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Impact of Covid-19 Pandemic on Unemployment in Indonesia

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Abstract

The Covid-19 pandemic had a significant impact on the economy. As a result, many companies were forced to close, and employees lost their jobs. Several economic variables suspected of mediating the impact of the Covid-19 pandemic on unemployment include investment, economic growth, and inflation. This study aims to determine the impact of the Covid-19 pandemic on unemployment in Indonesia either directly or through the mediation of investment, economic growth, and inflation. This research was conducted using panel data regression in 34 provinces in Indonesia in the 2018Q1 – 2021Q4 period. Through path analysis, the results showed that the Covid-19 pandemic has a direct positive impact on unemployment. The economic growth variable significantly mediates the effect of the Covid-19 pandemic on unemployment. Meanwhile, investment and inflation variables do not have a significant effect. This research is expected to provide an objective picture of the impact of the Covid-19 pandemic on unemployment in Indonesia and become a benchmark for policy formulation in dealing with the impact of this pandemic.

Keywords: Covid-19 pandemic, inflation, investment, path analysis, unemployment

1. Introduction

The unemployment rate is an important indicator of a country's economic condition. A low unemployment rate indicates good economic conditions, meaning many people work. Conversely, a high unemployment rate indicates an unfavorable economic situation because many people are not working. For unemployed people, life will be difficult because there is no income, while the necessities of life must be met.

Unemployment is part of the labor force. The labor force is a population aged 15 years and over ready to enter the labor market. The labor force consists of the working and unemployed population. Meanwhile, residents are not in the labor force, namely residents aged 15 years and over but are not active in the labor market. This group consists of schoolchildren, housewives, and others, such as elderly (Salsabila, et al., 2023)

Employment potential can also be seen from the Labor Force Participation Rate or also known as TPAK in Indonesian. TPAK shows the participation rate of the population aged 15 years and over who are active in the labor market, both working and still unemployed. The TPAK value shows the employment potential of the total working-age population in Indonesia. Indonesia's TPAK from 2017 to 2021 continues to increase. In 2017 Indonesia's TPAK was 66.67 percent, continuing to increase until 2021 to 67.80 percent. This figure shows the magnitude of the potential or opportunity that can be exploited in the Indonesian labor market to drive the country's economy and even to compete with other countries in the world.

Apart from the relatively large level of participation, the labor force in Indonesia is also very large. Based on national labor force survey data by Ipmawan, et al., (2022) it is known that the labor force in Indonesia from 2017-2021 continues to increase. In 2017, Indonesia's workforce was 128.06 million, increasing to 140.15 million in 2021. This increase is in line with the increase in population because population growth in Indonesia is still quite high.

The labor force is the population aged 15 years and over working and unemployed. The amount of unemployment divided by the total labor force is called the open unemployment rate (UNP). The open unemployment rate (UNP) is an indicator to measure labor that is not absorbed by the labor market. The open unemployment rate (UNP) in Indonesia from 2017 to 2019 has decreased. In 2017, Indonesia's UNP was 5.50 percent, dropping to 5.23 percent in 2019. In 2020, UNP rose quite high to 7.07 percent due to the Covid-19 pandemic, and in 2021 it decreased to 6.49 percent because there is a program from the government to reduce the impact of the pandemic on the economy.

Besides being seen from UNP figures, unemployment indicators can also be seen from their absolute values. The number of unemployed in Indonesia from 2017 to 2020 continues to increase. In 2017 the number of unemployed

people was 7.04 million, increased in 2018 to 7.07 million, then rose again to 7.10 million in 2019. The increase in the number of unemployed people in the 2017-2019 period was generally due to an increased in residents. In 2020, the unemployed will increase significantly to 9.76 million people. The increase in the number of unemployed in 2020 is due to the impact of the Covid-19 pandemic, where many residents have lost their jobs. In 2021, the number of unemployed will decrease to 9.10 million people because there are already programs and policies from the government to reduce the impact of the pandemic on people's economic activities.

