UNIVERSITI TEKNOLOGI MARA

RESEARCH ON RELATIONSHIP BETWEEN MACROECONOMICS VARIABLE TOWARDS UNEMPLOYMENT RATE IN INDONESIA.

MUHAMMAD AZFAR BIN MOHD ASRI
2020994871

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AUTHOR'S DECLARATION

I declare that the work in this Final Year Project was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

Name of Student	:	Muhammad Azfar Bin Mohd Asri
Student I.D. No.	:	2020994871
Programme	:	Bachelor of Business Administration (Investment Management)
Faculty	:	Business Administration
Thesis Title	:	Research on Relationship Between Macroeconomics Variable Towards Unemployment Rate in Indonesia
Signature of Student	:	………………………………………..
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ABSTRACT

Unemployment is defined as a situation in which a person of working age desires a full-time job but is unable to obtain one due to financial constraints. In this age of globalisation, unemployment has emerged as a problem and a global phenomenon that affects people all over the world. Every country, regardless of its economic status (whether poor or wealthy), will experience an uncontrollable unemployment problem at some point. Therefore, this research purpose is to examines the relationship between macroeconomic factors such as inflation, gross domestic product, and population towards unemployment rate in Indonesia. Research on unemployment in Indonesia is lacking, and the country's unemployment rate is rising year after year, therefore this study focused on Indonesia rather than other countries. The researcher is examining and researching the variations in variable rates from 1991 to 2020. Researcher unable to obtain data for 2021 because Macrotrend, the Indonesian Department of Statistics, and the World Bank have not provided any official figures. In this regard, researcher relying on a single Macroeconomic Theory, Okun's Law, because it appears to be applicable to researcher study. Other theories, like as Keynesian theory, cannot be employed since investors, wages, and other elements are not used as independent variables. This study incorporated multicollinearity, the normality test, and serial correlation. The goal of this study is to establish the relationships between these three independent variables and the dependent variables. The expected finding for this research shows that independent variable which is inflation, and population growth has a positive significant relationship while GDP growth has a negative insignificant relationship with an unemployment rate in Indonesia country.

Keywords: Economics Theory, Macroeconomics Variables, Unemployment Rate.

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CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

People who are unemployed face a wide range of negative outcomes, including material deprivation, social isolation and a diminished sense of future hope (Cullen, 1999). This means that developing countries face a huge problem with unemployment. Inefficient use of labour resources will lead to a high rate of unemployment. Macroeconomic goals should be reached when the number of people employed is at its highest level. In addition, unemployment refers to persons who are unable to get a job, yet are capable of finding one. In this category, many people are employed, but in the wrong position (Hussmanns, 2007). In addition, one of the economic markers of a country's well-being, according to Cullen (1999), is the level of unemployment. Accordingly, worldwide, database unemployment is a big macroeconomic problem. Unemployment continues to be one of the most pressing issues in the world. As per an International Labor Organization (ILO) 2017 poll, it is the largest long-term challenge facing all technologically advanced and underdeveloped countries. More than 5.7 percent of the world's population is out of work.

Other than that, the International Labor Organization (ILO) estimates that developing nations will see an increase of 500,000 jobs per year in unemployment in 2018 and 2019. In some studies, the rate of unemployment is defined as the percentage of the working population that is out of work (Johnson, 2013). There are some people who are unemployed because they are looking for full-time work but can't seem to find it. It is commonly used to gauge the health of a nation's economy. Unemployment is a sign that the country's resources were not employed effectively to prevent the country from reaching its maximum output.

According to Plecher (2021), as a result of the economic downturn induced by the coronavirus outbreak, Indonesia's unemployment rate rose to 6.26 percent in the first quarter of 2021 from 4.28 percent in 2020. There were an additional 1.82 million persons out of work, bringing the total to 8.75 million. There was a 2.23 million drop in the number of people employed, with the highest gain in the number of people employed working in lodging and food service. Large Indonesian populations and a shaky economy will all contribute to an increase in Indonesia's unemployment rate in 2021.

The study's dependent variable is the rate of unemployment. People who are out of work are counted as part of the total (Rusdarti, 2020). Employed and unemployed people are both part of the workforce in the economy. Even if a person appears to be capable and willing to work, he or she is considered to be unemployed. Thus, the unemployment rate provides a snapshot of a country's economy and the amount of resources that are left behind.

This chapter explains what researcher going to study, what researcher trying to find out, and how researcher going to get there. Chapter 2 will focus on what researcher learned from prior studies. This great information will aid us in strengthening our knowledge and gaining a better grasp of the subject. In addition, we'll look at relevant theoretical models and provide a theoretical framework for this investigation. Methodological choices, design and strategy, data collecting sources, and data analysis methodologies will all be discussed in chapter three of this study. In order to complete the following chapter on data analysis, this chapter describes how to do research.

1.2 BACKGROUND OF STUDY

To count as "unemployed," you must be a person over the age of 15 and available for work during the time period in question (Hussman, 2007). In addition, unemployment can be expressed as a proportion of the workforce or the total number of jobless persons. Unemployment is one of the best-known indicators of the job market. As a good measure of the underutilization of labour surpluses, unemployment can be found. When an economy fails to provide employment possibilities for those who are competent and actively looking for work, it's known as joblessness.

The latest COVID-19 epidemic has spread around the globe. Everyone on the earth is affected by the COVID-19 emergency, regardless of their age, income, or place of origin. Economic and labour markets have been severely affected by this epidemic, with a particularly large impact on joblessness. The pandemic has resulted in the loss of many employments in several countries. The COVID-19 outbreak in Indonesia has resulted in immediate economic turbulence. Indonesia's macroeconomic metrics, particularly the unemployment rate, have been negatively impacted by the pandemic outbreak. In response to the pandemic, Indonesians are losing their jobs at an alarming rate.

COVID-19 has had a considerable impact on unemployment in the United States, particularly in every state, industry, and major demographic group (Gene Falk,2020). Unemployment rates among minorities and young adults are expected to be significantly higher in April 2020 than they were in March 2020, according to this analysis. During the COVID-19 outbreak, we may assume that it has touched all countries. As a result, the unemployment rate has taken a considerable hit as a result of this epidemic. The temporary shutdown of commercial operations in Indonesia and other countries to prevent the spread of coronavirus has resulted in the loss of many employment. Some argue that the pandemic is to blame as an unemployment factor, while others argue that other factors are to blame. Thus, the researcher decided to conduct this study in order for the society at large to understand the root causes of Indonesian unemployment. In a nutshell, GDP growth, inflation, and population growth are the three macroeconomic factors researcher chose to focus on.

1.3 PROBLEM STATEMENT

Some macroeconomic variables are assumed to be associated with unemployment. Is this correct? As a general rule, a large number of job opportunities indicates that a country would generate more goods and services, which will result in increased economic growth. Reduced unemployment, on the other hand, would result in a reduction in government spending while simultaneously supporting economic growth. When unemployment is zero or extremely low, it is necessary to achieve full employment. When someone are looking for a new job or graduating from college, they will experience some frictional unemployment. Economists generally believe that unemployment rates of roughly 3 percent are comparable to full employment (Pettinger, 2017). Unemployment is a major concern for policymakers in both developed and rich countries. That is because the unemployment rate is an important indicator of economic activity. With greater GDP, higher earnings, and increased industrial production comes to a lower unemployment rate. A total of around 34 million individuals were laid off as a result of the global recession that began in 2007. The number of unemployed young people surged significantly following the economic collapse, rising from 73.5 million in 2007 to 77.7 million in 2010, an increase from 73.5 million in 2007. (ILO, 2011). Full employment also suggests that the country's macroeconomic system is running at full capacity, with no output shortfalls or shortages of demand for unemployed workers.

In response to the coronavirus outbreak, Indonesia's unemployment rate jumped to 6.26 percent in the first quarter of 2021, from 4.94 percent in the same period of the previous year. The number of unemployed persons increased by 1.82 million, bringing the total to 8.75 million (Statistics of Labour Force in Indonesia, 2021). Because unemployment can be generated by inefficient capital distribution on the part of the government, it is a big problem in emerging countries that have to be addressed immediately. One of the objectives of this study is to determine the relationship between the dependent variable, the unemployment rate, and the independent variables, GDP growth, and inflation as well as the population. This allows the researcher to establish whether or not the independent variables are statistically significant.

Furthermore, researcher uncovered a paucity of previous study on this topic in Indonesia, particularly on the relationship between GDP, inflation, and population, as well as on the relationship between unemployment. A further goal of this research is for it to provide fresh results and information that will be useful to future scholars and readers. Because of this, this study seeks to address a vacuum created by the prior study by examining an additional component of the study comprised a number of approaches for establishing a relationship between the dependent variable and the independent variables.

Researcher will also apply past research methodologies for the other variables, such as GDP and population, while adding numerous new tests to identify whether variables are statistically significant. Researcher opted to employ a maximum of five separate tests for this investigation. Because of this, researcher anticipate achieving a more detailed result than researcher have in the past through research. Additionally, researcher went the extra mile to set the research apart by collecting data from 30 years of research to do the regression analysis. When it comes to Indonesia, researcher seen that too many pieces of research have taken as little as ten years to complete. In other countries, researchers always made extensive observations before running the regression.

