

## Analysis of the Factors That Influence the Level of Open Unemployment in the Province of Bali



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**ABSTRACT:** This research was conducted against the background of the fluctuating open unemployment rate in Bali Province. The unemployment rate is very important to measure the success rate of economic development in a region. A high unemployment rate in a region indicates low economic growth in the region. The increase in the unemployment rate is also influenced by the minimum wage. Therefore, this study wants to analyze the relationship between the district or city minimum wage, economic growth, dependency ratio, and employment opportunities and the open unemployment rate in Bali Province. This research was conducted in the regencies and cities of Bali Province from 2011 to 2022, with 108 observations. The data collection method used is a literature study with secondary data. This research uses panel data models and multiple linear analysis techniques. The panel data model selected in this study is the Random Effect Model (REM). The results of this study indicate that district/city minimum wage, economic growth, dependency ratio, and employment opportunities simultaneously affect the open unemployment rate in Bali Province. Partially, district/city minimum wage, economic growth, and dependency ratio have a negative and significant effect on the open unemployment rate in Bali Province. Partially, employment opportunities have a positive and insignificant influence on the open unemployment rate in Bali Province.

**KEYWORDS:** Open Unemployment, Province of Bali, Economic Growth, Minimum Wage, Unemployment Rate

### I. INTRODUCTION

In the grouping of countries based on the level of welfare of their people, there are several problems faced by developing countries. One of the problems faced by developing countries, including Indonesia, is unemployment. Unemployment is a very complex problem because it is affected by many interacting factors. One of the causes of unemployment is the imbalance between the rate of population growth and available employment. This means that the number of workers is greater than the number of jobs available. (Zusen & Setyowati, n.d.). Based on data published by the Central Bureau of Statistics in 2020, entitled Indonesian Statistics 2020, Indonesia's population was 271,349,889 million in 2019. Meanwhile, Indonesia's population growth rate is still at 1.38 percent per year. According to the results of population projections by BPS, in 2035, the population of Indonesia will reach more than 300 million people. The Indonesian population is dominated by the highly productive age group between the ages of 15 and 64. This makes Indonesia enter the demographic bonus era where the productive age can be utilized in increasing development or even become a burden to the economy, such as increasing unemployment. Not only in Indonesia, but Bali Province, as one of the provinces in Indonesia, also experiences unemployment problems. This problem is inseparable from the COVID-19 pandemic, which has made many companies not operate, limited community activities, and made many people feel afraid, causing the unemployment rate to accelerate.

Economic growth is also closely related to the process of increasing the production of goods and services in the economic activities of society. The economic growth of a country or region that continues to show an increase illustrates that the economy of the country or region is developing well. Economic growth will generate additional public income in a certain period because, in essence, economic activity is a process of using factors of production to produce output; this process in turn will produce a flow of services to the factors of production owned by the community (Mankiw & Reis, n.d.). Economic growth indicators not only measure the rate of output growth in an economy, but actually also provide an indication of the extent to which activities in the economy that occur in a certain period have generated income for the community. Increased economic growth means that there has been an increase in the production of goods and services due to an increase in the production of goods and services which causes an increase in demand for factors of production, one of which is labour (Zulhanafi, et al, 2013). Economic growth encourages the creation of new jobs that absorb unemployment. Economic growth in the local government system is indicated by the increasing production of goods and services as measured by the Gross Regional Domestic Product (GRDP). Wages are one of the factors that affect the number of unemployed. If seen from the employer's side, wages are a burden on the company, where an increase in the minimum

## Analysis of the Factors That Influence the Level of Open Unemployment in the Province of Bali

wage can cause a reduction in labor demand. While from the labor side, wages are the rewards that should be received as a reward for the time and energy used, the increase in the minimum wage can attract the labor force to want to work and look for work. High and low wages are important factors that determine the standard of living in the community (Panjawa & Soebagiyo, 2014). The determination of wage levels by the government in a region will have an influence on the level of unemployment. The higher the wage set by the government, the lower the number of people working in the region. Therefore, the higher the wage set, the higher the unemployment rate (Kaufman, n.d.). This can happen because the higher the wage set, the higher the output costs that must be incurred by a company. As a result, a company will increase efficiency in production by reducing the size of its workforce (Sirait, 2013). The amount of the provincial minimum wage (UMP) for each region or province varies. The Provincial Minimum Wage (UMP) that applies to an area can have both positive and negative impacts. The positive impact of an increase in wages or the high wages given to workers is the increasing nominal wages received each month. The negative impact of wage determination is that the increase in wages causes a decrease in labour absorption. The decrease in labour absorption results in an increase in unemployment (Ningsih, 2017).

