The model estimation results show that the influence of the COVID-19 pandemic on income reduction does not differ between male and female workers, and has a strong influence on the group without professional and technical qualifications. Based on the findings, several suggestions are proposed to improve workers' income in the context of COVID-19.

**Keywords:** COVID-19, Income, Reduce Income, Employee, Vietnam

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## 1. INTRODUCTION

The COVID-19 pandemic outbreak started in January 2020 and has spread to almost all countries of the world. The continuance and unpredictability of the pandemic have been putting the world in a state of instability. At the beginning of 2021, several countries took measures to endorse vaccination against COVID-19, which resulted in a few successes. However, when countries reopened their borders, the Delta variant outbreak made severe impacts on Asia. The COVID-19 pandemic has become a global health crisis, which has been leaving severe consequences on all aspects of the socioeconomic system. Broadly speaking, the COVID-19 pandemic has caused a socioeconomic crisis on a global scale,

with long-lasting consequences on a multitude of aspects of society in the majority of countries, including Vietnam.

The COVID-19 pandemic urged governments of different countries to mandate different measures to restrict commuting and prevent the spread of the SAR-CoV-2 virus. These measures have directly affected the drive of the economy on a both local and global scale. This pandemic is a defiance of the efforts to maintain and boost the development of economies. One of its consequences is that a majority of the population lost their job or income source, which decreases the income of themselves and their family (Camara et al., 2020; Duarte et al., 2020). The government has attempted to devise alternative economic responses through

an income transfer policy that focuses on specific groups in order to allocate emergency financial aid to provide support for incomes and expenditures that have been affected by the pandemic (Cardoso, 2020). In economically underprivileged areas, these aids cannot compensate for all the impacts of job loss and income declines, as the socioeconomic condition is no longer as intact as before COVID-19 (Mattei & Heinen, 2020).

The COVID-19 pandemic is a major shock to the global economy in general and the Vietnamese economy in particular. It influences in unprecedented ways (Thanh & Trinh, 2020). Molina (2021) stated that the COVID-19 crisis has had a tremendous influence on wage and wage settings in all of Europe in 2020. The volatility of the economy, along with abiding obstacles in online negotiations, has resulted in the postponement of collective agreements until 2021, especially at the company level. In fact, wages maintained a positive uptrend in 2020 in almost all of the EU nations with a humble amount of increase, while a higher amount of increase was observed in the public sector (Molina, 2021). Wage support mechanisms put in place by governments also contribute to support workers in the private sector whose working hours have been reduced or who have been temporarily laid off. The crisis seems to have a particular impact on low-wage workers, occupations, and sectors. In practice, it appears that minimum wage and wage support mechanisms have played an important role in reducing the impact of the COVID-19 crisis on income inequality.

Carneiro Alves de Oliveira (2021) estimated the frequency and correlated factors of job loss and income reduction during the COVID-19 pandemic in Maranhão, Brazil from household survey data from the 19th to the 30th of October, 2020. The rate of job and income loss is 12.1%. This result is more significant in the group of residents of the largest and wealthiest cities in the state and cities with more than 100,000 inhabitants, in the male population and adults 30 to 49 years of age, and people with higher education levels. The outcomes have shown the rate of job and income loss in Maranhão and its relations with subjective and objective factors.

Although the COVID-19 pandemic is initially a health crisis, its impact on the economy is severe, and an unprecedented crisis is threatening to put the world at risk. In Vietnam, the impact of COVID-19 is immense, which resulted in the lowest statistical indexes of the first quarter of 2020 in comparison to previous years, such as the GDP scale increased at the lowest rate within a decade, most of the important industries experienced a decline in growth, employment, and income because of the serious impact (Dat, 2020). The COVID-19 pandemic has weakened the economy, which has resulted in workers' lower work hours and income. Some workers are at financial risk. The pandemic has seriously impaired the daily lives of many workers, enterprises, and families. The COVID-19 pandemic has caused enterprises to increase epidemic prevention costs, lack human resources due to quarantining, having their supply chain interrupted; moreover, they also suffer from fewer new orders, fewer export orders, loss or narrowing of the market; lack of capital, lack of supply of input

materials for production. These impacts resulted in workers' unemployment and income reduction.

