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LABOR INCOME IN DIY DURING THE COVID-19 PANDEMIC

Mustofa
Department of Economics Education, Faculty of Economics, Universitas Negeri Yogyakarta, Central Java, Indonesia
Email: mustofa@uny.ac.id

Abstract

This article discusses workers' income in the Special Region of Yogyakarta (DIY) during the covid-19 pandemic. The data source used by Sakernas DIY for the August 2021 period with a selected sample of 4,029 workers. The analysis technique used is a regression analysis technique. The results showed that labor income during the Covid-19 period was influenced by education level, work experience, gender, marital status, job training, number of hours worked, digital devices, and work status, with a total effect of 40.5%. Workers with higher levels of education have better earnings. Workers who are equipped with job training have higher earnings. The number of hours affects income positively and significantly. Workers who use digital devices have higher incomes. Self-employment has a negative influence on income during a pandemic.

Keywords: income; labor; digital; Covid-19

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INTRODUCTION

The Covid-19 pandemic has impacted health, economic and social crises (Milani, 2021). The recession caused global economic growth to decline and even experienced negative growth (Gallant, Kroft, Lange, & Notowidigdo, 2020). Economic activity has contracted, and even many companies have stopped producing, increasing unemployment and the number of poor people (Goma, 2021). The Covid-19 pandemic situation has further widened economic and social inequality in all countries of the world. The State of Indonesia at the ASEAN level is ranked 4th with a global ranking of 93 (Ahmed et al., 2022; Goma, 2021).

Research that examines the impact of Covid-19 among others in the United States, many residents initially have multiple jobs. Still, after Covid-19, they lost one of their jobs and got cut hours in other positions (Horwitz & Lascar, 2021). Covid-19 mainly affects low-income adults. Covid-19 attacks more vulnerable individuals in the labor market, less educated field workers, and service providers with low incomes (Galasso, 2020). In South Africa, the reduction in working hours by workers with primary school education is at most more than 40 per cent. In comparison, highly educated workers suffer much smaller losses but are still substantially reduced by around 26 per cent (Arndt et al., 2020).

In research conducted by Ozili and Arun (2020), almost all formal sectors are affected by the Covid-19 pandemic, namely the industrial sector including industry, such as the travel industry, hospitality, sports, events, and entertainment; export-import sector; financial sector; money market sector; health sector; even the education sector. The impacts include macroeconomic impacts in the form of shocks to production factors such as labor supply, production costs, and consumption demand (McKibbin & Fernando, 2020).

In the eight countries studied, refugees, are 60% more likely to lose their job or income due to Covid-19 than residents (Brickhill-Atkinson & Hauck, 2021). Globally working hours were reduced by 6.7 per cent in the second quarter of 2020 and impacted 195 million workers, mainly in the agricultural and informal sectors, especially in the case of women (Kaur, Goyal, & Goyal, 2020).

Indayani and Hartono (2020) state the rise and fall of the gross domestic product (GDP) produced by a country is an indicator of Indonesia's economic growth because it is related to the number of unemployed in GDP. Every year during the Covid-19 pandemic, Indonesia's economic growth slows down. 212,394 workers lost their jobs due to layoffs from the companies that employed them due to declining economic growth. Kasnelly (2020) shows Covid-19 pandemic also has an impact on increasing unemployment. Agustiana (2020) also found that the effects of the Covid-19 pandemic impacted 2.8 million workers, 1.7 million, and 749.4 thousand workers lost their jobs due to layoffs.

The Covid-19 pandemic has had an impact on labor conditions in Indonesia. According to the Statistic (2021), the working-age population affected by Covid-19 based on the results of the Sakernas are grouped into four components, namely: (1) Unemployment due to Covid-19; (2) Not the Work Force (BAK) due to Covid-19; (3) Temporarily not working due to Covid-19; and (4) working residents who experience reduced working hours due to Covid-19. Conditions (1) and (2) are the impact of the Covid-19 pandemic on those who stop working, while conditions (3) and (4) are the impact of the Covid-19 pandemic felt by those who are still working. Unemployment as of February 2021 increased by 1.82 million compared to February 2020. The number of unemployed people in February 2021 was 8.75 million people. The Covid-19 pandemic has caused some residents to lose or stop working and become unemployed or not in the labor force (BAK). The Covid-19 pandemic has also made some residents temporarily out of work or experience reduced working hours.