1.4 RESEARCH QUESTION

This study examines a variety of research questions, the majority of which concern the relationship between unemployment rate and macroeconomic variables. The following is the detailed research question:

Is there a substantial relationship between the unemployment rate (individual) and at least one macroeconomic variable in Indonesia?

1. Is there a substantial relationship between the Gross Domestic Product and the unemployment rate in Indonesia?
2. Does Indonesia's unemployment rate increase as a result of inflation?
3. Is there a correlation between the population rate and the unemployment rate in Indonesia?

1.5 RESEARCH OBJECTIVES

For the most part, this research will focus on the relationship between several macroeconomic factors in Indonesia. Here are the research's specific goals, in order:

1. To determine if there is a link between Indonesia's unemployment rate and the country's gross domestic product.
2. To determine if there is a link between Indonesia's inflation and unemployment rates.
3. To determine the correlation between Indonesia's population growth and the unemployment rate.

1.6 SIGNIFICANCE OF STUDY

Since the variables in this study are different from those in past studies, economists can use our data to better their analysis and come up with fresh answers to any problems that need to be solved in the future. In the wake of this investigation, researcher will be able to determine the key variables contributing to unemployment in Indonesia. Also included is an explanation of the primary relationships and the importance of the variables. It is possible to fully utilise a country's economic capabilities and resources as a result of this, and the country's economic development can be further advanced.

The variables in this research are different from past research conducted by other researchers in that we include a unique variable, inflation. This variable has gotten less attention in previous Indonesia research because it is less common in the country. Many earlier research studies solely looked at changes in foreign direct investment, wages, and other elements, and did not look at other factors or variables. Researcher

can expect the results to differ slightly from those of past study conducted on Indonesia, which is to be expected. In addition, we provide 30 years of observation in our study, whereas most other studies only provide 10 years of observation on average.

Further information was obtained through the use of Okun's law, which is essential for a better comprehension of the variables. Known as the Law of Okun, it is a well-established economic theory that has been used to explain both economic development and unemployment. The Okun rule dives deeper into the long-term relationship between a country's unemployment rate and the pace of economic growth experienced by the country in question. Research undertaken by the Federal Reserve Bank of St. Louis provided the basis for this statement. In order to determine how much a country's GDP can be lost when unemployment surpasses its natural level, Okun's law is used. For example, according to Okun's law, the link between output and jobs is positive because a country's output is dependent on the manufacturing workers employed by that country. A negative link exists between production and unemployment because total labour equals to total labour minus unemployed (based on the workforce). So, when doing the research, researcher will make use of Okun's law to ensure that the results are consistent from one experiment to the next.

1.7 SCOPE AND LIMITATIONS OF THE STUDY

The primary objective of this study is to analyse the relationship between unemployment in Indonesia and the elements that influence it. The country of Indonesia is the focus of our investigation. GDP, inflation, and population are the macroeconomic variables to consider. These independent variables have the potential to have a positive or negative impact on unemployment in Indonesia. Because of this, researcher would like to investigate how macroeconomic variables affect unemployment in Indonesia based on the findings of this research. During the time period in which the study was done, the following limitations were identified:

1.7.1 There is a Lack of Prior Research in the Chosen Areas.

As a starting point, researcher identified and confirmed a paucity of past research in the domains selected by the researchers. The fact that prior scholars had undertaken some similar research on this subject, which researcher uncovered during the research, calls into question both the legitimacy and scope of the findings. The results

of previous study in certain domains, on the other hand, have not led to the development of hypotheses demonstrating a relationship between unemployment and inflation.

1.7.2 Lack of Available Data

Since conducting this research on Indonesian unemployment, researcher have learned that acquiring detailed information and data on the subject is challenging in this study. Certain websites provide only a few statistics, and it is impossible to gather precise information from them. In addition, some websites require a subscription in order to access the information they provide. Also observed was that the articles researcher selected as study sources were out of date and did not offer the most up to date information available at the time of investigation. The vast majority of the data does not cover the required number of years or achieve the goal of researcher study.

1.7.3 Limited Access to Eikon DataStream

During the process of this study, researcher discovered that accessing Eikon DataStream is problematic because it is shared by all UiTM students in Malaysia. Furthermore, it only has four id access points, which is insufficient for the number of pupils who attend the institution. Researcher shall be thrown out of the Eikon DataStream if it detects a new login from another student while we are currently logged in. As a result, researcher will lose any data that has not been saved. As a result, researcher must consult another government database as well as a World Bank database.

1.8 IMPLICATIONS OF THE STUDY

This part discusses the implications and benefits of the research for investors, policymakers, and researchers. The study's purposes, scope, and findings will benefit a wide range of stakeholders, including:

Investor

Investors must analyse the most recent unemployment data to assess which industries are shedding jobs, as well as the overall economic state and climate in which they will be operating. It is an indicator of economic contraction when unemployment rises in a certain country's population. The opposite of this is true: a decrease suggests that the economy is improving. Researcher hope that this analysis will be useful in assisting investors in determining which mutual fund sector to exit. Due to their ability to detect advantage or loss, mutual fund sectors can be beneficial for evaluating statistics in a variety of situations. A foreign investor would invest money in a company that operates in a country and generates employment opportunities. As a result, unemployment will decrease, which will contribute to the overall economic development of our country."

Policy Maker

The Federal Reserve uses unemployment as a crucial indication of economic health, thus it is vital to understand the factors that influence the rate of unemployment. Afterwards, it will examine Indonesia's economic health and provide input into the formation of the country's monetary policy. This method can be utilised to aid people in their search for employment. Increasing total employment and maintaining moderate long-term interest rates are the objectives of monetary policy. As a result, this plan would surely take into account the dynamics of the labour market. Ultimately, the outcomes of this study will assist policymakers in gaining a better understanding of the causes that lead to unemployment. This research will also assist policymakers in understanding and making informed decisions about how to control the economy and alleviate unemployment.

Researchers

Through the discovery of theories such as Okun's Law, this research may pave the door for more investigation in the future. These ideas, which link Indonesian unemployment to a variable such as GDP, may have an impact on the country's unemployment rate. Using this theory to evaluate and apply, it is feasible to assess whether there is a positive or negative link between the unemployment rate and Indonesia's gross domestic product. The findings of this study may prove useful to future researchers and analysts who wish to conduct additional investigations into Indonesia's labour market.

1.9 DEFINITION OF KEY TERMS

Term	Definition
Unemployment	A measure of annual unemployment rate among total labor force
GDP	The annual rate of real GDP growth
Inflation	A measure of inflation's annual rate change
Population	A measure of annual population rate growth

1.9 SUMMARY

Okun's Law is one of the economic and financial theories we used. The study's limitations were a lack of available data and previous research in the chosen areas. Nonetheless, this study would provide investors, policymakers, and researchers with information about the study's findings. Now that we know what to do, we'll move on to the next section, the literature review. This chapter summarized and explain previous researchers' journals on unemployment and the independent variables.

Researcher have covered all of the fundamentals of report in this chapter, looking at Indonesia unemployment in terms of GDP, inflation, and population. Researcher also highlighted Indonesia's unemployment history, which we derived from the International Labor Organization and other reliable sources that provide specific data that can help us with our research. Furthermore, the study's structure, which includes this chapter, chapter two, and chapter three, is well defined and structured.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter summarises previous research on the relationship between unemployment in Indonesia for this research paper. Due to the Covid-19 pandemic, the factor has received little attention in recent years. After the global economy slowed and eventually shut down due to the pandemic, unemployment became a major issue. Throughout this section, researcher will highlight and discuss the four independent variables, as well as how each of them affects unemployment in the real world. The three (3) independent variables are as follows: Gross Domestic Product (GDP), Inflation, and Population.

2.2 Theoretical Review

The variables chosen for the independent variables are based on the research variables and are as follows: Gross Domestic Product Growth, Inflation, and Population. The researcher will conduct a thorough and detailed investigation into how the independent variables affect the dependent variable, which is unemployment in the individual. As a result, researcher decided to support the research with the help of two theories. These two theories are extremely well-known in the world of economics because they can be considered the foundation for the correlation between the independent and dependent variables in a regression analysis. Indonesia's unemployment rate fell to 6.49 percent in the third quarter of 2021 from 7.07 percent in the same quarter a year earlier, reflecting an improvement in local COVID-19 conditions. The number of unemployed people fell by 0.67 million to 9.10 million, representing a 0.67 percent decrease. At the same time, the number of people employed increased by 2.60 million to 131.05 million, with the majority of the increase occurring in manufacturing, while the largest decrease occurred in agriculture (-1.43 percent) (Indonesia's Labor Force Statistics, 2021).

Okun's Law, a macroeconomic theory written by Okun, has been selected for discussion. A well-known economist, Arthur Okun, was the first to bring the issue to light in the 1960s, and the issue has since gained widespread attention (Ishak, Oluwaseyi, Onisanwa, and Dankunno, 2019). Okun's Law is a term that has been coined to describe his work. Specifically, Okun looked into the statistical relationship between a country's economic growth and the unemployment rate within that country

(Christoper, 2010). In the United States, according to the Federal Reserve Bank of St. Louis, "Okun's Law is intended to tell us how much of a country's Gross Domestic Product (GDP) may be lost when the unemployment rate is above its natural rate of between 4.5 and 5.0 per cent." Given that output is a function of labour in the manufacturing process, it is reasonable to assume that output and employment are positively related. In contrast, because employment is defined as the difference between the number of people employed and the number of people unemployed, there is a negative correlation between unemployment and output. As a result, Okun's Law is now considered to be a standard rule of thumb when analysing the relationship between job creation and economic expansion (Christoper, 2010).