The Covid-19 pandemic has had a major impact on the economy. This pandemic first appeared at the end of 2019 and hit all parts of the world, including Indonesia. On March 11, 2020, the World Health Organization (World Health Organization) officially declared the Coronavirus outbreak a global pandemic. The Coronavirus (COVID-19) impacts all sectors of human life, including employment. Based on data released by the government's official website for handling Covid-19, namely, as of April 14, 2022, it was recorded that Indonesia had reached 6.04 million cases with 156 thousand deaths. Meanwhile, the cases reached 503 million during the same period, with 6.19 million deaths (Liando, et al., 2022)

The existence of the Covid-19 pandemic has forced companies to take extreme policies, such as reducing the number of workers or employees, resulting in layoffs. This decision was taken to prevent the spread of disease, maintain their business, and reduce the number of losses incurred due to Covid-19. International Labor Organization (ILO) (2020) stated that nearly 2.7 billion workers were affected by full or partial quarantine measures. This figure represents 81 percent of the world's workforce. In the current situation, businesses in various economic sectors face an economic crisis that could threaten their health and business activities, especially among small companies. Meanwhile, loss of jobs and income, as well as layoffs, await millions of workers.

A study conducted by Couch, et al. (2020) on the impact of Covid-19 on minority unemployment in the United States. The study found that in April 2020, there was an increase in unemployment for African Americans, rising to 14.15 percent, and for Latin Americans by 18.5 percent. Sjoquist & Wheeler (2021) research labor insurance claims and Covid-19 in the United States. Based on the results of this study, it was found that in the early weeks of the Covid-19 pandemic, jobless claims were driven by the reaction to the coronavirus. They found that during the period March 21 – April 25, the jobs most affected by Covid-19 were the industrial sector and non-essential businesses that were asked to close.

Aside from economic turmoil, such as the Covid-19 pandemic, other economic variables can also influence the unemployment rate. Several economic variables suspected of mediating the impact of the Covid-19 pandemic on unemployment include investment, economic growth, and inflation. A study by Kim, et al. (2020) and Goto & Bürgi (2021) concerning Okun's law found a negative relationship between the unemployment rate and output. Furthermore, research by Wulandari, et al. (2019) on inflation and unemployment found that inflation has a one-way relationship with unemployment, namely in the third research Trimurti, et al., (2015) concerning the effect of investment on unemployment in East Java found that investment has a negative and significant effect on unemployment.

Kong & Prinz (2020) examines business closures that affect unemployment during the Covid-19 pandemic in the United States. They found that between March 14 and 18, restaurant and bar restrictions and non-essential business closures could account for 6 percent and 6.4 percent of jobless claims, respectively. Research from Yousefi, (2011) concerning the relationship between investment in technology, information, and communication with economic growth in Korea. The results found that ICT investment and economic growth have a two-way effect, except for the short-term case where only ICT investment affects GDP growth. This can explain why ICT investment plays an important role in South Korea's economic growth in the long run.

Moving on from the studies carried out, the author is interested in examining more specifically, the influence of the Covid-19 pandemic on unemployment in Indonesia through the mediation of the variables of investment, economic growth, and inflation. This research is interesting to do to see the direct effect of Covid-19 on unemployment in Indonesia and the mediating effect of investment, economic growth, and inflation on unemployment in Indonesia.

2. Literature Review

2.1 Covid-19 Pandemic

Covid-19 is a variant of the SARS-Cov-2 corona virus which causes an infectious disease and can cause death. Coronaviruses (CoVs) are a large family of viruses, several types of which can cause respiratory illness in humans, such as the common cold, or even more severe and rare diseases, such as Severe Acute Respiratory Syndrome (SARS) or Middle East Respiratory Syndrome (MERS). in 2003 and 2012. Both types of disease have a high mortality rate (Morrish, 2001).

Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. People infected with this virus will usually experience mild to moderate respiratory problems. This disorder sometimes heals by itself without the need for special treatment. However, many patients are seriously ill and require medical treatment.

Patients who are elderly with underlying medical conditions such as diabetes, chronic respiratory disease, cardiovascular disease, or cancer are more susceptible to developing the Covid-19 virus. When a pandemic occurs, anyone can catch this virus. The best way to prevent and slow transmission is to understand the disease and how the virus is transmitted, then apply the rules that have been set. We must protect ourselves and others by keeping a distance of at least 1 meter from other people, wearing an appropriate mask, and washing our hands frequently.

Get vaccinated on your turn and follow local guidelines. The virus can be spread from an infected person's mouth or nose in small liquid particles when they cough, sneeze, talk, sing, or breath. These particles range from larger respiratory droplets to smaller aerosols. It is important to practice breathing etiquette, for example, by coughing into a bent elbow, and to stay home and self-isolate until you recover if you are not feeling well (Shah, et al., 2019).