Table 1.3 shows the minimum wage received by residents by regency or city in Bali Province in 2018–2022. The minimum wage in Bali Province has increased every year, except in 2021. Based on Bali Governor Decree number 532/03-M/HK/2020 concerning the 2021 minimum wage, it was decided that the minimum wage in Bali Province in 2021 would not increase. The non-increase in the minimum wage in 2021 is due to the impact of the COVID-19 pandemic that has shaken the economy.

**Table 1.3 Regency/City Minimum Wage (UMK) in Bali Province 2018-2022**

Regency/City	Regency/City Minimum Wage in Bali Province				
	2018	2019	2020	2021	2022
<b>Jembrana</b>	2181393	2356559	2557102	2557102	2563364
<b>Tabanan</b>	2239500	2419332	2625217	2625217	2643779
<b>Badung</b>	2499581	2700297	2930093	2930093	2961285
<b>Gianyar</b>	2240766	2421000	2627000	2627000	2656009
<b>Klungkung</b>	2164992	2338840	2538000	2538000	2540848
<b>Bangli</b>	2128253	2299152	2494810	2494810	2516971
<b>Karangasem</b>	2180000	2355054	2555469	2555469	2555470
<b>Buleleng</b>	2165000	2338850	2538000	2538000	2542312
<b>Denpasar</b>	2363000	2553000	2770300	2770300	2802926
<b>Bali</b>	2127157	2297969	2493523	2493523	2516971

Source: Bali Provincial Statistics Agency 2022

One prominent implication of the high birth rate in developing countries is that nearly 40 percent of the population consists of children less than 15 years old. Thus, the productive labor force in developing countries has to bear a greater burden of supporting children, who are proportionally almost twice as many as those in rich countries. The elderly and children are economically called the dependency ratio. This means that they are unproductive members of society and thus a burden on the productive labor force (aged 15 to 64 years) (Todaro, 2006).

In developing countries, high population growth also comes with a heavy dependency ratio. As in Bali Province, with a population of more than four million people, the number of unproductive age population is quite large. Based on data on the dependency ratio of Bali Province by district / city in 2022, it shows that Bali Province has a dependency ratio of 42.32. This means that out of one hundred people of productive age, 42 people of unproductive age must be borne.

In recent years, Indonesia has been hit by a prolonged crisis. This has had an impact on the economic system, which has resulted in an increase in unemployment. To overcome this, some people took the initiative to create their own jobs. However, to do this

## Analysis of the Factors That Influence the Level of Open Unemployment in the Province of Bali

requires a lot of capital, so there are still many people who are unemployed. Therefore, most people choose jobs that are not in accordance with their field (knowledge obtained), with the assumption that it is better to work than not to work.

A low unemployment rate indicates high employment opportunities in a region. BPS data for Bali Province in 2018-2022 shows a high level of employment opportunities reaching 98.6 per cent in 2018. However, after the covid-19 pandemic, employment opportunities in Bali Province decreased rapidly. Not only that, Bali Province is also the province with the highest decline in GRDP levels in Indonesia. In 2021, the minimum wage in Bali Province also did not increase due to the obstruction of financial income due to the implementation of PSBB and the ban on travelling abroad.

Based on data on the percentage level of employment opportunities in Indonesia and Bali Province, it shows that the percentage level of employment opportunities in Bali Province is higher than the percentage level of employment opportunities in Indonesia. This shows the high percentage of the working population in Bali Province. The high number of working population shows the ability of the region to be able to create jobs that are able to absorb the existing labour force.

The existence of population growth that increases every year can cause changes in the age structure, namely the increase in the number of unproductive people aged 0-14 years. This increase in the unproductive population can ultimately increase the dependency ratio. The higher the dependency ratio, the higher the cost of supporting the unproductive population. Based on data on the dependency ratio of Bali Province by district/city in 2022, it shows that Bali Province has a dependency ratio of 42.32 per cent. This means that out of one hundred people of productive age, 43 people of unproductive age must be borne. It can be said that the level of dependency ratio in Bali Province is quite high.