This article is going to investigate the effect of COVID-19 on the decrease in income of workers and the income of which group of workers is reduced due to COVID-19 by estimating quantitative models using data from the 2021 employment survey of the General Statistics Office.

The remainder of this paper is structured as follows. Section 2 reviews the relevant literature. Section 3 analyses the methodology that has been used to conduct empirical research. Section 4 presents the results and analysis of the originating data. Section 5 discusses suggestions from the research results. Section 6 presents the conclusions, limitations, and future research.

## 2. LITERATURE REVIEW

Article 93 of Labor Law No. 45/2019/QH14 (National Assembly, 2019) stipulates that firms are allowed to take the initiative in formulating salary scales, wage tables, and labor norms based on negotiations and agreements with employees. Wages paid to an employee are the amount for performing the work, including the salary according to the job or title, salary allowances, and other supplements. The salary according to the job or title is not lower than the regional minimum wage prescribed by the Government.

Dat (2020) evaluated the impact of COVID-19 on the economy in several aspects. The author claimed that the impacts of COVID-19 on the Vietnamese economy are also significant. Statistics for the first quarter of 2020 show that the economy was severely affected with the lowest GDP growth in a decade, most important industries saw a decline in growth, and employment and incomes are seriously affected.

It is safe to say that COVID-19 is a major shock to the world in general and Vietnam in particular with an unprecedented impact on the economy. GDP of the first quarter of 2020 only showed a 3.82% increase — the lowest increase in the recent decade, the quarterly inflation index was the highest in the last 5 years; industries including tourism, services, logistics, manufacturing, and processing, etc. suffered from significantly lower growth rate; foreign direct investment (FDI) was also reduced (Thanh & Trinh, 2020).

According to Hung et al. (2020), since the beginning of the year, Vietnamese industries in general and agriculture, in particular, have suffered from the impacts of the COVID-19 pandemic, the extent of which had been exacerbating due to the escalation of the pandemic and increasing infections in the country. The impacts of COVID-19 on Vietnamese agriculture are observed in the import and export market, domestic agricultural market, and supply of raw materials for agricultural production. Under the negative influences of the COVID-19 pandemic, the most significant consequence for agriculture enterprises is the reduction of revenue. As the COVID-19 pandemic aggravated unpredictably, and social distancing was mandated by the government, many businesses had to close down or scale down. Because they have little or no revenue and still have to pay for expenses, many firms have to deal with a number of obstacles.

Generally speaking, the effect of the pandemic can be observed in a number of aspects, including 1) human resources are affected as employees are infected; 2) provision of services such as tourism, telecommunications, logistics, finance, etc. is impeded; 3) customers' demands change; while some industries such as necessities, medical equipment for pandemic prevention, internet service for communication and entertainment purposes receive more attention, several others do not receive as much demand, such as non-essential goods, tourism, logistics, etc. when customers tend to cancel orders; 4) the supply of raw materials for production or service provision, even from subcontractors, may be disrupted (Canadian Centre for Occupational Health and Safety [CCOHS], 2020).

According to estimates by the International Labor Organization (ILO), by April 2020, the pandemic put 2.7 billion laborers (81% of the world's labor force) in a state of reduced work hours, income loss, or unemployment (Hoa, 2020).

Thanh and Hoa (2020) believed that the COVID-19 pandemic has greatly affected all aspects of society and the economy. The impact of the pandemic is not only evident in the production and business activities of enterprises, but also society as it causes unemployment, income loss, etc. Many firms are facing the risk of being suspended or bankrupt. With the severity of the situation, the government took several measures to support enterprises and the people during the COVID-19 pandemic.

According to Tran et al. (2020), starting from the 1st of April, 2020, the nationwide partial lockdown in Vietnam has shown effectiveness in stopping the community transmission of COVID-19, however, it also produced adverse impacts on the economy and inhabitants' life. A cross-sectional study using a web-based approach was conducted in the second week of April 2020 to examine the influence of national social distancing on the quality of life and economic well-being of Vietnamese citizens during the COVID-19 pandemic. The data included socioeconomic characteristics, the impact of COVID-19 on household income, health status, and health-related quality of life (HRQOL). Ordered logistic regression and multivariable Tobit regression model were employed to examine factors correlated to income change and HRQOL. Results showed that among 341 participants, 66.9% reported household income loss due to the impact of COVID-19. People holding undergraduate degrees, working in other sectors rather than healthcare, and having definite-term contracts had a higher likelihood of income reduction.