2.2 Impact of Covid-19 Pandemic on Economic

The Covid-19 virus has an impact that has changed human habits and behavior. The government carried various policies and measures to limit human movement to prevent the number of infected people and deaths. The policy has positively impacted the environment by reducing pollution and improving air and water quality (Facciola et al., 2021). However, the Covid-19 pandemic has so far had an impact on reducing economic activity, and there seems to be no sign of ending it so far (Inegbedion, 2021). This has had a significant impact on social policies as well as the economic and social well-being of the community, especially economic activities, which have declined drastically.

According to Ozili (2021), the Covid-19 virus can paralyze economic activity in two ways. First, the spread of the virus prompted social distancing restrictions which resulted in the closure of financial markets, offices, businesses, and various events. Second, the exponential rate of spread of the virus, as well as the increasing uncertainty about how bad the situation will get, is resulting in a flight of consumption and investment in a safer direction among consumers, investors, and international trading partners. Research result Inegbedion (2021) shows that the limitation of economic activity due to the imposition of a lockdown due to the Covid-19 pandemic has significantly affected economic growth in Nigeria.

2.3 Investment

Economic growth is related to growth in inputs, such as labor, capital, and improvements in technology. Capital accumulates through savings and investment (Dornbusch et al., 2011). Usually, two forces affect capital stock, namely investment and depreciation. Investment refers to spending on business expansion and new equipment so that it can cause the capital stock to increase (Conesa & Kehoe, 2018).

Investment is investing money to get results and added value (Webster, 1999). According to Thomas, (2021) investment is a commitment of several funds in a certain period to obtain the expected income as compensation in the future. According to Seguino (2020) investment is expenditure from investors or companies to purchase capital goods and production equipment to increase the ability to produce goods and services available in the economy.

Investment or investment based on Law Number 25 of 2007 concerning Investment is defined as a form of investment activity, both by domestic investors and foreign investors, to do business in the territory of the Republic of Indonesia. Therefore, there are two types of investment in Indonesia based on their sources, namely Domestic Investment (PMDN) and Foreign Investment (PMA).

According to Morrissey & Udomkerdmongkol (2012), financing to obtain investment can be through three ways, namely debt financing, domestic financing, and foreign investment. Foreign Investment has an important role in a country supporting economic growth. However, development financing through Domestic Investment is also important so as not to depend too much on other countries. Domestic investment plays an important role in influencing economic growth; increasing economic development depends on people's domestic investment (Saleem & Zaheer, 2018)

2.4 Economic Growth

Economic growth is an important indicator to assess the economic performance of a region or country. Seguino (2020) in his book defines *economic growth* as the development of activities in the economy that causes goods and services produced in society to increase. Economic growth is obtained from changes in Gross Domestic Product (GDP) in percentage form. Meanwhile, world economist, (Conesa & Kehoe, 2018). explains GDP as a country's overall economic activity, which is summarized in a certain unit of money value at a certain time period. An increase in GDP shows an increase in the amount of output produced by a country's economy.

According to Dornbusch, et al. (2011) economic growth, as seen from GDP growth, is caused by the availability of resources in line with changes in the economy. The resources in question are capital and labor. Therefore, an increase in the supply of factors of production, namely labor, and capital used to produce goods and services, is calculated as part of the increase in GDP.

2.5 Inflation

The short definition of inflation is the tendency for prices to rise in general and continuously Sjoquist & Wheeler (2021) It does not mean that the prices of the various goods increase by the same percentage. These increases cannot occur simultaneously. The important is that there is a continuous increase in the general price of goods during a certain period. An increase that occurs only once, even if it is in a large percentage, is not inflation.

Based on the source or cause of the increase in prevailing prices, inflation is divided into two specifications, namely, the initial causes of inflation and the origin of inflation. Inflation seen from its initial causes is divided into Demand-Pull Inflation and Cost-Push Inflation, while in terms of the origin of inflation, it consists of domestic inflation and imported inflation (Seguino, 2020).