The impact of the economic slowdown in Indonesia was followed by a downturn in the economy in each region. Thousands of small businesses were seriously affected by Covid-19 56% experienced a decline in sales, 22% had difficulty with capital, 15% had difficulty distributing products, and 4% had trouble finding raw materials (Tambunan, 2021). By sector, 96.02% of the transportation and warehousing business experienced a decline in revenue due to the pandemic. Meanwhile, 16.24% of other companies received more than a 75% revenue increase. The workforce in Bali Province at most stopped working in the first two months of the pandemic, namely March and April 2020 (Ningsih & Dokhi, 2022). The Large-Scale Social Restrictions (PSBB) policy in South Sulawesi reduced the number of working hours and even caused commuter workers not to work for a while (Triany, 2021).

Statistic (2021) reported that the Covid-19 pandemic that had occurred since mid-March 2020 brought significant changes to all aspects of the life of the residents of DIY. The DIY economy in aggregate contracted by 2.69 per cent until the end of 2020, and it is uncertain how long it will end. The deteriorating macroeconomic conditions were also accompanied by increased open unemployment and poverty rates. The policy of limiting social mobility to anticipate the spread of the virus in various forms also impacts changes in social and economic conditions. The Special Region of Yogyakarta is one of the areas affected by the COVID 19 pandemic.

Bank Indonesia (2022) reported that the number of workers in the informal sector has decreased. The informal sector is a sector that generally accommodates workers with low levels of skills and education and is often the focus of people with low incomes. A total of 1,233.61 thousand people (55.36%) work

in the informal sector. Three groups forming informal workers experienced a decline, namely workers assisted by temporary workers/unpaid workers, casual workers, and family workers/unpaid workers.

There is a lot of research on labor income, but there is still little research on labor income during the COVID-19 pandemic. This paper complements the literature that studies the impact of COVID-19 on labor income using survey micro data. Bong et al. (2020) researched on covid 19 pandemic effect on low- and middle-income countries (LMICs). Arndt et al. (2020) researched on effect of covid 19 pandemic on labor income based on their education. In this study, the control variable is used whether the workforce uses digital equipment in their work. This study aims to see the economic impact of the Covid-19 pandemic at the local level, namely in the Special Region of Yogyakarta (DIY). The economic impact indicator used is labor income. Labor income is an easy way to measure the impact of the Covid-19 pandemic. This study uses secondary data from the 2021 Employment Survey (Sakernas) from data from the Central Statistics Agency for the Special Region of Yogyakarta.

METHOD

This research data uses data from the National Employment Survey (*Sakernas*) conducted by the Central Bureau of Statistics of the Special Region of Yogyakarta in August 2021. The sample criteria are individuals who have worked activities for the past week. The working status of Wira is defined as an individual with the status of self-employed, working with the help of non-permanent workers, and working alone with the use of permanent workers. Employee status is defined as employee/permanent worker/employee. Precarious labor is the basis for the dummy. Family workers/unpaid workers in this study were omitted. The sample selection begins with the respondents' answers to the R9A questionnaire. In the past week, did you work? (Work is doing activities to earn income at least 1 hour a week). From the sample criteria obtained, as many as 4,029 workers in the Special Region of Yogyakarta as the sample of this study.

This research model uses the Mincer Earning Function by adding the variables of gender, marital status, participation in training, working hours, use of digital devices, and working status. The left is equal to the dependent variable, while the right is equal to the independent variable.

$$\begin{aligned}\text{Log(Income)}_i = {} & \beta_0 + \beta_1\text{Educ}_i + \beta_2\text{Exper}_i + \\ & \beta_3\text{Expersq}_i + \beta_4\text{Male}_i + \\ & \beta_5\text{Married}_i + \beta_6\text{Course}_i + \\ & \beta_7\text{Hour}_i + \beta_8\text{Digital}_i + \beta_9\text{Wira}_i \\ & + \beta_{10}\text{Employee}_i + \varepsilon_i\end{aligned}$$

