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# Changes in Income Distribution During the COVID-19 Pandemic: Empirical Evidence from Vietnam

Quyết Thang DAO<sup>1</sup>, Thi Yên LE<sup>2</sup>, Van Hung PHAM<sup>3</sup>

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## Abstract

This study examines changes in income for Vietnam's service laborers during COVID-19. A person's income depends on several factors, such as educational level, working area, the number of activities creating jobs, the cost of living, investment, etc. This research was based on a survey of 479 workers in Vietnam's service sector, who were evenly distributed across sectors (tourism and aviation) and workplaces (State and private). Based on the collected data, the REM regression model was used to analyze the factors influencing employee income when COVID-19 took place. The research returns show that the COVID-19 pandemic has had a considerable influence on labor incomes, and there are income disparities that exist between workers by work area and by gender. This study indicates that workers' wages in Vietnam decreased by an average of 12.22 million VND per month after the outbreak of COVID-19. In addition, the results also show that the income of workers after COVID-19 differs depending on their position (the average salary of laborers working in the public sector is about 3.946 million VND higher than the average salary of laborers in the private sector); furthermore, the incomes of workers also vary by gender.

**Keywords:** Income, Labor, COVID-19, Income Distribution, Vietnam

**JEL Classification Code:** O10, O12; D13, D10, J22

## 1. Introduction

The research team surveyed service sector workers regarding income changes resulting from the COVID-19 pandemic: (1) *“About 70% of our income has decreased since the outbreak of COVID-19; therefore, to maintain life in the current context, we need to redistribute our lives”* (2) *“After COVID-19 broke out in Vietnam, I lost my job and found it very difficult to find a new job. My income is now only 30% of what it was before. To maintain my life, I must still work.”* These are the views that have been compiled by

the research team due to the COVID-19 pandemic spread, and which has a considerable influence on labor's income distribution. When the pandemic has a negative influence on living standards, employees in the service sector, in particular, are required to make changes to meet their daily needs in the new context.

The COVID-19 outbreak that spread across many countries around the world has affected the health of people and directly affected the economic growth and development of nations. For firms, COVID-19 has caused many difficulties in production and business activities (Nguyen & Tran, 2021; Pattiruhu & Paais, 2020; Suratman et al., 2021). According to GSO (2020), in Vietnam, as of April 2020, COVID-19 has affected about 85.7% of enterprises out of a total of 126,565 surveyed enterprises. The construction industry and service industries were the most affected by the COVID-19 pandemic, contributing for 86.1 percent and 85.9 percent of the total affected firms in the respective sectors, while agriculture, forestry, and fishing sectors were less affected, roughly 78.7 percent firms in these three sectors were effected. Some economic sectors were adversely affected by the COVID-19 epidemic, such as Aviation is 100% affected, accommodation services were 97.1% affected, food service was 95.5% affected, travel agent activities were

<sup>1</sup>Lecturer, Quy Nhon University, Quy Nhon City, Vietnam. ORCID: <https://orcid.org/0000-0001-8836-4826>. Email: [daoquyetthang@qnu.edu.vn](mailto:daoquyetthang@qnu.edu.vn)

<sup>2</sup>Corresponding Author. Lecturer, Hanoi Architectural University, Hanoi, Vietnam. ORCID: <https://orcid.org/0000-0001-5468-7862>. [Postal Address: Nguyen Trai Street, Ha Dong District, Hanoi, 10000, Vietnam] Email: [Lethiyenkttdt@gmail.com](mailto:Lethiyenkttdt@gmail.com)

<sup>3</sup>Lecturer, National Economics University, Hanoi, Vietnam. Email: [hungpv@neu.edu.vn](mailto:hungpv@neu.edu.vn)

95.7% affected, education and training were 93.9% affected; textiles, leather manufacturing, leather products, electronic products, and car manufacturing were 90% affected by the COVID-19 pandemic.

Services and tourism are the sectors that most clearly reflect the effects of the COVID-19 pandemic. Many sectors (including tourism and air transportation) have experienced sharp declines due to travel restrictions and social distancing. From January to June 2020, the number of international visitors decreased by 55.8% over the same period last year; Domestic tourists also dropped by 27.3% (down 6% in the first quarter). Industry-wide revenue fell by 77.8%, much higher than the 11% drop in the first quarter of 2020 (GSO, 2020; World Bank, 2020).