Dang et al. (2020) utilized a respondent-driven sampling technique to select 1423 respondents from 63 cities and provinces in Vietnam. Exploratory factor analysis (EFA) was used to define sub-domains of perceived impacts of COVID-19 on occupations. The result showed that approximately two-thirds of respondents reported decreases in their income (61.6%), and 28.2% reported that their income deficit was 40% and above. The percentage of female individuals having decreased revenue due to COVID-19 was higher than that of male respondents (65.2% and 54.7%, respectively). "Worry that colleagues exposed to COVID-19 patients" and "Being alienated because employment-related to COVID-19" accounted for the highest score in each

factor. Compared to healthcare workers, those being self-employed/unemployed/retired were less likely to suffer from "Increased workload and conflicts due to COVID-19" and "Disclosure and discrimination related to COVID-19 work exposure."

Ninh (2021) based on survey data from 120 laborers working in the textile and electronic industries to analyze the state of employment, life, and coping with jobs of workers in the Que Vo Industrial zone with the impact of the COVID-19 pandemic. The research outcome shows that the majority of the laborers had their work hours reduced and the percentage of textile workers with reduced work hours was greater than that of electronic workers, and the average work hours per day of textile workers was also 1 hour fewer. The inevitable consequence of reduced work hours was a considerable decrease in income as well as the spendings of workers. To cope, many workers had to take on extra work or even switch jobs. However, there are several reasons why a majority of workers wants to maintain their jobs, such as gender, children, qualifications, and especially enterprises' support policies to retain employees.

Several recent studies on the impact of the COVID-19 pandemic on tourism show that reduced income and work stress have a significant impact on the intention to leave a job, even when projections suggest a future recovery for the tourism industry (UNTWO, 2020; McGuire et al., 2021; Sharma et al., 2021).

Thuong (2021) relied on in-depth interview data from experts and tour guide surveys to research, analyze and assess the impacts of the COVID-19 pandemic on tour guides in Da Nang city. The outcome suggests that the COVID-19 pandemic severely affected tourism. To control the pandemic, a great number of tours were canceled, and due to the drop in tourist numbers, tour guides became unemployed, suffered from major income loss, and even became disoriented about future careers. In 2020, 75.9% of tour guides had an over 70% income loss; 13.8% had between 50 to 70% income loss; 1.7% had between 10 to 50% income loss; 6.79% had lower than 10% income loss in comparison to 2019. In addition, obstacles that tour guides had to face due to the impact of the COVID-19 pandemic include: a staggering 98.3% of tour guides suffered from great financial pressure, as they are mostly young adults and are considered family's breadwinners; 87.9% stated that COVID-19 impacts made them passive in their job and they lost opportunities to develop themselves; 98.3% missed their jobs. In addition, 58.6% of tour guides said that they have lost their orientation for future careers.

Mai et al. (2021) said that migrant workers are one of the most vulnerable and easily affected by the COVID-19 pandemic. The authors surveyed 114 migrant workers living in Hoan Son commune, Tien Du district, Bac Ninh province to measure the impacts of the COVID-19 pandemic on migrant workers. The research shows that almost 70% of migrant workers lost their jobs or had their work hours reduced, and 86% reported a decrease in income, decrease in spendings, or disturbed spiritual life. The research also shows that although they are severely affected by the pandemic, migrant workers did not receive enough support from the VND 62,000 billion support package of the State, as well as from the local authorities.

### 3. METHODOLOGY

#### 3.1. Data source

The article uses the employment survey data for 2021 of the General Statistics Office, which selected 409,535 respondents in Vietnam, including information on employee characteristics, employment characteristics, and modules on the impact of COVID-19 on labor.

#### 3.2. Variables

The dependent variable is a decrease in income due to COVID-19, employees were asked if the COVID-19 pandemic's impacts led to a decrease in their income. Thus, the article utilized binary variables, with 1 meaning the employee's income is reduced due to COVID-19 and 0 meaning it is not affected.