Bernanke (2012) summarises the basic concepts of Okun as "the rule of thumb that defines the relationship between variations in GDP growth rate and unemployment rate." Okun's basic concepts are described as follows: Okay observed that in order to maintain the unemployment rate, real GDP growth must be close to the potential growth rate, which is due to the continuous increase in labour supply and productivity. As a result, in order to reduce unemployment, the economy's growth rate must be greater than its potential growth rate. Plus, according to Okun's Law, for a one-percent reduction in the unemployment rate to occur in a year, real GDP must grow approximately two percentage points faster than potential GDP growth during that period. According to the law, for example, assuming a 2 percent annual GDP growth rate, the GDP must grow at a rate of 4 percent per year in order to achieve a 1% reduction in the unemployment rate (Adelowokan, 2013).

Unemployment is a key component of Keynesian theory, which was developed by John Maynard Keynes and is related to macroeconomic theory in general. It is one of the most well-known models for explaining economic production, which is heavily influenced by aggregate demand in a market economy (total expenditure in the economy). According to the Keynesian viewpoint, this indicates that aggregate demand does not necessarily guarantee the economy's productive potential. Instead, it is influenced by a number of different factors. Keynesian economics is concerned with resolving recessionary periods on the demand side of the economy. Keynes' ultimate goal was to be able to track a country's overall economic performance from beginning to end (Bruno, 2005).

2.3 LITERATURE REVIEW ON DEPENDENT VARIABLES

2.3.1 UNEMPLOYMENT

In this age of globalisation, unemployment has emerged as a problem and a global phenomenon that affects people all over the world. The International Labour Organization defines unemployment rate as the percentage of unemployed people in the labour force (Brook, 2002). Every country, regardless of its economic status (whether poor or wealthy), will experience an uncontrollable unemployment problem at some point. In 2014, the authors (Ruth and Emmanuel) published a paper in which they discuss their findings. Unemployment is defined as a situation in which a person of working age desires a full-time job but is unable to obtain one due to financial constraints.

Unemployment can be classified into two major categories: voluntary unemployment and involuntary unemployment. Voluntary unemployment occurs when an individual decides to leave their current job in order to seek another, whereas involuntary unemployment occurs when an individual is fired from their current job and must seek employment elsewhere. As defined by the Bureau of Labor Statistics, unemployment is defined as a state of affairs in which a person of working age is unable to find employment but wishes to work full time. A person who did not work at all during the survey week but was actively looking for work is also considered to be unemployed, according to some definitions (Amadio K,2021)

High unemployment can have a negative impact on a country's economic stability. Most of the world's developing countries are affected by the unemployment problem. Indonesia is one of these countries. Indonesia has a high rate of unemployment, which is considered to be high by international standards. According to the World Bank (2019), the unemployment rate in Indonesia in 2018 was 4.4 percent, which demonstrates that the country is in a state of economic decline. According to the data, Indonesia's unemployment rate is still significantly higher than that of developed countries such as Japan, where the rate is only 2.8 percent. This condition can be caused by an incompatibility between work and education, as well as its ability (Rahardja and Manurung, 2008). During his research, Pallis (2006) discovered that the responsiveness of the labour market is dependent on government policy. There are a variety of factors that can influence changes in the amount of people who are unemployed.

Low unemployment rates in developed countries are attributed to the high level of human capital available in these countries. The quality of adequate education provided to its citizens is unquestionably supportive of a developed and large country (Wu, 2018). High-quality education will improve the overall quality of the country's human resources. According to Law (2018), approximately six out of ten unemployed people are under the age of twenty-four. Year after year, more than 250,000 students complete their degrees. However, one in every five recent graduates is still looking for work six months after graduation. A total of 26% of first-degree holders among these recent graduates with tertiary education are out of work, according to the data. The majority of unemployed recent graduates come from public universities, with approximately 50% coming from public universities and 47% coming from private universities. In Indonesia, graduate unemployment is considered to be high, with a rate of approximately 5.44 percent in 2015, an increase from the previous year's rate of 4.96 percent in 2014 (World Bank, 2015). According to Erdem and Tugcu (2012), higher education graduates are one of the factors that contribute to the rise in the unemployment rate in Turkey over time. In spite of the fact that the effect is small, error correction estimates show that higher education has a negative impact on the unemployment rate in Turkey in the short run.

Despite the fact that the labour market is still very much "unsatisfied" and that vacancies are not being filled, universities and colleges are aggressively pursuing the goal of increasing the number of students on the basis of providing high-quality instruction (Woo, 2006). He argued that the triangulated and uncorrelated relationships between the provision of high-quality higher education, the high unemployment rate of graduates, and the complaints by employers create a persistent need to investigate the input-output process of higher education, in particular, and the ambiguously defined term "quality."

2.4 LITERATURE REVIEW ON INDEPENDENT VARIABLES

2.4.1. GROSS DOMESTIC PRODUCT GROWTH

The annual GDP growth of a country can have an impact on the changes in unemployment in that country. Increased unemployment will result if annual GDP growth slows down or even reverses course. To give an example, an economic crisis in Europe had occurred at the time, causing the GDP growth of the countries in Europe to slow down, resulting in the economy's performance to sluggishly improve once more (Rouksar-Dussoyea, Ming-Kang, Rajeswar, & Yin- Fash, 2017). In economics, gross domestic product (GDP) is the total monetary or market value of all finished goods and services produced within a country's borders in a given period of time (usually a year). The GDP serves as a comprehensive scorecard of a given country's economic health or as the wealth signature of the country state because it is a broad measure of overall domestic production (Ausloos & Lambiotte, 2007).

According to the research conducted on this subject, the researcher discovered that Gross Domestic Product plays a critical role in encouraging the rise of society's standard of living, both outside and within Indonesia. Unemployment tends to decrease as GDP growth rises, which is a direct result of unemployment. This shows that GDP growth and other macroeconomic variables are linked in a significant way. According to Andrei Et Al (2009). According to Okun (1962), unemployment is negatively related to a country's economic growth rate.

According to BPS data (2018), Indonesia's unemployment rate has averaged 6.04 percent over the last 31 years. The rapid increase in unemployment in Indonesia since the 1997 crisis was caused by a number of factors that compounded it concurrently and significantly. From 4.68 percent in 1998 to 11.2 percent in 2005, the unemployment rate increased. The labour market's inability to provide employment and the labour market's growth being insufficient to offset the increase in the labour force was the primary cause of unemployment (Eko Ridla' Setyawan , Waspodo Tjipto Subroto, Pujiono, 2017*).*

There are numerous factors that contribute to the country's unemployment rate, and one of them is GDP growth. Because of this, macroeconomic variables will be impacted (Dogan, 2012). The growth of GDP and the correlation between the number of unemployed people tends to have a positive relation. In other words, when GDP growth

increases, the number of people out of work will decrease, and the effect on GDP is directly linked to the effect on unemployment, as when there is more employment, output tends to increase. Unemployment affects GDP growth, which can be used as an indicator of the health of a country's economy. Accordingly, it is used as a measure of how well a country is doing (Madito & Khumalo, 2014).

2.4.2 Inflation

Inflation is the gradual increase in the general price level of goods and services over time (Akinsola & Odhiambo, 2017). Inflation has both positive and negative effects on economics, according to Singh (2018). Inflation raises the opportunity cost of holding money and creates uncertainty about future inflation, both of which discourage investment and saving. On the other hand, lowering unemployment due to nominal wage rigidity and lowering the real burden of public and private debt are positive effects.

Amadeo (2012) defines inflation as the process by which the prices of the majority of goods and services continue to rise. This situation may result in a decrease in the cost of living, as we must spend more money to obtain the same amount of goods and services as we did previously. On the other hand, inflation occurs when the money supply expands excessively. Numerous research studies have documented significant facts about the extraordinary relationship between inflation and unemployment.

According to A.W. Phillips (1958) in Mankiw (2012), the relationship between inflation and unemployment rate is based on the assumption that inflation is a reflection of increased aggregate demand. Increased aggregate demand, adapted to the demand theory, which states that if demand increases, prices will increase as well. Due to the high price (inflation), producers will increase production capacity by expanding their workforce (working force was the only input that may increase the output). As a result of the increased demand for labour, prices will rise (inflation), which will reduce unemployment.

Ireland (1999) discovered that inflation and unemployment are cointegrated; when the Barro-Gordon hypothesis was tested, it was determined that unemployment caused inflation. Shadman-Mehta (2001) also discovered cointegration between inflation and unemployment; the study's findings established that inflation causes unemployment. According to Phillips (1958), the unemployment rate and inflation have a negative correlation. Phillips demonstrated that years with a low unemployment rate were more

likely to be followed by a high inflation rate, whereas years with a high unemployment rate were more likely to be followed by a low inflation rate (Samuelson,2004).

For a long time, inflation was considered to be one of the most serious problems facing the country. Indonesia inflation has been caused by a variety of factors over the course of the last several years. These factors were either economic or non-economic in nature, depending on the situation (Islam, Ghani, Mahyudin, and Manickam, 2017). Economic factors include currency and non-monetary elements, to name a few examples. Employment, according to the research of Islam, Ghani, Mahyudin, and Manickam (2017), has a negative impact on inflation. Because the Phillips curve predicts that as the unemployment rate rises, the inflation rate will rise as well, and vice versa, the Phillips curve is a useful tool in economic analysis. The Phillips curve can be used to explain the trade-off relationship between two options.