The dependent variable in this model is income. Income is defined as income/income/salary/net wages that individuals receive during the last month from this work or business activity, both in the form of money and goods in rupiah. The independent variables in return to education include education, experience, experience square, gender, marital status (married), course (training), working hours (hours), digital, entrepreneurship, and employees. Education is defined as the level of education that an individual has successfully taken. 1 means no school/not finished elementary school, 2 means elementary school graduate, 3 means junior high school graduate, 4 means high school/ vocational/ Islamic High School graduate, 5 means Diploma graduate, 6 means Bachelor/Diploma IV graduate, 7 masters graduates, and 8 doctoral graduates. School is the length of education which is calculated in years of completion of education. Experience is individual work experience in units of years obtained from 2021-the first year of graduating from the highest education. Experience Square is obtained from Experience squared to determine whether there is diminishing. Male is 1 for boys and 0 for girls. Married is worth 1 for married individuals and 0 for unmarried

or divorced individuals. The course is worth 1 for individuals who have attended training/ courses while 0 has never attended training/courses. An hour means the number of hours worked during one week. Digital is worth 1 if the work the individual does requires a digital device, while 0 means that he does not use a digital device.

RESULTS AND DISCUSSION

A. Results

Results The results of this study are presented in the form of descriptive analysis and analysis of regression results. The descriptive analysis is in the form of an illustrative statistical table. In contrast, the analysis of the regression results aims to determine the factors that affect labour income during the Covid-19 pandemic. Table 1 presents the results of the study in the form of descriptive statistics of the variables contained in the Mincer Earning Function, namely income (Income, Log income), education (Educ, School), experience (Exper, Expersq), gender (Male), marital status (Married), job training (Course), number of working hours (Hour), digital work equipment (Digital), dummy working status (Entrepreneur or Employee).

Table 1. Descriptive Statistic

Variable	Obs	Mean	Std.Dev.	Min	Max
Income	4029	1883886	2244310	10000	42.000.000
Log_Income	4029	13.983	1.016	9.211	17.553
Education	4029	3.551	1.535	1	8
School	4029	9.973	4.661	0	21
Experience	4029	22.451	14.538	0	71
Exp Square	4029	272121	43579	0	357911
Male	4029	0.595	0.491	0	1
Married	4029	0.766	0.423	0	1
Course	4029	0.290	0.454	0	1
Hour	4029	38.622	16.242	1	98
Digital	4029	0.069	0.253	0	1
Entrepreneur	4029	0.478	0.500	0	1
Employee	4029	0.443	0.497	0	1

Source: Sakernas Data 2021, processed by the author

In table 1 it can be seen the income of workers in DIY obtained in the last month at least Rp. 10,000, - and a maximum of Rp. 42,000,000 - with an average value of Rp. 1,883,886, - and a standard deviation of Rp. 2,244,310, -. The lowest education level for the workforce is not completing elementary school. In contrast, the highest education is doctoral education (S-3), with an average score of 3.55 (education is more than graduating from junior high school). The number of working hours for one week during the Covid-19 pandemic is from 1 hour to 98 hours, with an average value of 38.62 hours and a standard deviation of 16.24 hours.

Table 2. Regression Results

Variable	Coefficient (Standard Error)
Education	0.2193***
	(0.0109)
Experience	0.0137***
	(0.0019)

Variable	Coefficient (Standard Error)
Experience Square	-4.25***
	(7.2700)
Male	0.3260***
	(0.0257)
Married	0.1056***
	(0.3156)
Course	0.0912***
	(0.0288)
Hour	0.0162***
	(0.0001)
Digital	0.4352***
	(0.0507)
Entrepreneur	-0.2587***
	(0.0459)
Employee	0.2241***
	(0.0459)
Observations	4029
R-squared	0.405

Source: Sakernas Data 2021, processed by the author
Note: Standard errors are in parentheses. * p < 0.1; ** p < 0.05; *** p < 0.01

Based on table 2, it can be explained that all independent variables in the *Mincer Earning Function* together have a significant effect on labour income. The variables of Education, experience, gender, marital status, training, working hours, digital devices, entrepreneurial status, and employees have a positive and significant effect on income. The exceptions are the experience square variable *and* self-employed dummy, which harms income. All variables are at a significance level of <0.01. This finding shows that all independent variables significantly affect labour income.