Independent variables include 1) *characteristics of individual employees* (age, gender, technical qualifications); 2) *characteristics of employment* (industry, occupation, formal or informal employment); 3) *geographical characteristics*.

#### 3.3. Research models

The article uses a logit regression model to assess the risk of losing/reducing income under the impact of the COVID-19 pandemic. The dependent variable is a binary variable, with 1 meaning the employee replied yes to the question if COVID-19 affected to reduce their income. The logit model can be described in the following basic form:

$$\ln\left(\frac{P_i}{1-P_i}\right) = Z_i \quad (1)$$

where,  $i$  is the number of the interviewed employee.

$$Z_i = \beta_0 + \beta_1 Sex_i + \beta_2 agegroup_i + \beta_3 cmkt_i + \beta_4 Branch_i + \beta_5 Informality_i + \beta_6 ttnt_i + \beta_7 vung_i + \varepsilon_i \quad (2)$$

Variable *agegroup*, *cmkt*, *branch*, and *vung* are dummy variables for age group, technical qualifications, industry branch, and economic region, respectively. The details are provided in Table 1.

Estimate the  $\beta$  coefficients of the logit model by the method of maximum likelihood estimation. The marginal effect of the independent variable  $X$  on the probability of receiving a value equal to 1 of the dependent variables is as follows:

$$\frac{\delta P}{\delta x} = p(1-p)\beta \quad (3)$$

From the above formula, it can be seen that the marginal effect of variable  $X$  depends on the estimator  $\beta$  and the probability  $p$ -value for given conditions, usually at the mean value of the independent variables.

### 4. RESULTS

Table 1 shows a descriptive analysis of variables. Most of workers' incomes are affected by the COVID-19 pandemic. The research results of this paper will be analyzed in more detail through descriptive statistics, logit model and discussion.

**Table 1.** Descriptive analysis of variables

Name	Description	Obs	Mean	Std. Dev.	Min	Max
<b>COVID-19</b>	Reduced income due to COVID-19	409,535	0.348	0.476	0	1
<b>Gender</b>	Female		0.474	0.499	0	1
<b>Age group</b>	Comparison group: 15-24	409,535				
2.agegroup	25-39		0.392	0.488	0	1
3.agegroup	40-59		0.425	0.494	0	1
4.agegroup	60-64		0.051	0.221	0	1
5.agegroup	≥ 65		0.043	0.204	0	1
<b>Technical qualification</b>	Comparison group: no training	409,535				
2.cmkt	Primary		0.068	0.252	0	1
3.cmkt	Middle		0.045	0.207	0	1
4.cmkt	College		0.037	0.190	0	1
5.cmkt	Bachelor or higher		0.125	0.331	0	1
<b>Branch</b>	Comparison group: agriculture industry	409,535				
2.branch	Fisheries		0.032	0.177	0	1
3.branch	Mining industry		0.004	0.064	0	1
4.branch	Manufacturing and processing industry		0.196	0.397	0	1
5.branch	Producing and distributing electricity, gas, and water		0.004	0.061	0	1
6.branch	Construction		0.089	0.285	0	1
7.branch	Commercial		0.150	0.357	0	1
8.branch	Hotels, restaurants services		0.054	0.226	0	1
9.branch	Transportation, warehousing, communication		0.042	0.201	0	1
10.branch	Other services		0.152	0.359	0	1
<b>Formal/informal employment</b>		409,535				
Informality	Informal employment		0.714	0.452	0	1
<b>Area</b>	Comparison group: city					
ttnt1	Countryside		0.576	0.494	0	1
<b>Region</b>	Comparison group: The Red River Delta	409,535				
2.vung	Northern mountains		0.188	0.391	0	1
3.vung	Central		0.209	0.406	0	1
4.vung	Highlands		0.099	0.298	0	1
5.vung	Dongnambo		0.124	0.330	0	1
6.vung	The Mekong River Delta		0.186	0.389	0	1

Note: Calculation from data from Labor and Employment Survey in 2021.

The results in Table 2 show that about 37.3% of workers believed that their income has been reduced due to COVID-19.