Workers were immediately affected by the negative effects that businesses faced. According to GSO (2021), in Vietnam, out of a total of 9.1 million people negatively impacted by the COVID-19 pandemic, 540 thousand people lost their jobs, 2.8 million people had to suspend production and business temporarily; 3.1 million people said they have had to cut working hours or forced to take time off or rotate work. These difficulties have directly affected the income of workers.

In views of DFID (1999), the labor's income is affected by resources: human resources, financial resources, physical resources, social resources, and natural resources. However, the outbreak of the COVID-19 pandemic caused damage to workers' incomes. At this time, the COVID-19 pandemic is the context that causes injuries to workers' earnings.

The research questions are: what is the specific impact of the COVID-19 pandemic on worker income, how is worker income distributed, and what mechanisms drive it? Through the study of factors directly affecting labor income in the context of ongoing COVID-19, answers for these questions will be provided. The study was carried out based on the theory of sustainable livelihood framework of DFID (1999) to quantify the influence of factors on workers' income in the context of the COVID-19 pandemic in Vietnam. The main research subjects are laborers working in the tourism and aviation sectors, which are the two sectors most affected by the COVID-19 pandemic, and most accurately reflect the difficulties that the COVID-19 pandemic brings to workers in Vietnam.

## 2. Literature Review

Employee income is affected by various factors, and depending on the approach taken, researchers have quantified the influence of these factors on workers' earnings. According to DFID (1999), the income of people is affected by five groups of resources; these resources are also influenced and directly affected by factors such as natural disasters, epidemics, supportive policies, etc. The global spread of the

COVID-19 pandemic is one of the factors that have a direct influence on the income of workers; it is a factor that shows the external vulnerability affects the income of people.

The effects of the COVID-19 pandemic have been studied in different ways, but there is a common point in these studies when they all assume that the COVID-19 pandemic has had detrimental effects on workers' income as well as directly affected people's social behaviors (Bezerra et al., 2020; Qian & Fan, 2020). Qian and Fan (2020) collected data from Mainland China in March–April 2020 to examine the individual-level economic toll of the COVID-19 outbreak. They investigated how individuals' income (when surveyed) has changed relative to before the outbreak and paid particular attention to the potentially unequal distribution of economic vulnerability based on structural (dis)advantages and COVID-19 related conditions. They showed that education, family economic status, Communist Party membership, state-sector employment, and urban hukou—all long-standing status markers in China—mitigate the adverse effects of the COVID-19 outbreak on individuals' income losses. In addition, people who live in families or regions that were hit harder by COVID-19 are more likely to experience income losses. Taken together, this study showed that the COVID-19 pandemic not only exacerbates pre-existing social inequalities but also creates new forms of disparities.

The gender of the respondents also affects their income levels Bezerra et al. (2020) investigated changes in income that affect the distribution of people's spending in Brazil using data from the research. The author's research revealed that a variety of factors influence people's income and behavior; however, the impact of the COVID-19 pandemic has also changed people's income and behavior; the COVID-19 pandemic has forced people to change their spending structures and redistribute their income and spending.

Meanwhile, many studies have examined people's vulnerabilities when situations change, for example, when industrialization and urbanization occur, influencing employees' income directly (Bury, 2004; Bui et al., 2013). These studies have demonstrated the problems faced by workers when the conditions change, as well as the negative effects of the context on people's income. Workers with income vulnerabilities will face challenges in life. When facing difficulties in life, they will need new livelihood strategies to adapt and meet the requirements of their new life. Tran (2013), Benayas et al. (2007), Bryceson (1996), and Jansen et al. (2006), investigated the factors affecting people's income when their life circumstances changed, comparing people's income before and after changes in their circumstances. When analyzing the characteristics that affect people's income such as education level, the number of employees, gender of household head, size of agricultural land, and participation in groups, the findings of this research group are fairly consistent.

Many studies have been conducted to determine the population's adaptive capacity to the vulnerabilities caused by an epidemic or a pandemic (Nelson et al., 2010; Adger et al., 2001; Le & Le, 2020). When studying the vulnerability of people's livelihoods to the effects of diseases and weather conditions, researchers use the sustainable livelihood analysis framework of DFID (1999) as a theoretical basis for the research. Based on this analytical framework, These studies calculate people's adaptation capability through resource groups that affect their livelihoods when the setting/context changes. From there, the studies will measure the degree of influence of the damage caused to people's income (Le et al., 2020).