Demand-Pull inflation is caused by increased public demand for goods (aggregate demand). This inflation usually occurs when the economy is growing rapidly. High income is created when employment opportunities are high. High employment opportunities create high-income levels and, in turn, lead to spending that exceeds the economy's ability to produce goods and services. This excessive spending will cause inflation. Apart from during times when the economy is growing rapidly, demand-pull inflation can also occur when there is continuous political instability or during times of war. In times like these, the government spends far more than the taxes it collects. To finance the excess spending, the government is forced to print or borrow from the central bank. Excessive government spending causes aggregate demand to exceed the economy's ability to provide goods and services. Eventually, this situation will create inflation.

Cost-Push inflation occurs due to an increase in production costs caused by an increase in commodity prices regulated by the government (administered prices), depreciation of the exchange rate, negative supply shocks due to natural disasters, distribution disruptions, and the impact of foreign inflation, especially in trading partner countries. This inflation is especially proper in times of rapid economic growth when the unemployment rate is very low. If companies still face increased demand, they will increase production by looking for new workers with higher paying offers and providing higher salaries or wages. This step causes production costs to increase, which will eventually lead to an increase in the prices of various goods

2.6 Unemployment

Unemployment is when someone in the labor force wants to get a job but has not been able to get one. A person who is not working but is not actively looking for work is not classified as unemployed. Unemployment can occur due to an imbalance in the labor market. This shows that the amount of labor supplied exceeds the amount of labor demanded (Mankiw, 2006).

According to Seguino (2020) Unemployment is a situation where someone included in the labor force wants to get a job but has not got one yet. The main factor causing unemployment is the lack of aggregate spending. Entrepreneurs produce goods and services intending to make a profit, but these profits will be obtained if they can sell the goods and services they produce. The greater the demand, the greater the goods and services they create. The increase in production will increase the use of labor.

If you want to see the affordability of workers (employment opportunities), use the Open Unemployment Rate formula. Open unemployment is the percentage of the population who are looking for work, who are preparing for a business, which are not looking for work because they feel it is impossible to get a job, who already have a job but have not started working from a number of the existing labor force. The Open Unemployment Rate is a number that indicates the number of unemployed people in the labor force category.

This unemployment indicates the working-age population included in the unemployed group. To measure the open unemployment rate in a region, it can be obtained from the percentage dividing the number of unemployed by the number of the labor force and expressed in percent.

Open unemployment is based on the concept of the entire workforce looking for work, whether they are currently working or looking for work for the first time. Meanwhile, workers who are classified as underemployed are workers who work low hours (under a third of the normal working hours or work less than 35 hours a week) and are still looking for a full or part-time job but are still willing to accept work. as well as those who are not looking for a job but are willing to accept it. Workers are classified as severely underemployed if they are underemployed with working hours of less than 25 hours a week.

3. Materials and Methods

3.1. Materials

The data used in this research was secondary in the form of quantitative data. The data type used was panel data, a cross-section, and a time series combination. Data sources for economic growth, inflation, and unemployment rates were obtained from Statistics Indonesia, while investment data was obtained from the Investment Coordinating

Board. The data used was panel data which is a combination of cross-sectional data in 34 provinces in Indonesia and quarterly time series, the period before the 2018Q1 – 2019Q4 pandemic occurred and the period during which the pandemic occurred, namely 2020Q1 to 2021Q4.

3.2. Methods

The analytical method used in this study was carried out descriptively and empirically using path analysis and regression with interaction. To complete the path analysis and the influence of the interaction, panel data regression analysis was used. In addition, the Sobel test is also carried out, which is required in path analysis and the classical assumption test in panel data regression.

Path analysis is the development of multiple regression analysis, which sees the causal effect between the independent variables on the dependent variable. However, in path analysis, the effect can be seen directly or indirectly (Retherford & Choe, 1993). Li, et al, (2016) explains that path analysis is applied in analyzing causal relationships between variables which aims to see directly and indirectly whether a causative variable affects a result variable. There is a difference with regression analysis which intends to forecast endogenous variables (Y) on exogenous variables ($X1, X2, \ldots, Xi$).

Panel data regression is a linear regression from a combination of cross-sectional and time series data. Baltagi in Porter & Gujarati, (2009) explained that there are several advantages to having panel data analysis, namely: (1) being able to overcome heterogeneity problems, time series and cross-section studies cannot control heterogeneity which is at risk of being biased; (2) the resulting data is more informative, more varied, fewer multicollinearity problems, more degrees of freedom and more efficient; (3) better able to show the dynamics of change, suitable for studying the duration of economic conditions; (4) better at measuring and examining the effect or impact of an event where a cross-section or time series data are unable to identify it; (5) more capable of analyzing more complex data behavior; and (6) in large amounts of data, the resulting bias can be smaller by using panel data.