In terms of age groups, groups 15 to 24 and 25 to 39 are the most affected, with the percentage of employees having their income reduced are 37.1% and 40.2%, respectively. In terms of workers' qualifications, the group of workers at the primary level qualification is most affected with a rate of

50.2%. In terms of industry branches, workers from all industries are affected, but some industries had a higher rate of reduced-income workers, such as hotels and restaurants, transportation, warehousing, communications, and commerce.

Both formal and informal employees are affected with a similar level of impact, as 37 to 38% of workers are reduced income due to COVID-19.

**Table 2.** Percentage of workers whose income has been reduced due to COVID-19 (%)

<i>Description</i>	<i>Male</i>	<i>Female</i>	<i>Average</i>
<b>Average</b>	<b>37.6</b>	<b>36.9</b>	<b>37.3</b>
<b>Age group</b>			
15-24	35.4	39.2	37.1
25-39	40.7	39.6	40.2
40-59	37.2	35.7	36.5
60-64	30.9	30.0	30.5
≥ 65	26.8	27.1	27.0
<b>Technical qualification</b>			
No training	36.8	38.3	37.5
Primary	50.5	49.0	50.2
Middle	37.9	36.6	37.4
College	41.0	33.3	37.0
Bachelor or higher	29.9	26.7	28.3
<b>Branch</b>			
Agriculture industry	20.2	17.7	19.0
Fisheries	40.0	39.1	39.8
Mining industry	19.9	18.4	19.6
Manufacturing and processing industry	47.2	49.3	48.3
Producing and distributing electricity, gas, and water	26.1	22.5	24.5
Construction	40.2	40.1	40.1
Commercial	48.8	48.3	48.5
Hotels, restaurants services	59.9	57.2	58.1
Transportation, warehousing, communication	55.2	38.1	53.0
Other services	26.7	26.7	26.7
<b>Formal/informal employment</b>			
Formal employment	36.8	38.5	37.7
Informal employment	37.9	36.1	37.1
<b>Area</b>			
City	46.4	45.9	46.2
Countryside	32.8	31.6	32.2
<b>Region</b>			
The red river delta	27.7	25.5	26.6
Northern mountains	43.8	42.3	43.1
Central	34.0	31.6	32.9
Highlands	18.6	17.7	18.2
Dongnambo	48.7	50.1	49.3
The Mekong River Delta	35.9	37.2	36.5

Source: Calculation from data from Labor and Employment Survey in 2021.

To investigate the impact on the income of groups, whether or not all the groups are affected similarly, and considering all factors, which group had income reduction due to the impacts of COVID-19, the article uses the result of the logit regression model to answer these questions.

As aforementioned, the dependent variable is a binary variable, with 1 meaning the workers are affected by COVID-19 and 0 if they are not.

The estimated results are shown in Table 3 as follows.

**Gender:** Male and female workers had a similar rate of reduced income, so the estimated coefficient of this variable is not statistically significant.

**Age group:** This coefficient is significant in the age group of 25 to 39 (positive coefficient) and age group of over 60 (all coefficients are negative), this shows that the age group 25 to 39 had a higher probability to have their income reduced in comparison with the age group 15 to 24 by a rate of 3.2%; the levels of impact of COVID-19 on the age

group 40 to 59 and on the age group 15 to 24 were similar; the age group of 60 and above had a lower probability of having income reduction due to COVID-19 in comparison to other age groups. At the age of 60 or older, workers are defined as elderly. Elderly people are often those who have many years of working experience with many years of experience, especially in jobs that require high qualifications. Therefore, in order to promote the value of the elderly, Article 149 of Labor Law No. 45/2019/QH14 (National Assembly, 2019) allows employers to agree to enter into multiple definite-term labor contracts with the elderly instead of extending the term of the labor contract or entering into a new labor contract as before.

**Technical qualifications of workers:** The estimated results show that the estimated coefficients of the technical and professional variables are statistically significant, the higher the level of professional and technical qualifications, the lower the coefficient is. To be specific, the group of

workers without certificates was more strongly affected than the group with primary qualification (positive coefficient and statistically significant) because they have less savings and limited access to finance; the higher the level of education, the less likely it was to be affected by a reduction in income due to COVID-19. In comparison with the untrained group, workers with vocational training had a lower probability of 2.6% to be affected by a decrease in income; workers with an associate degree were 3.3% less likely and workers with a bachelor's degree or higher were about 9.7% less likely to be affected by a decrease in income.