The income of employees is affected by many factors at varying levels of influence. Due to the COVID-19 pandemic, however, it impacted workers' incomes to a drastic extent, causing life and social problems to arise. Previous studies have succeeded in quantifying the influence of factors on the income of the general populace in challenging conditions, including natural disasters and epidemics (COVID-19). This study will continue to inherit the results of previous studies and continue to solve problems that previous studies have not done. As follows:

First, this study focuses on analyzing the effects of the COVID-19 pandemic on the income of workers in the service sector - this is the area that is most affected and most typical of the impact that COVID-19 brings.

Second, the research will examine the influence of the COVID-19 epidemic on the income distribution among labor groups in this field. Effects that differ or do not differ amongst workers with various levels of education, genders, and work sectors (public sector, private sector).

### 3. Research Methods

#### 3.1. Data Collection

Based on the survey of GSO (2006) and GSO (2021), the research team designed the survey form for the study. The survey was designed to include the following information: Sociological information of the surveyed subjects, and information about the factors affecting the income of workers before and after COVID-19.

With the survey designed, the research team surveyed employees working in the service industry in Vietnam. As follows: The research team interviewed employees working in the Airlines sector as well as employees working in the tourism sector such as hotel staff, travel agency staff, and restaurant staff at tourist sites. The research team surveyed employees of Vietnam Airlines and Vietjet Air, the two largest airlines in Vietnam. They also surveyed hotel staff, staff of travel agencies, and other related service staff. The research team surveyed three major tourist cities of Vietnam

including Hanoi city - this city is the biggest cultural tourism center of Vietnam; Da Nang city, which is the largest sea tourism center of Vietnam and is the representative city of the central region of Vietnam; and Quy Nhon City, which is the locality representing the central coast region of Vietnam.

The research team distributed 750 survey forms and divided them equally among the surveying localities, and 561 questionnaires were collected from the survey. Out of a total of 561 survey questionnaires collected, 479 questionnaires met the requirements of complete and correct answers, while the remaining questionnaires that did not meet the requirements were discarded. The number of observations is 479, thereby meeting the minimum sample size required to perform statistical operations.

The research team carried out data collection from January to the end of March 2021. The group sent the questionnaire directly to the selected subjects. In some cases, due to the impact of the COVID-19 pandemic, "social distancing" was followed, so the survey team sent questionnaires both directly and via email to get answers from different subjects.

#### 3.2. Data Analysis Methods

With the collected data, the research team used the REM analysis model to quantify the influence of factors on employee's income during the COVID-19 pandemic as well before the pandemic using the data obtained. The factors affecting income are described in detail as follows:

##### *The dependent variable:*

Income of employee (Y): The total income that the workers earn in a month, and the unit of calculation is in millions of VND/month. This variable is inherited from the research of Qian and Fan (2020), Bezerra et al. (2020), Le et al. (2020), and Le and Le (2020).

##### *The independent variable:*

Employee's gender (GEND): It is the gender of the surveyed worker wherein Male is encoded as 0, and female is encoded as 1. In the context of COVID-19, the gender of the employee has an impact on the employee's income. Workers will be assigned to different positions due to challenging working conditions, and gender has an impact on workers' earnings. This variable is inherited from the research of Qian and Fan (2020) and Bezerra et al. (2020).

Educational background (EDU): The educational background of workers is classified as - College degree (CD), University degree (DH), and Postgraduate degree (SDH). The educational background affects the job, and each job position has different requirements in terms of education level. The higher the job position, the higher the

educational level, and the higher the income, and vice versa. This variable is inherited from the research of Qian and Fan (2020), Bezerra et al. (2020), and Le and Le (2020).

Work experience (Exper): Measures the length of time the employee has worked in similar positions, the unit of which is the number of years worked. This variable is inherited from the research of Bezerra et al. (2020) and Tran (2013).

Working sector (LLV): This variable is used to differentiate between public and private sector employees' work areas. This variable is inherited from the research of Qian and Fan (2020) and Bezerra et al. (2020).

The field of work (LV): This variable is used to differentiate between the employees' job sectors such as tourism or aviation. This variable is inherited from the research of Qian and Fan (2020) and Bezerra et al. (2020).