2.4.3 Population

As the world's population continues to grow at an unprecedented rate, the economy and communities are being put under tremendous strain. Population growth is found to be a contributor to unemployment in cases where it has a positive relationship with unemployment, according to the findings of the study (Arslan, 2014).

Aside from that, Gur (2015) examined the factors that contributed to unemployment in Brazil, Russia, India, and China over the period 2001 to 2012. The author explained that the secondary data used in the research was obtained from the Organization for Economic Co-operation and Development (OECD), the World Bank, and the Bloomberg databases, among other sources. The researchers can conclude that inflation leads to increased unemployment in the countries of Brazil, Russia, India, and China, which in turn leads to population growth, based on the results of the panel unit root test and cross-section dependence test, respectively. By looking at the data, the researcher was able to confirm that population growth has a direct impact on unemployment, as predicted by the Solow growth model previously mentioned.

Even so, Sorolla-i-amat, (2000) also highlighted in his study where the results deduced from the survey stated that in the long run, that the relationship between population growth and unemployment is very weak. After all is said and done, some researchers discovered a positive relationship between population growth and unemployment, while other researchers discovered the opposite. In light of the

contradictory findings, additional research is required to establish the validity of these conclusions.

2.5 Theoretical Framework

An advanced theoretical framework provides readers and audiences with a clearer picture of what the research is trying to accomplish in their work. In most cases, this is used to estimate the probability of a statistically significant relationship between the independent variables (IV) and the dependent variables (DV) (DV).

THEORETICAL FRAMEWORK
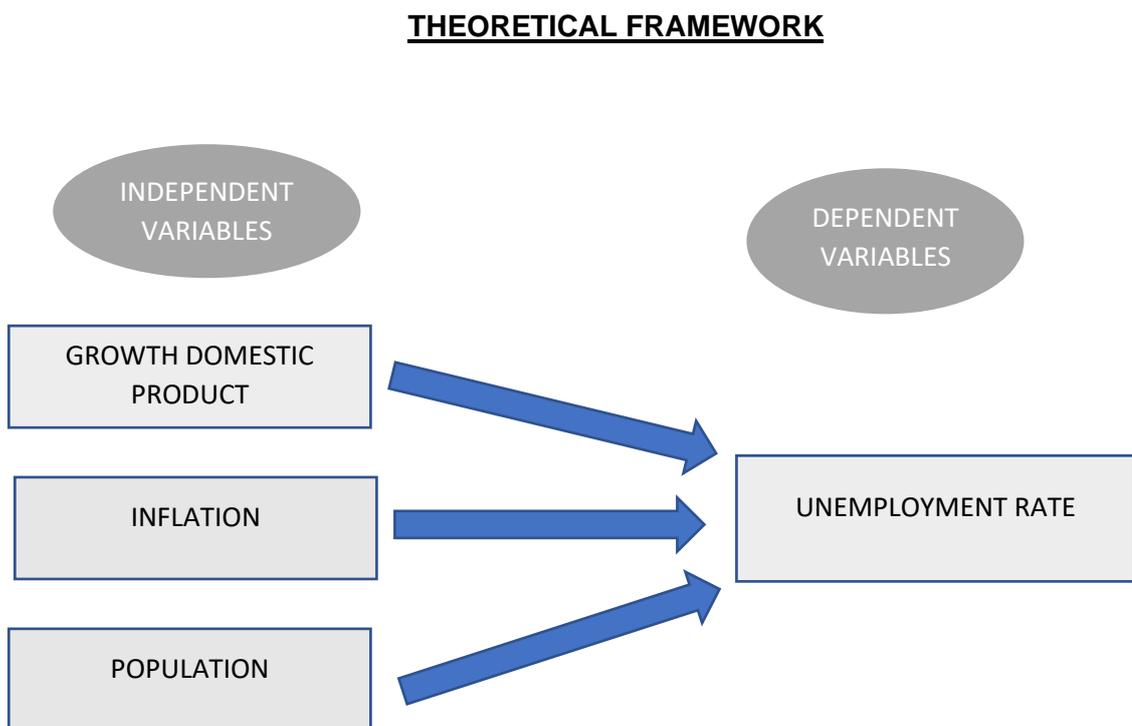
2.6 Summary

According to the review of the literature that has been completed by the other researcher, it contains all of the variables that have been used in this research. Furthermore, it provides brief results and outcomes that can be used for future research in this study, as well as recommendations for future research. This can assist future researchers in better understanding the concept and achieving a better outcome in the future.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

In this case, the methodology used to investigate the research question. At each stage of the research process, researchers should select each operational phase of the research process. A series of steps were then taken to investigate the relationship between economic growth, inflation, and population growth in Indonesia and the unemployment rate. Additionally, the researchers discussed how they would be analysing the data.

A variety of secondary data, such as World Bank Data and DataStream, will be gathered in order to carry out the research. Each set of data spans a period of 30 years, starting in 1991 and ending in 2020. To get any relevant data related to this report, Datastream, which is the ultimate data that is extremely accurate, must be used.

There are many other aspects to be discussed in this chapter, including sampling, study design and data collection; variables; hypotheses; and analysis methodology. Here, researcher will go over where and how to find information. The variables used in this study, which are both dependent and independent, will be explained in great detail. This chapter also discusses the research design, hypothesis, and methodology.

3.2 Research Design

According to Jahoda (1996), research design is the combination of a plan, layout, strategy, and investigation to ensure question search and variance control. Research design is more than just speculating on the seemingly infinite number of possibilities. A rational basis for decision-making is provided by the data collection, processing, and interpretation associated with implementation. The arrangement enables researchers to concentrate on relevant research methods and set up experiments. Data bias and confidence in data precision are frequently achieved through proper research design.

However, researcher have identified a number of factors that may influence Indonesia's unemployment rate. When only the standard model is considered, bias can be seen. Therefore, in order to get an accurate estimate, it is necessary to take into account those variables that have a significant impact. Researchers can use research design to help them figure out how to collect and analyse data in neuroscientific experiments. Data analysis strategies and procedures can also be specified using it.

On this page, researcher will explain the purpose of the study, the methods used, and the time frame for the investigation.

3.2.1 Purpose of the Study

Types of research include those that are exploratory, descriptive, hypotheses testing, and case study-based. During this research, a hypothesis testing analysis is employed. Based on this research, it is hoped that a correlation between Indonesian unemployment rates and macroeconomic variables will be discovered. As stated by Suharto (2021), the unemployment rate in Indonesia has fluctuated over time due to various factors. Furthermore, a country with a lower unemployment rate has fewer economic problems and performs better economically. That will help the country's image around the world because it performs better and tends to attract foreign countries to form good diplomatic ties.

3.2.2 Researcher Interference

In an investigation, the scope to which a researcher intervenes is a measure of the extent to which the researcher can influence the development outcome. The three most common types of interference are minimal, mild, and excessive. To be classified as minor modifications, this study relies solely on historical data from Indonesia.

3.2.3 Study Setting

Study environments can be divided into two categories: those that are planned and those that are not planned. While constructed study environments are artificial, non-constructed study environments can be completed in a natural setting where work will be carried out as it would be in a typical workplace setting. A non-contrived environment is used for the conduct of this investigation. The researcher also conducted the study in a natural environment for a full 24-hour period, utilising secondary data to track the trigger relationship as it progressed on an average basis.

3.2.4 Unit of Analysis

The researcher's data collection organisation is the unit of study. Individuals, groups, organisations, and cultures are all examples of research units. An individual of

researchers will conduct the study's research. Researcher logic compares Indonesian unemployment rate results over time, resulting in this conclusion.

3.2.5 Time Horizon

Due to the fact that it examines the unemployment rate in Indonesia over a thirty-year period from 1991 to 2020, time series data is used in this investigation. Researcher used time series data collection because the variables in this study is only focusing at single subject which is Indonesia. Time series data will be used in the study, since the variables data which is unemployment rate, economic growth, inflation and population growth are gathered on an annual basis for Indonesia's country from 1991 to 2020 (30 years).

Time series data is a set of observations for a single subject made over a period of multiple time intervals. This data collection method focuses on a single subject at multiple time intervals. For example, a time series would consist of the value of retail sales for each month of the year. This is because revenue from sales is properly defined and is routinely measured at equally spaced intervals. Time-series data cannot be obtained by collecting data infrequently or only occasionally.

3.3 Sampling

3.3.1 Population

A population is a group of people from which a random sample is drawn for the purpose of conducting a research study. As a result, a population can be defined as a group of individuals who share a characteristic in common. We believe that Indonesians are the most appropriate population to conduct this survey because of the level of research that is being conducted.

3.3.2 Sample Size

Essentially, the sample is a subset of the population from which conclusions about the entire population can be drawn. It appears to be difficult to gather all of the information about the population because it is both time-consuming and expensive. As a result, a sufficiently large sample size is required in order to draw conclusions about the population from the sample. The labour force, employees, and the unemployed

were all used in this investigation by the researchers. The categories are divided into age groups ranging from 18 to 60 years old. The age group refers to family members who are either employed or unemployed at the time of the survey.