**Branch:** Compared to the decrease in income due to COVID-19 of the agriculture industry, the fisheries industry was more strongly affected by 17.7%; the mining industry was 4.5% more likely to be affected; the processing and manufacturing industry was 26.3% more likely; construction industry was 17.5% more likely; trade sector was 25.2% more likely; hotels and restaurants industry was 32.7% more likely; transport, warehousing, and communication sectors were 28.8% more likely.

**Formal/informal employment:** The results show that workers with informal employment had a higher risk than formal workers by 9.28%.

In general, in the context of the pandemic, all job titles were affected by a decrease in income. On the other hand, the revised Article 20 of Labor Law No. 45/2019/QH14 (National Assembly, 2019) has removed the content of a seasonal contract or a job with a term of less than 12 months. Instead, there are only two types of contracts: contract labor contracts with an indefinite term and labor contracts with a definite term. This regulation is considered a great advancement of the labor law to protect workers and limit the situation of employers "dodging the law", and not paying social insurance for employees by signing contracts, type of seasonal contract, service, etc. Therefore, workers with informal jobs will increasingly enjoy a better income regime.

**Area:** The estimated coefficient is negative and statistically significant, showing that workers in rural areas are statistically significant, and urban workers have a higher risk of income reduction due to COVID-19 than in rural areas by about 7.3%.

**Region:** In general, workers in The Red River Delta and the Dongnambo region are more affected by the decrease in income due to COVID-19 than in the rest of the regions.

**Table 3.** The estimation results of the logit model (Part 1)

Name	Description	Logit	Marginal effect
<b>Gender</b>	Female	-0.00241	-0.000486
		(0.00751)	(0.00151)
<b>Age group</b>	Comparison group: 15-24		
2.agegroup	25-39	0.158***	0.0321***
		(0.0131)	(0.00262)
3.agegroup	40-59	0.0149	0.00298
		(0.0131)	(0.00261)
4.agegroup	60-64	-0.134***	-0.0261***
		(0.0201)	(0.00391)
5.agegroup	≥ 65	-0.174***	-0.0339***
		(0.0217)	(0.00418)
<b>Technical qualification</b>	Comparison group: no training		
2.cmkt	Primary	0.206***	0.0434***
		(0.0142)	(0.00303)
3.cmkt	Middle	-0.130***	-0.0264***
		(0.0174)	(0.00349)
4.cmkt	College	-0.164***	-0.0333***
		(0.0193)	(0.00385)
5.cmkt	Bachelor or higher	-0.507***	-0.0977***
		(0.0145)	(0.00264)
<b>Branch</b>	Comparison group: agriculture industry		
2.branch	Fisheries	0.931***	0.177***
		(0.0200)	(0.00430)
3.branch	Mining industry	0.278***	0.0454***
		(0.0613)	(0.0107)
4.branch	Manufacturing and processing industry	1.298***	0.263***
		(0.0127)	(0.00252)
5.branch	Producing and distributing electricity, gas, and water	0.268***	0.0436***
		(0.0632)	(0.0110)
6.branch	Construction	0.920***	0.175***
		(0.0141)	(0.00285)
7.branch	Commercial	1.251***	0.252***
		(0.0121)	(0.00242)
8.branch	Hotels, restaurants services	1.566***	0.327***
		(0.0165)	(0.00366)
9.branch	Transportation, warehousing, communication	1.402***	0.288***
		(0.0194)	(0.00433)
10.branch	Other services	0.502***	0.0870***
		(0.0151)	(0.00269)
<b>Formal/Informal employment</b>			
Informality	Informal employment	0.472***	0.0928***
		(0.0108)	(0.00204)