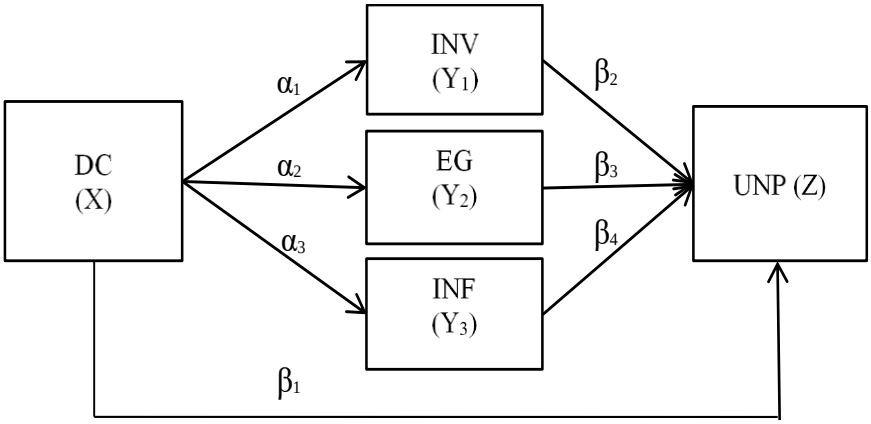

Figure 1. Research Path Analysis
Source: Retherford and Choe (1993)

The equation model to determine the effect of the Covid-19 pandemic on mediating variables is as follows:

$$INV_{it} = \alpha_0 + \alpha_1 DC_{it} + \varepsilon_{1it} \quad (1)$$
$$EG_{it} = \alpha_0 + \alpha_2 DC_{it} + \varepsilon_{2it} \quad (2)$$
$$INF_{it} = \alpha_0 + \alpha_3 DC_{it} + \varepsilon_{4it} \quad (3)$$

The equation model to determine the effect of each independent variable on unemployment (the dependent variable) is as follows:

$$UNP_{it} = \beta_0 + \beta_1 DC_{it} + \beta_2 INV_{it} + \beta_3 EG_{it} + \beta_4 INF_{it} + \varepsilon_{it} \quad (4)$$

Where:
$UNPit$: Unemployment (for the i-province and t-time)
$INVit$: Invesment (for the i-province and t-time)
$EGit$: Economic Growth (for the i-province and t-time)
$INFit$: Inflation (for the i-province and t-time)
$DCit$: Dummy Covid (for the i-province and t-time) (1 = during pandemic, 0 = beforepandemic)

α_0, β_0 : constant
α_i, β_i : parameter coefficient
e_{it} : error term

In conducting panel data regression, it was first necessary to select the best model, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), or Random Effect Model (REM). To determine the CEM or FEM model can be done with the Chow test. The null hypothesis was CEM, and the alternative hypothesis was FEM. If FEM was selected, the Hausman test was carried out to choose a model between FEM and REM. The null hypothesis was REM, and the alternative hypothesis was FEM. Then, if REM was selected, a Lagrange Multiplier test was performed to choose between the CEM or REM models. The null hypothesis was CEM, and the alternative hypothesis was REM.

4. Results and Discussion

The results of this study explain the regression results of all the equations or models used. The results analyzed were in the form of the best model selection stages, classical assumption tests, path analysis results, regression analysis results with interactions, as well as discussion and implications of research results.

Table 1. Best Model Selection Test

Models	Probabilities			Selection Model
	Chow Test	Hausman Test	Breusch Pagan LM Test	
Model (1)	0.0000	1	0.0000	REM
Model (2)	0.0000	1	0.0000	REM
Model (3)	0.9976	1	-	REM
Model (4)	0.0000	0.9827	0.0000	REM

Four-panel data regression models will be used to obtain the parameter coefficients in this study. A test was carried out of the four models to select the best model, and the results were obtained, as shown in Table 4.2. In model 1, the results of the Chow test (CEM and FEM) show that the p-value <5% significance level was 0.000 <0.05, which means that H0 was rejected and accepted. Ha, it can be concluded that the selected model was FEM. Then the results of the Hausman test (REM and FEM) show a p-value > a significance level of 1 > 0.05, which means that H0 was accepted, and it is concluded that the chosen model is REM. Then choosing between the CEM and REM models with the Breusch Pagan Lagrange Multiplier test (CEM and REM), the p-value < the significance level was 0.000 < 0.05, which means H0 is rejected, and Ha was accepted, it is concluded that the chosen model was REM. Likewise, for the selection of models 2, 3, and 4, which resulted in the selected model being REM.