3.4 Data Collection

Collecting data entails assembling data and information from primary or secondary sources. Primary data are those that may be viewed directly by the researcher, whereas secondary data are those that have already been written. The study will include secondary data from secondary sources. This research used secondary data from sources like the World Bank Data, Datastream, and other past journal data that discuss about relationship between unemployment and macroeconomic variables. From this secondary data, we are able to find answers to research questions, fix the research problem and gain new insights.

3.4.1 World Bank Data

The World Bank defines data as statistics. Data are critical components of that knowledge and are easily accessible to all users via the internet. The World Bank provides free and open access to a comprehensive set of data on development in countries worldwide, as well as to other datasets referenced in the data catalogue. Apart from that, World Bank Data is simple to use and is completely free, in comparison to other websites where we must pay a fee to access data. To examine the relationship between macroeconomic variables and unemployment, our dependent variable is unemployment, expressed as a percentage of World Bank-estimated total labour force. Additionally, data for all independent variables were sourced from the World Bank Data, including population growth, GDP growth, and inflation.

3.4.2 Eikon Datastream

Besides that, Thomson Eikon DataStream is used to locate any relevant data to be used in the research, as UiTM has already subscribed to the DataStream. Data for macroeconomic and asset allocation analysis, as well as sector analysis, can be found on the Eikon website. It is thanks to DataStream that Eikon is able to incorporate business and cross-asset market information. It's also a framework that provides a wide range of financial information in a workspace tailored to the needs and workflow of its

users. For more than 175 countries, including Indonesia, and 60 markets, you can access financial and macroeconomic data on equities, currencies and other topics.

3.4.3 Journal and Articles

The majority of the information for this study was gathered through a collection of various publications in the fields of business, finance, and economics. When conducting a literature review, the purpose or functions of the numerous publications collected will be used as a guide, and the methodology used in previous research will be evaluated as a reference for related research analysis. As an added bonus, a number of journals were sourced from the internet, including the University of Technology Mara website, the e-online library, and google scholar.

3.5 Variable

When the value of a term or process fluctuates, it is said to be a variable. The four major variables are dependent variables, independent variables, moderating variables, and mediating variables. For this study, there are two types of variables to take into consideration: dependent and independent variable.

Unemployment Rate (Person)

Unemployment data is measured by percentage of total labour force model international force labour organization (ILO) estimate which reflect annual percentage change (annual %). The unemployment rate is the percentage of the workforce that is out of work.

Unemployed / Population x 100 = Unemployment Rate

3.5.2 Independent Variable

An independent variable is a variable that has a relationship with the dependent variable, whether the relationship is positive or negative in nature. Growth in gross domestic product (GDP), inflation, and population are the independent variables in this study.

3.5.2.1 Gross Domestic Product Growth

Over a given period of time, a country's Gross Domestic Product (GDP) represents the total amount of output goods and services produced in that country. The Gross Domestic Product (GDP) is the figure that has been officially approved (GDP). The Gross Domestic Product (GDP) is calculated using the equation below.

GDP = private consumption + gross investment + government investment + government spending + (exports – imports).

3.5.2.2 Inflation Rate

Inflation is measured by the Consumer Price Index (CPI), which shows how much the general price level changes each year. The cost of living is the price of goods and services that may stay the same or change over time. This is the formula to be calculated inflation:

(Current Consumer Price Index – Past Consumer Price Index) ÷ Current Consumer Price Index x 100 = Inflation Rate or ((B – A)/A) x 100 = Inflation Rate

3.5.2.3 Population Rate

At a given point in time and in a specific location, the population is the total number of men, women, boys, and girls of various ages who reside there. This is the formula:

dN/dt = (b + i) – (d + e).

To put it another way, changes in population size (dN) over time (dt) equal births (b) plus new immigrants (i) minus deaths (d) plus emigrants (ii) (e). It is calculated by subtracting the total number of people who die or migrate from the total number of people who enter the population (by birth or immigration). Immigration and emigration have little impact on population growth rates and can be ignored unless proven otherwise. So, the equation is:

dN/dt = b – d

When dN/dt = 0, the system is stable (i.e., when population size does not change). This happens three times: 1. When births equal deaths 2. Population extinction (N = 0) 3. When a sexually reproducing organism's sole survivor has no mate (N = 1) In most cases, if births exceed deaths (b > d), the population grows; otherwise, it shrinks.

3.6 Hypothesis Statement

Any statement that expresses the relationship between two or more variables is known as a hypothesis. When it comes to science, a hypothesis is an uncertain interpretation of a scientific problem that is used to further investigate the relationship between two or more variables. A hypothesis can be either true or false. A hypothesis can be divided into two categories: the null hypothesis and the alternate hypothesis. It is possible to represent the null hypothesis (H0) in theory as the absence of a significant relationship between two variables or no difference between two groups. In the meantime, the alternative hypothesis (H1) is the polar opposite of the null hypothesis (hypothesis). In other words, it is a statement that indicates the relationship between two groups and that demonstrates the relationship between two variables. In order to solve the problem, it is necessary to take an approach that involves measuring these hypotheses. The relationship between the gross domestic product, inflation, and population in relation to the unemployment rate in person must therefore be investigated in order to achieve the research objectives.

3.6.1 Gross Domestic Product Growth

H_0: There is no significant correlation between GDP and unemployment rate.

H_1: There is a significant correlation between GDP growth and unemployment rate.

3.6.2 Inflation

H_0: There is no significant correlation between Inflation and unemployment rate.

H_1: There is a significant correlation between Inflation and unemployment rate.

3.6.3 Population Growth

H_0: There is no significant correlation between population growth and unemployment rate.

H_1: There is a significant correlation between population growth and unemployment rate.

3.7 Research Methology

In this study, the relationship between variables will also be used to measure the underutilization of labor surpluses, in addition to the relationship between variables. A lack of employment opportunities for people who want to work but are unable to do so is referred to as an economy's inability to provide employment opportunities. The use of time-series data is justified by the fact that this analysis will include data from the Department of Statistics Indonesia that has been collected over a thirty-year period. As a result, rather than analyzing panel data, time-series data analysis is the most appropriate method to employ.

3.7.1 Multicollinearity

When there is a strong or high correlation between two or more predictor variables, multicollinearity is used to describe the relationship. To put it another way, they will use one predictor variable to forecast the outcome of the other one. This would result in redundant information being included in a regression model, which would skew the results. When one independent variable is completely correlated with another independent variable, the least square solution for the coefficient of regression is not available.

The output of an independent variable is influenced by the output of other independent variables if one independent variable has a high degree of correlation with another independent variable. If the multicollinearity test reaches 0.08, the model outcome may be unfair, and caution should be exercised in the analysis. A multicollinearity problem can then arise, and the variable with a high correlation coefficient must be correctly removed from the model to avoid this.

3.7.2 Normality Test

In order to determine if a population has a normal distribution, the normality test is used. To establish the presumption of normality, a test called the Jacque-Bera test would be required. The Jacque-Bera measure is commonly used by econometricians. The asymptotically chi-squared Jacque-Bera measure has two degrees of freedom, which is simply the sum of the squares of the asymptotically distinct uniforms of two different natural variables. The normal distribution's kurtosis and skewness sample are used to arrive at this conclusion. To come to a conclusion with the analysis, the researcher used Jarque-p-value Bera's statistics. A p-value of Jarque-Bera greater than 5 percent of significance level indicates that the researcher has failed to reject the null hypothesis, and the error term has a distribution that is similar to the normal distribution.

3.7.3 Correlation Analysis

Because researcher is using time series data in this study, correlation analysis refers to the correlation between observations data that have been ordered in time and place over a period of time. For time series data, serial correlation will occur as a result of some studies leaving out critical variables from the model, as will be the case in this example. When you look at the relationship between the current value of a variable and its previous value, you are looking at serial correlation. We must determine the source of the error in the serial correlation in the time series data model, because the sample could receive a skewed outcome, which would make the results less effective overall. When evaluating a correlogram, the Durbin-Watson test can be utilised (ACF plot).

3.7.4 Regression Analysis

When determining whether or not a hypothesis should be rejected, regression analysis is employed. Since multiple independent variables are being examined for this study and are being regressed as panel data, this research provides a panel study through the use of multiple regression analysis. This is due to the fact that the independent variables chosen to describe the variance in the dependent variable are more than one. Using multiple regression analysis, you can determine whether or not the dependent variable has a statistically significant relationship to any other independent variable. The regression method assists researchers in making confident

decisions about which variables are the most important and which variables can be omitted from their analyses.

3.7.5 Least Square Regression

In order to classify the correlated effects of multiple independent variables on a dependent variable, panel least square regression is used by regressing a panel data set on a dependent variable (Kenton, 2019). In order to estimate the effect of GDP, INF, and POP on UNP, an econometrics model has been constructed. The interaction between the explanatory and explained variables can be mathematically expressed, and the model can be extracted in the following manner:

UNP= β_0 + β_1GDP + β_2INF + β_3POP + ϵ

UNP = Unemployment rate in Person
β_0 = Constant Term
β_1, β_2, β_3, β_4 = Coefficient to be estimated
ϵ = error term
GDP = Gross Domestic Product
INF = Inflation
POP = Population

3.8 Summary

To put it another way, this chapter discusses the sample and data that was collected in order to fit the template that was designed specifically for this analysis. It also describes the theoretical framework of the analysis as well as the research design, which provides an explanation of the fundamental mechanism of the investigation. Aside from that, Chapter 3 discusses the research hypothesis as well as the research methodology, which includes descriptive analysis, correlation analysis, regression analysis, and a test on assumptions, amongst other techniques.