The number of activities generated by employees (Nincom): Measure the number of income-generating activities of workers including main jobs, part-time jobs such as investment, seasonal jobs according to orders. This variable is inherited from the research of Bezerra et al. (2020).

Investment of individual employees (Invest): It is the amount of money that employees use to invest. The calculation unit for this investment is million dong. This variable is inherited from the research of Qian and Fan (2020) and Bezerra et al. (2020).

Cost of living of employees (Cost): It is the amount of money needed to cover basic expenses such as housing, food, taxes, and healthcare in a certain place and time period. This calculation unit for this in millions of VND/month. This variable is inherited from the research of Qian and Fan (2020), Bezerra et al. (2020), and Tran (2013).

COVID-19: This is a variable that reflects the influence of COVID-19 on the worker's income. This is a dummy variable. The COVID-19 pandemic broke out in 2020 in Vietnam. To compare the impact of the COVID-19 pandemic on the wages of workers, 2020 will be used as the starting point of the COVID-19 pandemic, and 2019 is taken as before the COVID-19 pandemic. This variable

is inherited from the research of Qian and Fan (2020) and Bezerra et al. (2020).

#### 4. Results

Using the data collected for the study, the authors performed a descriptive statistical analysis of the variables used in the study (Table 1).

Based on the results, workers' income (Y) has decreased after COVID-19. Before the COVID-19 pandemic, workers' average monthly income was around 18.6649 million VND/month when compared to the national average. However, workers' average monthly income in the service sector is relatively higher. After the COVID-19 pandemic, workers' earnings decreased significantly; only about 30 to 40% of their income is left compared to the time before COVID-19. The survey results show that the average income of the surveyed subjects is about 6.4451 million VND/month.

The income of workers in the service sector is relatively diverse, most of which is income from wages from the main/primary job. However, workers in the service sector have additional revenue due to outside business or through a variety of non-recurring sources. This study is divided into two main income groups: Income earned from salary and other allowances (Y1) and income from additional business and investment (Y2). Before the outbreak of the COVID-19 pandemic, the annual salaries of workers in group Y1 was relatively high, about 15.6618 million VND/month, and their investments brought them a revenue of about 3.0031 million VND/month. However, during the COVID-19 pandemics, these earnings dropped significantly. Investment income is only about 2.2 million VND per month.

The cost of living of workers is also greatly affected, especially for those who are married and have small children or dependents. Before the COVID-19 epidemic, the average monthly living cost of workers was about 7.9292 million VND, and with the outbreak of the COVID-19 pandemic, the cost was reduced to about 5.071 million VND per month to ensure minimum life maintenance.

**Table 1:** Descriptive Statistics of Variables

Items	COVID-19 = 0		COVID-19 = 1	
	Mean	Standard Deviation	Mean	Standard Deviation
Invest	47.1445	52.8925	38.9992	42.9662
Cost	7.9292	3.2669	5.0710	2.5161
Y1	15.6618	5.2892	4.2422	2.0729
Y2	3.0031	3.4294	2.2029	2.5832
Y	18.6649	8.3443	6.4451	4.0411

Employee investments (Invest) have also changed due to the negative effects of the COVID-19 pandemic. Based on the author’s survey results, service sector workers frequently invest in financial instruments, invest in opening a business store or invest in serving tourists where they work to sell souvenir products. On average, the investment before COVID-19 was about 47.1445 million VND, and after COVID-19, this investment amounted to only 38.9992 million VND.

Table 2 shows that, although being affected by the COVID-19 pandemics, they did not change their jobs in the time following the pandemic. Nearly 58.5% of the total surveyed subjects are employees working in the aviation sector, while the rest are in the tourism sector. Although they face problems such as unpaid leave, salary reduction, they do not change jobs. The reason for this is because of the difficulties faced by the entire economy during the COVID-19 pandemic, and finding another job during this COVID-19 pandemic is extremely challenging.

Working sector (LHLV): The results of descriptive statistics show that 359 employees are working in the private sector and 120 employees working in state-invested units.

Based on educational background, the majority of them have university degrees or higher, and some of the laborers during the COVID-19 pandemic have completed training courses to improve their professional skills. After the COVID-19 pandemic took place, descriptive statistics

for surveyed workers showed that 16.7% of workers had a college degree; 8.4% have a postgraduate degree, and about 74.9% have a university degree.