**Table 3.** The estimation results of the logit model (Part 2)

Name	Description	Logit	Marginal effect
<b>Area</b>	Comparison group: city		
<i>ttnt1</i>	Countryside	-0.357*** (0.00767)	-0.0730*** (0.00158)
<b>Region</b>	Comparison group: The Red River Delta		
<i>2.vung</i>	Northern mountains	0.569*** (0.0117)	0.116*** (0.00235)
<i>3.vung</i>	Central	0.278*** (0.0115)	0.0546*** (0.00224)
<i>4.vung</i>	Highlands	-0.112*** (0.0156)	-0.0205*** (0.00284)
<i>5.vung</i>	Dongnambo	0.610*** (0.0129)	0.125*** (0.00266)
<i>6.vung</i>	The Mekong River Delta	0.353*** (0.0119)	0.0699*** (0.00234)
Constant		-1.911*** (0.0202)	
Observations		409,535	
R-squared		0.0896	

Note: Standard errors are in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Source: Calculation from data from Labor and Employment Survey in 2021.

## 5. DISCUSSION

In addition to the discussions presented in Section 4, Section 5 added discussions and implications.

Table 3 showed that the model includes seven variables. In general, the model is estimated to show a good fit with the obtained data set. The combined test values of the parameters in the model are statistically significant, that is, the variables included in the model are appropriate. The rigor of the model is quite good, as shown by the two indicators logit and marginal effect. Besides, the test results in Table 3 confirm the fit of the model.

From the start, Vietnam had priorities in proposing response policies: 1) highly prioritize the prevention and containment of the pandemic as soon as possible; 2) minimize the socioeconomic impact of the pandemic; 3) actively prepare solutions to bridge the gap between the during the epidemic and post-epidemic periods to restart the economy soon after the pandemic ends. The government soon had solutions to maximize mobilization to implement these policy priorities. The policy that the Vietnamese government was implementing was going in the right direction, the remaining problem was to urgently practice it, especially for those who were severely affected and needed immediate support (Dat, 2020). In addition, the State issued and implemented support policies for workers affected by the pandemic to compensate for the decrease in workers' income, but the impacts of the COVID-19 pandemic were severe. However, a significant number of workers could not get access to the package of policies because they could not meet the requirements to receive the benefits, which had a great impact on the economic situation of each region and the general "health" of the Vietnamese economy.

It can be said that the COVID-19 pandemic has seriously affected the economy and reduced jobs and job quality; besides, Vietnam's disease prevention policy of social distancing measures also affects production and business activities, the commute of workers, makes workers lose their jobs, reduces working hours, and leads to income reduction.

Young workers, low-skilled workers, and those without certificates are the groups most affected by

the loss of income. As workers were affected by the COVID-19 pandemic, the Government set up monetary support policies for people who suffered from job loss or loss of income due to the pandemic. The policies were all aimed at minimizing the economic impact of the COVID-19 pandemic on the most vulnerable part of the population.

The COVID-19 pandemic is characterized as a negative phenomenon, as it affects a wide range of factors related to people's health status and quality of life, including the environment, living conditions, and economy. It has negative consequences for the operation of the economy, so it is necessary to devise urgent and diverse strategies to cope, thereby mitigating the impact of the COVID-19 pandemic.

In Vietnam, the impacts of the COVID-19 pandemic on the economy take different forms, in which, it directly causes the expenses of disease prevention and treatment in industries related to health to rise; and its indirect impacts were results of economic members' response/coping behavior to unpredictable developments of the COVID-19 pandemic, including 1) government response (quarantine mandate, border closures, trade restrictions, bans on cultural, sports and tourism activities); 2) response of enterprises and organizations (limit production and business activities, etc.); 3) consumer behavior (limited communication, limited trading, and travel, self-isolation). These have made strong and long-term impacts on the economy in different ways. The economy will decline rapidly because of these strong impacts on the total supply (enterprises production is reduced, input supplies are disrupted, upstream of value chains are affected, etc.) and aggregate demand (domestic consumption demand and production investment decline, exports plummet, etc.) (Thanh & Trinh, 2020). Therefore, workers' incomes dropped considerably, and many workers did not have the income to sustain their life and had to return to their home places to earn a living.

Enterprises need to see that this is a chance to digitize, because of the urgency and high determination of the whole enterprise. To stay safe in the pandemic and sustain businesses, enterprises need to implement a digital transformation and convert to new forms to create a new balance in

their operations. In the future, to be able to overcome difficulties as in the current situation, businesses need to build business continuity plans based on different market scenarios, which could help give suitable responses (Hieu et al., 2020).