CHAPTER 4: FINDING AND DATA ANALYSIS

4.1 Introduction

Chapter 4 will concentrate solely on research findings and discussion. All results will be presented in line with the stated objective specifying the relationship between the dependent variable, which is the unemployment rate (UR) and independent variables, namely gross domestic products rate (GDP), inflation rate (INF), and population rate (POP). Data results are executed using Eviews 12 statistical tools. The analyses chosen are descriptive analysis, correlation analysis, and regression analysis. Meanwhile, the assumptions tests are normality and multicollinearity test. In the next chapter, a review of the conclusions and outcomes derived from this research will be given.

4.2 Descriptive Analysis

	UR	GDP	INF	POP
Mean	5.304667	4.646000	9.220400	5.257767
Median	5.270000	5.337500	6.910500	5.689500
Maximum	9.780000	8.220000	58.45100	8.026000
Minimum	1.820000	-13.12700	1.921000	0.490000
Standard Deviation	1.989136	3.981326	10.07448	2.198436
Skewness	0.202428	-3.264129	4.078340	-0.712645
Kurtosis	2.176585	14.69551	20.43692	2.436744
Observations	30	30	30	30

Tables 4.1 Descriptive Analysis

Notes: The dependent variable is the Unemployment rate (UR). The independent variables are gross domestic product rate (GDP), Inflation rate (INF), and Population rate (POP).

Table 4.1 shows the descriptive statistics for the data utilized in this investigation. Descriptive analysis is a temporary descriptive coefficient that describes a group of

data that might be an analogy of the entire population or a subset of it. The data was drawn from three economic indicators that have been listed in the Department of Statistics Indonesia. The information includes samples drawn from three (3) economic variables in Indonesia, which are from 1991 to 2020. There are a total of 30 observations in this study. The average or mean, median, maximum, minimum, standard deviation, skewness, and kurtosis for the GDP Growth Rate (GDP), Inflation Rate (INF), Population Rate (POP), and Unemployment Rate (UR).

In brief, the Mean is the average of the total value of all variables. The mean value for the dependent variable is 5.304667 and for the independent variable is 4.646000, 9.220400, 5.257767 for GDP, INF, and POP respectively. Therefore, the result shows that INF has the highest mean and GDP has the lowest mean.

Next, the Median is the middle of the total value of all variables in which must be organized in an ascending or descending order. The median value for the dependent variable is 5.270000 and for the independent 5.337500, 6.910500, and 5.689500 for GDP, INF, and POP respectively.

Maximum is the largest value of the total variables. The maximum value for dependent variable is 9.78 and for the independent variable 8.22, 58.451, and 8.026 for GDP, INF and POP respectively.

Minimum is the lowest value and can be negative of the total variables. The minimum value for dependent variable is 1.82 and for the independent variable -13.127, 1.921 and 0.49 for GDP, INF and POP respectively.

Standard deviation is the spread or how far the observations are from the mean or average value. The standard deviation value for dependent variable is 1.989136 and for the independent variable is 3.981326, 10.07448 and 2.198436 for GDP, INF and POP respectively.

Skewness is used to calculate the asymmetry of the distribution of the variable around its mean. The skewness value for dependent variable is 0.202428 and for the independent variable is 4.078340 for INF. Thus, it indicates positive skewness and has the right tail. Meanwhile, GDP and POP are -3.264129 and -0.712645 respectively, plus it indicates negative skewness and has the left tail.

Lastly, kurtosis is to measure the flatness or tallness of the variables. The kurtosis value for the dependent variable is 2.176585 and for the independent variable is 14.69551, 20.43692, and 2.436744 for GDP, INF, and POP respectively. It indicates variables which UR, GDP and INF are leptokurtic as indicates a positive excess kurtosis, meanwhile POP are mesokurtic as indicates excess kurtosis.

4.3 Correlation Test

Variables	Correlation	Probability
UR, GDP	0.588227	0.0005**
UR, INF	0.772535	0.0000***
UR, POP	0.906683	0.0000***

Note: ***,**, Significant level at 1%, 5% respectively.

Table 4.2 Pearson's Correlation Coefficient

Notes: The dependent variable is the unemployment rate. The independent variables are gross domestic product rate (GDP), Inflation rate (INF), and Population rate (POP).

The study of correlation is to assess the relationship between the variables. Table 4.2 illustrates the correlation matrix between the changes in the dependent variable and the independent variables in this study. To analyze the relationship, a correlation value close to -1 suggests a strong negative relationship, whereas a correlation value close to +1 shows a strong positive relationship. As the correlation value is zero, there is no association between the variables. The level of significance is set at 5%, which equals 0.05.

Based on Table 4.2, the population rate (POP) is shown to have a strong positive correlation with the unemployment value of 0.906683 as the value is close to 1. The probability value of GDP, INF, and POP is smaller than the 5% level of significance set which is 0.0000 and 0.0005 where it indicates all independent variables which are GDP, INF, and POP, have a significant relationship with Unemployment.

Furthermore, Gross Domestic Product Rate, Inflation Rate, and Population Rate

have an important relationship with Unemployment because the probability value is smaller than the significance point 0.05 that is 0.0005 and 0.0000 respectively.

In conclusion, all the independent variables, which are GDP, INF and POP, have a significant relationship with Unemployment. Furthermore, although unemployment has a significant relationship, it has a strong positive relationship with GDP, INF and POP. When the null hypothesis is equal to zero, it means that the researchers assumed that the two variables have no association in the null hypothesis. In other words, researchers aim to determine the magnitude of association between the two variables. Usually in research, researchers will aim for a higher effect size in order to prove that the two variables have a correlation (Cohen, 1992).

4.4 Multicollinearity Test

Variables	Centered VIF
C	NA
GDP	4.119942
INF	4.385255
POP	1.624045

Table 4.3 Multicolinearity

Based on the table 4.3, centered variance inflation factor (VIF) is been used. The centered variance inflation factors (VIF) is used to describe the amount of multicollinearity that occurs in the regression study. A centered VIF of this research indicates that all variables are not multicollinear since the centered VIF is less than 10. Thus, it shows that none of the independent variables demonstrate no Multicollinearity problem.
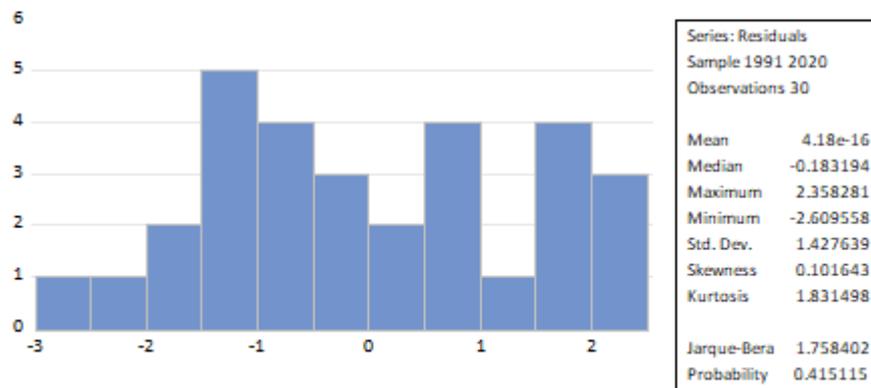
4.5 Normality Test

Table 4.4 Normality Test

Notes: The dependent variable is the unemployment rate. The independent variables are gross domestic product rate (GDP), Inflation rate (INF), and Population rate (POP).

The aim of the normality test is to detect the distribution of the error term. The data is normally distributed if the probability value of Jarque-Bera has a significant amount of more than 5 percent and vice versa. The hypothesis of the normality test is as follows:

H0: Error term is normally distributed.

H1: Error term is not normally distributed.

Figure 4.4 shows that Jarque-Bera's value is 1.758402 and 0.415115 is the value of relative probability. The null hypothesis was not rejected because the probability value was greater than the 5% significance level. As a result, the data is normally distributed.

The skewness value is used to evaluate whether the probability distribution has a longer tail on the right or left side of the data probability distribution and whether it has a positive or negative value. The skewness value for this research is 0.101643 and it shows that the distribution of probabilities is positive and predicts a longer right tail of

the distribution of probabilities.

On the other hand, to determine whether the distribution series is more peaked or flat, the value of kurtosis is used. If the value of kurtosis is 3, then the channel of distribution is normal. The kurtosis value is 1.831498 based on table 4.4 and shows that the distribution is normal.

To summarise, the data in this study were normally distributed because there was a positive probability and the distribution channel was flat compared to normal. Also since the probability value of 0.415115 is greater than 5%, we accept Ho. Therefore, the error term is normally distributed. The shape of the histogram also follows a normal distribution and therefore the error term is normally distributed.

4.6 Regression Test

Variables	Coefficient	P-Value
C	1.889582	0.3125
GDP	-0.002801	0.9845
INF	0.128362	0.0365**
POP	0.426902	0.0141**
R-squared	0.484881	
Adjusted R-Squared	0.425444	
F-Statistics	8.157911	
Probability (F-Statistic)	0.000543***	
Durbin Watson	0.592663	

Note: ***,**, Significant level at 1%, 5% respectively.