The number of jobs generating income has also decreased significantly, hence the number of workers too declined. Following the COVID-19 pandemic, the number of workers with only a main (one job and no supplementary jobs) job as a source of income accounted for about 71.2% of the total number of workers.

The author uses the REM model to research the influence of factors on workers’ income in the context of the COVID-19 pandemic in Vietnam. Testing the fit of the regression model showed that the application of the research team’s model was appropriate. The estimated results of the parameters of the regression model are as follows (Table 3):

Research findings show that COVID-19 has negatively affected the income of workers from all their income-generating activities.

During the COVID-19 pandemic, it appears that working in the public sector provided people with a more stable income than working in the non-state sector (Coef = 1.515844). The survey results show that employees working in the public sector, even though they still receive a basic salary, their allowances were deducted according to the company’s regulations. However, for private enterprises, employees will be forced to take unpaid leave or pay 50% of their basic salary (especially for Vietjet’s employees). Many

**Table 2:** Descriptive Statistics of the Scales

Items		COVID-19			
		COVID-19 = 0		COVID-19 = 1	
		Count	Column N %	Count	Column N %
LV	Aviation	280	58.5%	280	58.5%
	Tourism	199	41.5%	199	41.5%
LHLV	Private Sector	359	74.9%	359	74.9%
	State Secretary	120	25.1%	120	25.1%
Gend	Female	239	49.9%	239	49.9%
	Male	240	50.1%	240	50.1%
Edu	CD	80	16.7%	80	16.7%
	DH	399	83.3%	359	74.9%
	SDH	0	0.0%	40	8.4%
NINCOM	1.0	41	8.6%	341	71.2%
	2.0	161	33.6%	83	17.3%
	3.0	196	40.9%	46	9.6%
	4.0	2	0.4%	9	1.9%
	5.0	79	16.5%	0	0.0%

**Table 3: Regression Results**

<b>REM Robust</b>				
<b>Y</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>z</b>	<b>P &gt; z</b>
COVID-19	-0.0626634	0.415624	-0.15	0.880
<b>lv</b>				
Tourism	2.869844	0.401422	7.15	0.000
<b>lhlv</b>				
State Secretary	1.515844	0.364323	4.16	0.000
<b>gend</b>				
Male	1.242848	0.309349	4.02	0.000
<b>edu</b>				
SDH	1.963315	0.534357	3.67	0.000
DH	0.2399986	0.382031	0.63	0.53
exper	-0.14523	0.05081	-2.86	0.004
Nincom	0.7571299	0.156683	4.83	0.000
Invest	0.0385449	0.003609	10.68	0.000
Cost	1.669206	0.052422	31.84	0.000
covid_nincom	-0.7053188	0.209281	-3.37	0.001
covid_cost	-0.9868607	0.042986	-22.96	0.000
_cons	-0.0351747	0.655642	-0.05	0.957
sigma_u	1.1077663			
sigma_e	1.1386749			
rho	0.48624369	(Fraction of variance due to u_i)		
R <sup>2</sup>	0.9019	N		958
Wald chi2(12)	52173.92	Prob > chi2		0.000

workers have decided not to receive wages during this period to share the company's difficulties. The author's estimated results are consistent with Qian and Fan (2020) and Bezerra et al. (2020).

Following the COVID-19 pandemic, a decrease in jobs that generate income for employees has also negatively affected their wages (Coef = -0.7053188). When income-generating activities are fewer than before the COVID-19 pandemic, this immediately has an impact on the monthly income of workers. Especially for workers with different income-generating activities that were affected by COVID-19, these supplementary activities that generate income are no longer possible, and workers would have to depend entirely on the salary from the main/primary job. However, this salary is also affected and reduced due to the impact of the COVID-19 pandemic. According to the survey's findings, young people who have worked in tourism firms for two to three years, primarily as tour guides, have lost all of their income for several months in a row, having a direct impact on their life.

Because the COVID-19 pandemic reduced workers' income, the cost of living also decreased, and workers had to adjust to meet the new reality. The author's research findings agree with the views of previous studies by Qian and Fan (2020) and Bezerra et al. (2020).

According to the author's research, there was also a difference in income before and after the COVID-19 pandemic (Table 4).