Many migrant workers who lost their job or had their work hours reduced were in the priority group to receive support from the state's budget, but in fact, could not get access to the support package. Therefore, it is necessary to review regulations and conditions, relax requirements of benefit conditions, innovate implementation, as well as remove unnecessary regulations so that workers and enterprises can benefit from the financial support of the budget and credit support package. In addition, local authorities need to take measures to disseminate beneficiary conditions and instructions on procedures to migrant workers so that they have the opportunity to access the support packages that the Government provides (Mai et al., 2021). Besides, the Government needs to have policies to provide direct support in the form of incentives for workers who contribute to controlling the pandemic and those who maintain social order and safety. This was not only a solution to support social security, but it was also a recognition of their contributions and sacrifices to the country (Hoa, 2020).

Enterprises need to pay attention to their employees' living and provide support for employees who are made redundant. Therefore, trade unions as representatives of businesses need to uphold their role in protecting the rights of workers, especially migrant workers, to minimize the negative consequences of the COVID-19 pandemic (Mai et al., 2021). Besides, maintaining job positions and ensuring income is an essential and long-term form of support that enterprises could provide for their employees. Accordingly, it should be prioritized to remove obstacles and create favorable conditions to sustain enterprise operations, especially for small and medium enterprises with workers. Enterprises need to develop to generate jobs and income for employees (Hoa, 2020).

Enterprises need to have appropriate policies to earn employees' compassion and understanding, so that they could share the burden with the enterprise and stay with the enterprise, especially highly skilled workers. Enterprises need to take action to reinforce employees' mindset, so that they can stay with the job, and have belief in their profession and a future of development. Enterprises and workers need to understand the labor demand of the economy in the context of transforming production methods to meet new requirements. Enterprises need to change their arrangement of work to protect employees' health, making them feel safer working. Enterprises should consider reducing the workforce in unnecessary positions, retaining qualified employees, paying part of the salary, and providing favorable conditions so that employees could have different work and improve their incomes (Hien & Vinh, 2022).

The COVID-19 pandemic let tour guides have spare time to reflect on themselves, be less hasty,

and form a deeper bond with their spouse and family. This is an occasion for them to understand that despite challenges if they make efforts to develop their skills, professional knowledge, and foreign languages to improve their qualities, new opportunities would open up for them (Thuong, 2021). Migrant workers need to be active in safely adapting to the current situation of the pandemic, instead of longing for support from the State or the self-recovery of the economy. Upgrading technical skills, learning new skills, adopting ways to efficiently manage spendings, etc. are helpful solutions for migrant workers at the moment (Mai et al., 2021).

## 6. CONCLUSION

The results above have pointed out the considerable impacts of the COVID-19 pandemic on income reduction. There is no difference in income reduction due to the impact of the COVID-19 pandemic between Men and Women; workers from 25 years old to 39 years old of age experienced a higher income reduction due to COVID-19 than other age groups; workers with higher professional and technical qualifications, the lower their reduction income; employees working in hotels and restaurants have more income reduction than in other fields; workers in the city lose more income than workers in the countryside, etc.

The theoretical and practical implications of the study are as follows. The majority of workers reported reduced working hours. However, there is no situation of workers losing their jobs or leaving jobs without pay. Workers' incomes decreased, so living expenses must be minimized, especially for food, food, and entertainment needs. Despite difficulties and stress because of the pandemic, most workers try to maintain a happy family atmosphere, with little conflict and violence.

The findings of this study are expected to be useful for the government or society. The government, firms, and trade unions need to pay attention to supporting workers in various forms of finance, in kind and spirit to help them overcome the difficulties of the pandemic. Firms need to improve working conditions as well as increase nutrition in meals to ensure the health of employees when working in a high-risk environment.

This study has some limitations, such as factors, the object of research, etc. The study did not mention full about COVID-19 produced adverse impacts on the economy and inhabitants' life in Vietnam and the income of Vietnamese citizens during the COVID-19 pandemic.

Future researchers are expected to be able to use this research as a reference in further research with similar problems. Future researchers are expected to develop this research using other factors other than those used in this study that affect the reducing the income of workers. Further researchers are also expected to expand the object of research to develop this research.

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