Table 4.5 Least Square Regression

Notes: The dependent variable is the unemployment rate (UR). The independent variables are gross domestic product rate (GDP), Inflation rate (INF), and Population rate (POP).

Regression analysis is used when there are more than two variables to examine if independent factors may explain the influence of the dependent variable. The regression analysis findings are shown in Table 4.5. The acquired results may be explained by looking at the econometrics formula.

URi = 1.889582 - 0.002801 (GDPi) + 0.128362 (INFi) + 0.426902 (POPi) + £i

Inflation and Population have a positive connection with unemployment, according to the equation. Meanwhile, GDP is the only indicator that has a negative connection with unemployment.

Based on table 4.5, the F-statistic value is 8.157911, and the F-statistic P-value is 0.000543. The null hypothesis must be rejected since the value has a significant level of less than 5%. This indicates that at least one of the factors may be used to assess efficiency.

The R-squared value is 0.484881, indicating that the fluctuation of the independent variables, which are GDP Growth Rate, Inflation Rate, and Population Rate, can explain 48.48 percent of the variance. The adjusted R-squared value is 0.426902 or 42.69 percent. This has the same significance as R-squared, in which independent variable variability explains 42.69 percent of the variation. Using each of the variables will provide more information.

Gross Domestic Product Rate (GDP)

H_0: *There is no significant relationship between GDP and UR*
H_A: *There is a significant relationship between GDP and UR*

The coefficient value for GDP is - 0.002801. It indicates that as UR increase by one percent, GDP will decrease by 0.002801 percent. Vice versa, GDP has a negative relationship with UR. The p-value for GDP is 0.9845, which is greater than a 5% level of significance. This finding accepts the null hypothesis and concludes that there is insignificant relationship between GDP and UR.

Inflation Rate (INF)

H_0: *There is no significant relationship between INF and UR*
H_A: *There is a significant relationship between INF and UR*

The coefficient value for INF is 0.128362. It indicates that as UR increase by one percent, INF will increase by 0.128362 percent assuming other variables remain

constant. Thus, INF have a positive relationship with UR. The p-value for INF is 0.0365, which is less than 5% level of significance. This finding rejects the null hypothesis and concludes that there is a significant relationship between INF and UR.

Population Rate (POP)

H_0: There is no significant relationship between POP and UR
H_A: There is a significant relationship between POP and UR

The coefficient value for POP is 0.426902. It indicates that as UR increase by one percent, POP will increase by 0.426902 percent assuming other variables remain constant. Thus, POP have a positive relationship with UR. The p-value for POP is 0.0141, which is less than a 5% level of significance. This finding rejects the null hypothesis and concludes that there is a significant relationship between POP and UR.

4.7 Summary

To summarise, the deliberations on the reported results were presented in this chapter in order to assess the findings on the tests and assumptions to be performed and adhered to in this study. Before the researcher may analyze the outcomes, empirical inquiries on econometric issues must first be changed and answered correctly. Descriptive testing analysis, correlation testing, multicollinearity testing, normality testing, and regression analysis are among the analytical findings debated. In the next chapter, the researcher will describe the general result of this investigation.

CHAPTER 5: CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter will conclude the analysis based on the summarization of data acquired from the research study, while also generating a few suggestions on the results' conclusion. The act of making suggestions serves as a roadmap for future research in order to enhance outcomes and assure more exact and accurate findings.

5.2 Finding on major discussion

In this study, the researcher used a variety of tests and regression comparisons of panel data by utilizing EViews software to achieve the best results. The main objective is to see how increases and decreases in Independent Variables affect changes in the unemployed rate in Indonesia. However, the goal of this research is to determine the link between the Unemployment rate (person) and the variables that contribute to it. As a result, the dependent variable chosen for this study is the Unemployment rate (Person) in Indonesia, with, GDP growth rate, Inflation rate, and Population rate as independent factors.

5.3 Conclusion of main findings

This particular research uses secondary data from 1991 until 2020 which focuses on the relationship between unemployment rate (person) and the independent variables which are GDP growth rate, Inflation rate, and also Population growth rate. The researcher collected the data from trusted sources which are World Bank Data and Eikon Datastream. The researcher decided to run a few types of tests which are descriptive analysis, correlation test, multicollinearity test, normality test, and also the regression test. All the results of each test were explained in Chapter 4 of this research and the test was run using the software called EViews. After finishing all the tests, a researcher is going to make a conclusion on all findings. In general, all independent variables are significant, which are GDP growth rate, Inflation rate and Population rate.

For the descriptive analysis done, the researcher can obtain all the basic information regarding the variables that the researcher chooses in the dataset. Furthermore, we are able to highlight the potential occurrence of relationships between the independent and dependent variables. In this result, 30 observations represent the

number of years. One out of three independent variables seem to be skewed to the right as it shows a positive sign which is Inflation. This is because the mean of these independent variables is more than its median which affects its skewness. Meanwhile, the GDP growth rate and Population seems to be skewed to the left as it shows a negative sign.

As for the correlation test, researcher found that all independent variables have a strong correlation with unemployment. Population shows the greatest value compared to the other two variables which is 0.906683. The R-squared value is 0.484881, indicating that the fluctuation of the independent variables, which are GDP Growth Rate, Inflation Rate, and Population Rate, can explain 48.48 percent of the variance. The adjusted R-squared value is 0.426902 or 42.69 percent. This has the same significance as R-squared, in which independent variable variability explains 42.69 percent of the variation. Using each of the variables will provide more information.

For normality tests, the value of Jarque-Bera is 1.758402 and the relative probability is 0.415115. Since the probability level is more than 5%, the null hypothesis has not been rejected. This indicates, then, that the data is usually disseminated. For this research, the skewness is 0.101643, and it reveals that probability distribution is positive. Kurtosis is used to assess if the distribution series is more peak or flat. The value is 1.831498, and reveals that the distribution is normal. To summarise, the data in this study were normally distributed because there was a positive probability and the distribution channel was normal. Also, since the probability value of 0.415115 is greater than 5%, we accept Ho. Therefore, the error term is normally distributed. The shape of the histogram also follows a normal distribution and therefore the error term is normally distributed.

5.3.1 Gross Domestic Product Growth

A country's Gross Domestic Product (GDP) is the total quantity of output products and services generated in that country over a certain period of time. The result of the analysis shows the coefficient value for GDP is - 0.002801. Vice versa, GDP growth has negative relationship towards unemployment. The p-value for GDP growth is 0.9845. Thus, it indicates GDP growth rate has insignificant relationship which is greater than 5% level of significance. Based on the t-test analysis, it shows that the GDP growth rate has negative and insignificant relationship towards the

unemployment rate. Descriptive analysis has also supported this result as it shows that the mean of GDP growth rate for Indonesia country is 4.646000 as it shows that the higher GDP growth rate in Indonesia, the lower the unemployment rate in Indonesia would be. In other words, when GDP growth increases, the number of people out of work will decrease, and the effect on GDP is directly linked to the effect on unemployment, as when there is more employment, output tends to increase. Unemployment affects GDP growth, which can be used as an indicator of the health of a country's economy. Accordingly, it is used as a measure of how well a country is doing (Madito & Khumalo, 2014).

The result of this research is consistent with the findings from research made by Mosikari (2013), their result shows that GDP is statistically insignificant with unemployment. However, the results of this research are in contrast with the research conducted by Noor, Nor, and Ghani (2008), it was found that either way there is a significant relationship between unemployment and GDP growth in his selected sample which is South Africa.

5.3.2 Inflation

Inflation is measured by the Consumer Price Index (CPI), which shows how much the general price level changes each year. The cost of living is the price of goods and services that may stay the same or change over time. The result of the analysis shows the coefficient value for inflation is 0.128362. Thus, inflation rate has positive relationship towards unemployment rate. The p-value for inflation rate is 0.0365. Thus, it indicates inflation rate has significant relationship which is less than 5% level of significance. Based on the t-test analysis, it shows that the inflation rate has positive and significant relationship towards unemployment rate. Descriptive analysis has also supported this result as it shows that the mean of inflation rate for Indonesia country is 9.220400 as it showing that the higher inflation rate in Indonesia, the higher unemployment rate in Indonesia would be. When this happen, stagflation occurs. Stagflation occurs when there is high inflation during a period of slow economic growth and high unemployment. Stagflation provides policymakers with difficulties because the instruments employed to reduce inflation generally increase unemployment and vice versa. The result was different with Phillip Curve theory about relationship between unemployment and inflation. According to Phillip Curve, a low unemployment rate is more likely to be followed by a high inflation rate, whereas years with a high unemployment rate were more likely to be followed by a low inflation rate

(Samuelson,2004).

The result of this research is consistent with the findings from Trimurti, C. P. (2014), Shadman-Mehta (2001), and (Mankiw, 2012) that shows that inflation does have a significant impact towards unemployment rate. However, (Furuoka & Munir, 2014), (Thayaparan, 2014) and (Vangjeli, E., & Agolli, J., 2017) shows that the inflation rate does not have a significant impact towards unemployment rate.