Based on the author's research, the difference in workers' incomes before and after the COVID-19 pandemic took place is relatively high; the average income of workers after COVID-19 decreased by about 12.22 million VND compared to before COVID-19 took place. This result reflects the difficulties that workers face when the whole economy is in trouble. Considering the aviation sector only, when the COVID-19 pandemic broke out, airlines are unable to operate international commercial flights, and domestic flights have declined due to difficulties relating to social distancing and governmental regulations. Specifically, in June 2021, when the COVID-19 pandemic broke out in

**Table 4:** Examining the Difference in Income of Workers

Item	Differences		T	Df	Sig. (2-tailed)
	Mean	Std			
Y_A - Y_B	-12.220	4.784	-55.904	478.000	0.000

**Table 5:** Comparison of Income Differences Between Workers by Sector and by Gender

Items	Levene's Test	t-test		
	Sig.	Sig. (2-Tailed)	Mean Difference	Std. Error Difference
Y_A (State Secretary - Private Sector)	0.024	0.000	3.946	0.316
Y_A (Male – Female)	0.000	0.000	3.415	0.335

some major cities of Vietnam, airlines had no daily passenger flights and mainly focused on freight transportation. On average, before COVID-19, domestic flights of Vietnam Airlines and VietJetAir were about 80 flights per day; in June 2021 the number of daily flights of each airline was about 4 to 8 flights.

For employees working in the public sector, the results show that their income after being affected by COVID-19 is about 3.946 million VND higher than that of the private sector. Meanwhile, the earnings of workers affected by COVID-19 differs based on gender, wherein men are better able to adapt to the changes and therefore earn more. Male employees earn about 3.415 million VND higher than female employees (Table 5).

## 5. Discussion

Based on the research findings, the recent COVID-19 pandemic has had a significant and negative impact on worker earnings. Workers have faced many challenges such as reduced wages, reduced activities that generate additional income, facing health problems, pressure from reduced job losses, reduced working hours, etc. To partially overcome the difficulties for workers in the current complicated circumstances of COVID-19 in Vietnam, some solutions are proposed by the research team as follows:

First, employees need to have solutions to distribute their income to suit the present actual situation. The reduction of income has directly affected the lives of workers and their families. As a result, income adjustments for various purposes will be more reasonable, allowing employees to cope with present challenges.

Second, workers need to be proactive and obtain part-time or seasonal jobs to supplement income when agency hours are reduced. From there, it is possible to have additional income for life.

Third, during the time off from work caused by COVID-19, some workers can enhance their professional skills, providing them more options and allowing them to earn a higher salary when they return to work.

Fourth, it appears to be more difficult for private-sector workers than for state-owned firms, because state-owned businesses continue to receive basic salary support and state assistance in difficult conditions. As a result, private-sector workers can accept other jobs assigned by their employers in the current difficult economic environment.

In addition, employers should also take measures to support employees, Employers should also take steps to support employees since they can help retain good workers in the face of intense competition for human resources across fields and regions.

For the government and state management agencies: the government should pursue measures to support workers. Currently, in Vietnam, income support due to unemployment if provided to workers; however, the government will need to expand these support packages in the near future to help workers overcome the challenges they face in the present COVID-19 scenario.

## 6. Conclusion

The COVID-19 pandemic has had a direct impact on the socio-economic life of countries all around the world, including Vietnam. In Vietnam, the COVID-19 pandemic has had an impact on all fields and sectors of industry and business, from services to manufacturing. The service sector is one of the industries hardest hit by the COVID-19 pandemic. Workers working in the service industry are the subjects directly and most heavily affected by the COVID-19 pandemic.

The findings of this study met the objectives set during the analysis of the income distribution of laborers before

and after the outbreak of COVID-19. Specifically, the study results showed that: The income of laborers after the COVID-19 pandemic has decreased sharply (average reduction of about 12.22 million VND when comparing before and after COVID-19); There is a difference between the incomes of workers employed in the public and private sectors. Following the outbreak of the COVID-19 pandemic, the income of workers in state-owned enterprises increased, and workers believed that working in the public sector would be “safer” than working in the private sector in terms of income when there are fluctuations such as the impact of the COVID-19 pandemic. In addition, the results of the research also show that male workers will have a higher income than female workers in the current COVID-19 situation. Based on the research, the authors have also proposed solutions to overcome difficulties for employees in the current COVID-19 situation.

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