4.1 Direct Influence

The regression results in model (1) test the effect of the Covid-19 (DC) pandemic on Investment (INV), and the panel regression equation is obtained as follows:

$$INVit = 36868159 + 1191099DCit$$

The P-value for the constant is less than the 5% significance level, which indicates that the constant has a significant effect on INV. If the Dummy Covid-19 (DC) variable is zero or before the Covid-19 pandemic occurs, the INV becomes 36868159. The DC variable has a p-value <0.05 with a coefficient value of 1191099, which means that the DC variable has a significant positive effect on INV. When DC = 1 or during the Covid-19 pandemic, INV will increase by 1191099 million rupiah.

Table 2. Panel Data Regression on Model (1)

Variables	Coeff.	SE	t-Stat.	Prob.
DC	1191099	355107.2	3.354195	0.0009
C	36868159	9119143.	4.042941	0.0001
R-squared	0.020335		F-stat.	11.25062
Adj. R-Squared	0.018528		Prob (F-stat.)	0.000852
Equation:	$INV_{it} = \alpha_0 + \alpha_1 DC_{it} + e_{1it}$			

The regression results in model (2) test the effect of the Covid-19 (DC) pandemic on Economic Growth (EG), and the panel regression equation is as follows:

$$EGit = 5.219118 - 3.703640\,DCit$$

The p-value for the constant is less than the 5% significance level, indicating that the constant has a significant effect on PE. If DC equals zero, then EG was 5.219118. The DC variable has a p-value <0.05 with a coefficient value of -3.703640, which means that the DC variable has a significant effect on EG but is negative. When DC = 1, EG decreased by 3.703640.

Table 3. Panel Data Regression on Model (2)

Variables	Coeff.	SE	t-Stat.	Prob.
DC	-3.703640	0.382430	-9.684488	0.0000
C	5.219118	0.391232	13.34022	0.0000
R-squared	0.147516		F-stat.	93.78932
Adj. R-Squared	0.145943		Prob (F-stat.)	0.000000
Equation:	$EG_{it} = \alpha_0 + \alpha_2 DC_{it} + e_{2it}$			

Table 4 shows the results of the regression model (3), which examines the effect of the Covid-19 pandemic on Inflation (INF). Both DC constants and variables have a p-value <0.05, meaning that these variables significantly affect INF. The regression equation is obtained as follows:

$$INFit = 0.257288 - 0.089265\,DCit$$

The constant value was 0.257288, meaning that when the DC variable is zero, INF is 0.257288%. The DC variable has a coefficient value of -0.089265, meaning that the DC variable has a negative effect on INF. During the Covid-19 pandemic (DC=1), INF decreased by 0.089265%.

Table 4. Panel Data Regression on Model (3)

Variables	Coeff.	SE	t-Stat.	Prob.
DC	-0.089265	0.038300	-2.330694	0.0201
C	0.257288	0.027082	9.500369	0.0000
R-squared	0.010272		F-stat.	5.624957
Adj. R-Squared	0.008445		Prob (F-stat.)	0.018055
Equation:	$INF_{it} = \alpha_0 + \alpha_3 DC_{it} + e_{3it}$			

Table 5 shows the regression results in Model (4), which tests the effect of the Covid-19 Pandemic (DC), INV, PE, and INF variables on unemployment. Partially the DC and INV constant variables have a positive and significant effect on unemployment. The EG variable has a negative and significant effect on unemployment. Then the INF variable has a negative effect on unemployment but not significant.