The regression results show the *R-squared* value of 0.405. This means that all independent variables (education, experience, gender, marital status, training, working hours, digital devices, entrepreneurial status, and employees) can simultaneously explain changes in the dependent variable (income) of 40.5%. The remaining 58.5% is explained by other variables outside the regression model used in this study.

B. Discussion

The education variable has a positive and significant effect on the income variable. Workers with higher levels of education had better incomes during the pandemic. These results are the following (Aisyah & Rahman, 2022). Simanjuntak's (1998) relationship between income level and education level is positive. This is because higher education will increase work productivity and eventually make the income level higher as well. A person with higher education can also enter the level of specialist work with certain qualifications. These jobs can generate higher income than menial jobs.

Work experience has a positive influence on labour income. It is rational if someone who has worked for a long time has more skills and understanding than the new workforce. As a result, productivity will increase and make the income higher. The results of this study follow research conducted by Sicherman and Galor (1990), which states that individuals gain job experience and skills in

one job to increase higher income from a job. At a certain age, this experience has a negative effect, indicated by the experience square variable, which has a negative coefficient or is *diminishing*. This is in line with Takasaki (2017) that the more extended work experience the workforce can potentially increase their income to a certain point.

The gender dummy variable (1=male, 0=female) has a positive regression coefficient, meaning that male workers have a better income than female workers. These results are the following (Pirmana, 2006). The dual role played by women in carrying out domestic activities reduces women's hours to be able to do activities outside the home (Sohn, 2015). This causes women's income to be lower. The difference in pay between men and women is generally still significant in Asian and African countries but is getting smaller in European and American countries (World Economic Forum, 2018). The average wage for male workers is 2.96 million rupiahs, and the average salary for female workers is 2.35 million (Badan Pusat Statistik, 2021).

Workers who have married status have a higher income than those who are not/unmarried. This is because married individuals feel they have more responsibility and are motivated to be more productive, ultimately positively affecting their income. This is in line with the results of Prayogo and Suprayogi (2019), who found that the average income of men after marriage was higher than that of men before marriage.

Workers who are equipped with job training have higher incomes. The existence of job training certainly adds to the provision of skills possessed by workers. A skilled worker will have higher productivity compared to a less experienced worker. In the end, the worker will earn a higher income. Denning, Jacob, Lefgren, and Vom Lehn (2019) found that training attended by workers is one of the essential factors that can increase their income compared to workers who have never participated in the activity. These results follow the ILO (2017), which states that the workforce needs on-the-job training to increase productivity to achieve more significant economic benefits, namely income.

The number of hours affects income positively and significantly. The length of time working will increase productivity to increase revenue. For labourers, each additional

working hour will increase their income because they get wages according to the hours worked. For entrepreneurs, every increase in working hours will create the possibility of increasing sales turnover, which will eventually increase their income as well. This result is different from the research of Del Rey, Naval, and Silva (2022), who found that the number of hours worked per week was not strongly associated with increased wages in employment.

Information and communication technology development encourages various changes, including in the world of work. Using digital devices will make it easier for workers to increase productivity and income. Jobs that use digital devices have higher incomes. This finding is in line with the results of the study by Graetz and Michaels (2018) about the use of robot technology in the workforce which has a positive and significant effect on increasing average income.

Entrepreneurship has a negative influence on income. This is because the turnover of entrepreneurs during the pandemic tends to decrease, causing their income to fall in contrast to workers who rely on a fixed income every month. This result is different from the findings of Hendajany and Rizal (2020), who found that the average income of self-employed

people assisted by permanent workers had the highest revenue.

CONCLUSION

The income of workers in the Special Region of Yogyakarta during the Covid-19 period was influenced by education level, work experience, gender, marital status, job training, number of hours worked, digital devices, and work status, with a total effect of 40.5%. The education variable has a positive and significant impact on the income variable. Workers with higher levels of education had better incomes during the pandemic. Work experience positively affects the payment of workers up to a certain age and then experiences a diminishing. Male workers have a better income than female workers. Workers who have married status have a higher income than those who are not/unmarried. Workers who are equipped with job training have higher incomes. The number of hours affects income positively and significantly. Jobs that use digital devices have higher incomes. Self-employment has a negative influence on income during a pandemic. This study's results indicate that using digital devices at work can increase revenue. Therefore, the workforce also needs to be equipped with the ability to transform their work from manual to digital.

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