5.3.3 Population Growth

At a given point in time and in a specific location, the population is the total number of men, women, boys, and girls of various ages who reside there. As the world's population grows, more resources are required. Birth rates minus death rates can be used to calculate population growth. The rate of population expansion has a substantial impact on unemployment. The result of the analysis shows the coefficient value for population growth is 0.426902. Thus, population has positive relationship towards unemployment. The p-value for population growth is 0.0141. Thus, it indicates population growth rate has significant relationship which is less than 5% level of significance. Based on the t-test analysis, it shows that the population rate has positive and significant relationship towards unemployment rate. Descriptive analysis has also supported this result as it shows that the mean of population rate for Indonesia country is 5.257767 as it showing that the higher population growth rate in Indonesia, the higher unemployment rate in Indonesia would be. In Merauke Regency, every 1% rise in population growth results in a 0.350 percent increase in unemployment. The findings of the Determination Test indicate that 90% of respondents believe population increase has an effect on unemployment rates, whereas 10% attribute it to other reasons. As a result, population growth is outpacing the rate of unemployment. Thus, a positive relationship between population and unemployment might be concluded, (Kimirop, 2019).

The result of the research is consistent with Ikechukwu (2018), he discovered that population growth has a significant and positive impact on unemployment in his selected sample which is Nigeria and also Kimirop (2019), which shows the population growth does have a significant impact towards unemployment.

5.4 Implication of The Research

The implications section discusses how the study's findings may impact policy, behaviour, theory, and future research. The conclusions you reach as a result of your study are referred to as research implications, and they describe how your results may affect policy, practise, or theory. The implications and benefits of the research for investors, policymakers, and researchers are discussed in this section. Numerous parties will benefit from the study's objectives, scope, and findings.

To begin, investors can now use our analysis to determine which mutual fund sector to sell. Because our data can now be used to analyse statistics by examining the relationship between unemployment and the factors we utilise, the mutual fund sector may now use it to discover benefit or loss. A foreign investor would fund a business that operates within a country and generates new jobs. As a result, unemployment will diminish, adding to our country's economic growth.

Additionally, our study assists the Indonesian Federal Reserve in identifying the variables affecting unemployment, which is a critical indicator for them. The Indonesian Federal Reserve will utilise this data to assess the country's economic health and assist in formulating monetary policy. This strategy can be used to aid individuals in locating work. Monetary policy's objectives include full employment and stable long-term interest rates. As a result, this strategy would undoubtedly take labour market developments into account. Additionally, our findings will assist policymakers in developing a better understanding of the elements that affect unemployment.

Additionally, researchers might benefit from our findings since they may pave the way for future research by elucidating concepts such as Okun's Law. These concepts may have an effect on Indonesian unemployment by tying it to a measurable quantity such as GDP. By evaluating and executing this theory, it is feasible to determine whether there is a positive or negative relationship between unemployment and GDP in Indonesia. As a result, future researchers and analysts may find this study beneficial in furthering their research into the causes affecting unemployment in Indonesia.

5.5 Recommendation

5.5.1 Adding more variables

We have finished all necessary regression for this project. By examining all of the above-mentioned regression results, we may conclude that our regression model contains statistically significant independent variables. After reading the statistical results, we can see how changes in the amounts of independent variables are regularly associated with changes in the dependent variable. For our own information, determining the most critical variable is more complicated than it appears. To add additional variables, we must first define each variable in order to determine its significance. As a result, we should choose the appropriate variables to ensure that our research meets all of its aims and objectives. Additionally, we will employ the same methodology that we did during our research. This way, we can improve our understanding of the relationship between unemployment and the independent factors. We can investigate novel variables that have never been touched or addressed in earlier studies. Thus, other researchers or students can refer to our research papers and attempt to adapt them to the country's present economic situation.

5.5.2 Studies on other countries

Additional research is needed on unemployment in other countries, as well. Doing research in a different country has a number of advantages. To begin, we might do a detailed side-by-by-side comparison of our own country with another. We can determine if the other country is better or worse in terms of the independent variables by doing this. As a second option, we can gather relevant information from the other countries. There are numerous more issues that can be answered by this type of study, such as whether or not wages are relevant in a study that examines the relationship between unemployment and other independent factors. Finally, we can guarantee the correctness and precision of the independent factors' influence on unemployment through our research. As a result, our researcher should continue to perform study in other nations so that it might be used or improved upon by new researchers in the future.

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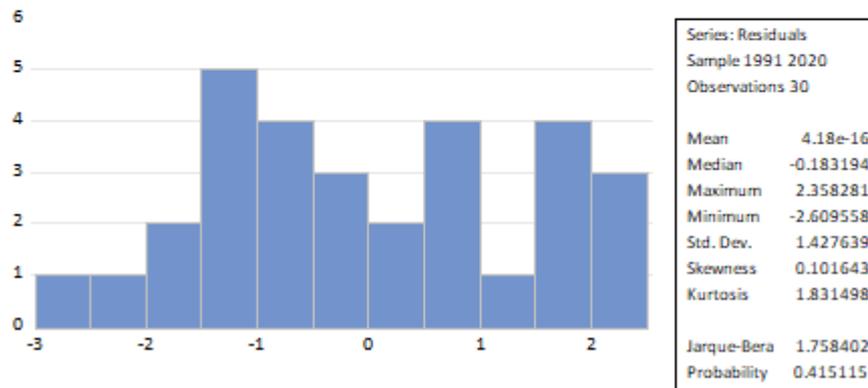 of unemployment in Merauke district. 10(02, February 2019), 10-20.

APPENDIX

```
Dependent Variable: UR
Method: Least Squares
Date: 01/20/22   Time: 20:54
Sample: 1991 2020
Included observations: 30
```

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.889582	1.834609	1.029965	0.3125
GDP	-0.002801	0.142741	-0.019626	0.9845
INF	0.128362	0.058198	2.205612	0.0365
POP	0.426902	0.162299	2.630340	0.0141

R-squared	0.484881	Mean dependent var	5.304667
Adjusted R-squared	0.425444	S.D. dependent var	1.989136
S.E. of regression	1.507755	Akaike info criterion	3.782686
Sum squared resid	59.10642	Schwarz criterion	3.969512
Log likelihood	-52.74029	Hannan-Quinn criter.	3.842453
F-statistic	8.157911	Durbin-Watson stat	0.592663
Prob(F-statistic)	0.000543		

```
Variance Inflation Factors
Date: 01/20/22   Time: 20:55
Sample: 1991 2020
Included observations: 30
```

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	3.365790	44.41677	NA
GDP	0.020375	9.923806	4.119942
INF	0.003387	8.185155	4.385255
POP	0.026341	11.23344	1.624045

Series: Residuals	
Sample 1991 2020	
Observations 30	
Mean	4.18e-16
Median	-0.183194
Maximum	2.358281
Minimum	-2.609558
Std. Dev.	1.427639
Skewness	0.101643
Kurtosis	1.831498
Jarque-Bera	1.758402
Probability	0.415115

Covariance Analysis: Ordinary (uncentered)
Date: 01/20/22   Time: 20:56
Sample: 1991 2020
Included observations: 30

Correlation t-Statistic Probability	UR	GDP	INF	POP
UR	1.000000 ----- -----			
GDP	0.588227 3.917045 0.0005	1.000000 ----- -----		
INF	0.772535 6.551831 0.0000	0.145256 0.790611 0.4356	1.000000 ----- -----	
POP	0.906683 11.57536 0.0000	0.677964 4.966632 0.0000	0.554480 3.588050 0.0012	1.000000 ----- -----

	UR	GDP	INF	POP
Mean	5.304667	4.646000	9.220400	5.257767
Median	5.270000	5.337500	6.910500	5.689500
Maximum	9.780000	8.220000	58.45100	8.026000
Minimum	1.820000	-13.12700	1.921000	0.490000
Std. Dev.	1.989136	3.981326	10.07448	2.198436
Skewness	0.202428	-3.264129	4.078340	-0.712645
Kurtosis	2.176585	14.69551	20.43692	2.436744
Jarque-Bera	1.052401	224.2539	463.2220	2.935886
Probability	0.590846	0.000000	0.000000	0.230399
Sum	159.1400	139.3800	276.6120	157.7330
Sum Sq. Dev.	114.7431	459.6777	2943.361	140.1605
Observations	30	30	30	30

YEAR	UR	GDP	INF	POP
1991	1.82	8.03	8.419	0.49
1992	2.73	6.498	8.524	0.95
1993	3.08	6.396	9.672	1.404
1994	2.87	7.54	8.532	1.885
1995	3.97	8.22	9.42	2.408
1996	4.13	7.818	7.973	2.859
1997	2.68	4.7	6.226	3.362
1998	9.78	-13.127	58.451	3.89
1999	7.36	0.791	20.478	4.394
2000	6.08	4.92	3.689	4.833
2001	6.08	3.643	11.5	5.012
2002	7.6	3.499	11.9	5.156
2003	6.66	4.78	6.757	5.282
2004	7.3	4.031	7.064	5.407
2005	7.94	5.693	10.453	5.543
2006	7.55	5.501	13.109	5.836
2007	7.92	4.345	10.407	6.061
2008	7.21	6.014	11.227	6.228
2009	6.11	7.629	4.386	6.345
2010	5.61	6.224	5.134	6.434
2011	5.15	6.17	5.356	6.657
2012	4.47	6.03	4.279	6.833
2013	4.03	5.557	6.413	6.995
2014	4.05	5.007	6.395	7.179
2015	4.51	4.876	6.363	7.391
2016	4.3	5.033	3.526	7.468
2017	2.88	6.07	2.809	7.628
2018	5.39	5.174	3.198	7.817
2019	3.6	5.018	3.031	7.96
2020	6.28	-2.7	1.921	8.026