From the estimation results obtained the regression equation in the Fixed Effect Model as follows:

$$UNPit = 4.089568 + 0.545639DCit + 1.82E-08INVit - 0.013359EGit - 0.030165INFit$$

The constant value was 4.089568; if it is assumed that the variables INV, EG, and INF are fixed, unemployment, before the Covid-19 pandemic occurred, grew by 4.089568%. When the Covid-19 pandemic occurred (DC = 1), the constant value was 4.63521, meaning that unemployment would increase by 4.63521%, higher than before the pandemic. This growth increased by 0.545639% during the Covid-19 pandemic, assuming other independent variables were constant. This shows that the Covid-19 pandemic has a direct positive impact on unemployment in Indonesia. These results are in accordance with research Couch et al., (2020) and Sjoquist & Wheeler (2021) which shows that the Covid-19 pandemic has a negative impact on unemployment.

Table 5. Panel Data Regression on Model (4)

Variables	Coeff.	SE	t-Stat.	Prob.
C	4.089568	0.244865	16.70132	0.0000
DC	0.545639	0.045609	11.96344	0.0000
INV	1.82E-08	6.73E-09	2.709503	0.0070
PE	-0.013359	0.004264	-3.133057	0.0018
INF	-0.030165	0.047724	-0.632084	0.5276
R-squared	0.894598		F-stat.	116.0721
Adj. R-Squared	0.886891		Prob (F-stat.)	0.000000
Equation:	$UNP_{it} = \beta_0 + \beta_1 DC_{it} + \beta_2 INV_{it} + \beta_3 EG_{it} + \beta_4 INF_{it} + \mathrm{e}_{4it}$			

INV has a positive and significant effect on unemployment. If INV increases by 1 million rupiahs, unemployment will increase by 1.82E-08% (assuming the other independent variables are constant), and vice versa. EG has a

negative and significant effect on unemployment. If EG increases by 1% (assuming the other independent variables are constant), unemployment will decrease by 0.013359%, and vice versa. INF has a negative but not significant effect on unemployment. If the INF variable increases by 1% (assuming the other independent variables are constant), then unemployment will decrease by 0.030165%.

4.2 Path Analysis Structure

From the results of the panel data regression in Models (1), (2), (3), and (4) above, a path analysis is obtained, as shown in Figure 2. From the figure, it can be seen that the coefficient values about the direct influence of the Covid-19 pandemic on the mediating variable, namely INV, EG, and INF, then what is the impact on unemployment.

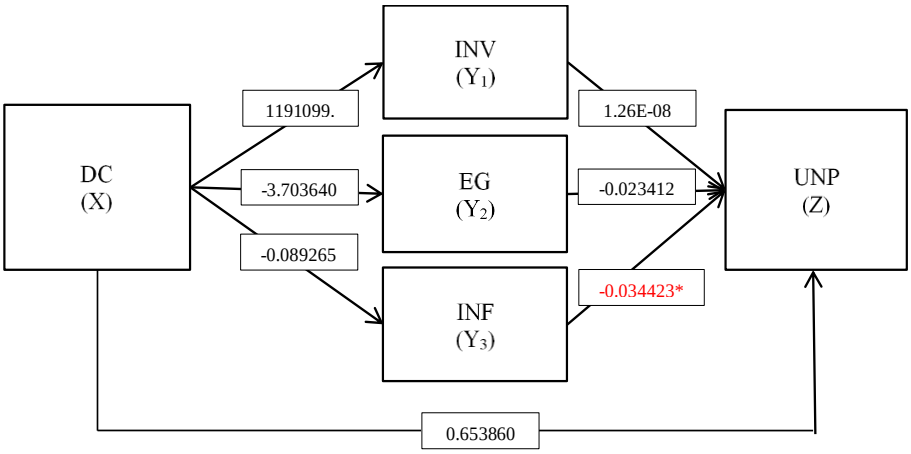

Figure 2. Path Analysis

Note: * the coefficients not significant at alpha 5%

The coefficient values of the direct and indirect influence of the Covid-19 pandemic on unemployment can be seen in table 6. The direct effect of the Covid-19 pandemic on unemployment was 0.653860, the indirect effect through INV mediation was -0.015007847, and the total effect was 0. 668867847. Indirectly, the impact of the Covid-19 pandemic on unemployment is lower through INV than directly. The impact caused by the Covid-19 pandemic will increase unemployment by 0.015007847% through a decrease in INV. The Sobel test shows that the p-value is 1, higher than the significance level of 0.05, which means that INV does not significantly mediate the effect of the Covid-19 pandemic on unemployment in Indonesia.

Table 6. Direct and Indirect Effects of Covid-19 Pandemic on Unemployment

Variables	Direct Effect	Indirect Effect					Total Effect	Effect of Mediatingusing Sobel's test (p-value<0.05)	
								Prob.	Conclusion
DC	0.653860						0.653860	-	-
INV	0.653860	1191099.	x	1.26E-08	=	0.015007847	0.668867847	1	Not Significant
EG	0.653860	-3.703640	x	-0.023412	=	0.08670962	0.74056962	0.00122	Significant
INF	0.653860	-0.089265	x	-0.034423	=	0.003072769	0.656932769	0.46834	Not Significant

Increased investment due to the Covid-19 pandemic will increase unemployment in Indonesia, but the effect will be very small. However, investment cannot mediate the impact of Covid-19 on the response. This means that the Covid-19 pandemic has not significantly affected unemployment through investment. This is because the value of an investment in Indonesia during the pandemic has continued to increase. This could happen because the domestic investment was only temporarily affected at the start of the Covid-19 pandemic in the second quarter of 2020. However, in the third quarter of 2020, it increased again (BKPM, 2020). The National Economic Recovery Program in the form of capital assistance for the business world and MSMEs has helped reduce unemployment due to the impact of Covid-19 .

The EG variable significantly mediates the effect of the Covid-19 pandemic on unemployment. This can be seen from the Sobel test, where the p-value of 0.00122 is smaller than the significance level of 0.05. The magnitude of

the indirect effect of the Covid-19 pandemic on unemployment through the mediating variable EG was 0.08670962, and the total effect was 0.74056962. The Covid-19 pandemic has had a negative impact on Indonesia's economic growth, where economic growth has experienced a sharp decline. This has an impact on increasing the unemployment rate.

INF is not significant in mediating the impact of the Covid-19 pandemic on unemployment. This can be seen from the results of the Sobel test, where the p-value of 0.46834 is greater than the significance level of 0.05. The Covid-19 pandemic has impacted reducing inflation, but this reduction in inflation has not significantly affected the unemployment rate. The price reduction or deflation during the pandemic does not affect the unemployment rate because the population will continue to work and consume goods and services during a price decline. The increase in the unemployment rate was directly affected by the lockdown policies and layoffs during the pandemic.

5. Conclusion

The Covid-19 pandemic has had an impact on the economy. Based on the results of research and discussion, the Covid-19 pandemic has a direct impact on unemployment. This study found that investment did not significantly mediate the effect of the Covid-19 pandemic on unemployment in Indonesia. This is understandable because the government issued many policies and programs during the pandemic to help the business world. These policies include providing incentives or stimulus, postponement of installments and interest subsidies for bank loans, interest subsidies through people's and ultra-micro business loans, guaranteeing working capital, and providing tax incentives. In addition, the government also provides working capital guarantees for strategic, priority, or labor-intensive corporations.

Economic growth significantly mediates the impact of the COVID-19 pandemic on unemployment in Indonesia. This is in line with the research of Kim et al. (2020) and Goto & Bürgi (2021) about Okun's law that there is a negative relationship between the unemployment rate and output. During the pandemic, the government's efforts to reduce the spread of the coronavirus through lockdown policies and large-scale social restrictions significantly reduced economic activity. This, in turn causes the unemployment rate to increase.

The study also found that inflation did not significantly mediate the effect of the Covid-19 pandemic on unemployment in Indonesia. The results of this study follow the findings of research which found that inflation has no effect on unemployment in Indonesia both in the short and long term. Inflation does not significantly affect the unemployment rate because an increase in aggregate demand does not drive inflation in Indonesia. In addition, most companies in Indonesia apply capital intensive, so the growth of employment in Indonesia is small. In addition, during the Covid-19 pandemic, the Indonesian government issued assistance and subsidy programs to maintain people's purchasing power during the pandemic. Some of this assistance includes cash social assistance, Wage Subsidy Assistance (BSU), electricity subsidies, basic food cards, and Bulog Rice. So even though many people are unemployed, their purchasing power is still maintained with this assistance.

The government must try to reduce the spread of the virus through the socialization of the application of health protocols in all activities outside the home. The vaccination program must be carried out massively so that all people have immunity against the virus. Assistance programs continue to be provided to entrepreneurs, especially the most affected MSMEs, so they can grow and provide jobs. In addition, training on economic digitization is needed for the workforce in line with the transition from conventional to digital technology.

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