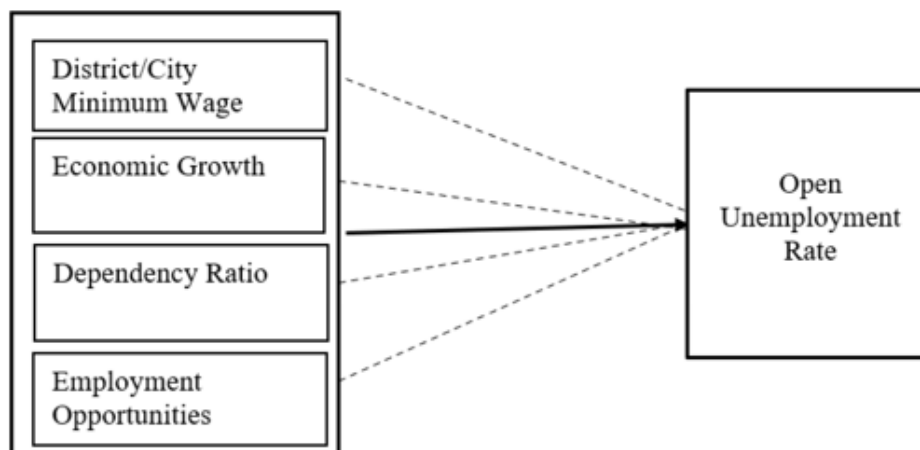
From the general description presented above, the research question to be answered is whether the minimum wage level, economic growth, employment opportunities, and dependency ratio affect the unemployment rate in Bali Province.

## II. LITERATURE REVIEW

The variables that can influence the unemployment rate are the minimum wage, population growth, dependency ratio, and employment opportunities. The relationship between the wage level and the unemployment rate is stated by Bruce E. Kaufman and Julie L. Hotchkiss (1999). If a labor force sets a certain wage as the minimum wage, then if all wages offered are below that wage level, someone will refuse to get that wage and cause unemployment. If the wage set in a region is too low, it will result in a high level of unemployment in that region.

The relationship between the economic growth rate and the unemployment rate was revealed by Bruce Kaufman and Julie L. Hotchkiss. This is based on Okun's Law, which examines the relationship between the unemployment rate and the GDP of a region. Any increase in the percentage of unemployment in a region is equivalent to a 2 percent decrease in GDP. The theory expressed by Frederick & Stamper (n.d.) states that the higher the dependency ratio, the better the dependency ratio, although one of the positive impacts on the dependency rate lies in a young, healthy population and an increasingly productive labor force. A low dependency ratio or dependency rate will lead to a tendency to save and high capital investment because the nonproductive age population borne by the productive age population is getting smaller, resulting in an increased level of investment and increased employment opportunities through the opening of new jobs. As a result, there will be a decrease in the unemployment rate.

The relationship between unemployment and employment opportunities is very large. With a high level of employment opportunities, unemployment will decrease because unemployed and underemployed workers will be absorbed into these jobs. Thus, the effect of employment opportunities is that with an increase in employment opportunities, the unemployment rate is expected to decrease. Based on the statements that have been conveyed above, the conceptual framework of this research can be described as follows:



From the conceptual framework, this research is new to previous research by combining various variables that influence unemployment with the aim of showing that all of these variables are factors that influence the unemployment rate.

## Analysis of the Factors That Influence the Level of Open Unemployment in the Province of Bali

A hypothesis is a temporary answer or conclusion drawn to answer the problems posed in research, which actually still have to be tested empirically. The hypothesis in question is a conjecture that may be true or false. In this study, the hypotheses that can be drawn are:

- 1) The district or city minimum wage, economic growth, dependency ratio, and employment opportunities simultaneously affect the unemployment rate.
- 2) The district or city minimum wage has a negative effect on the unemployment rate.
- 3) Economic growth has a negative effect on the unemployment rate.
- 4) Population dependency has a positive effect on the unemployment rate.
- 5) Employment opportunities have a negative effect on the unemployment rate.

### III. RESEARCH METHODS

This research uses a quantitative approach that is associative in nature. Associative research (relationship) According to Sujarweni (2015), "research aims to determine the relationship between two or more variables with this research so that a theory can be built that can serve to explain, predict, and control a symptom". According to Sugiyono (2019), associative research is a formulation of research problems that asks about the relationship between two or more variables. This study aims to determine the relationship between the district or city minimum wage variable (X1), economic growth (X2), dependency ratio (X3), and employment opportunities (X4) and the open unemployment rate (Y) in Bali Province.

The location of this research was carried out in the Regency / City of Bali Province. This location was chosen due to the consideration of data obtained from the Central Bureau of Statistics which shows that the percentage of unemployment in Bali Province has fluctuated from 2011 to 2022. In addition, Bali Province became one of the provinces with the lowest unemployment rate in Indonesia in 2018.

According to Sugiyono (2017) the definition of a research object is "An attribute or trait or value of people, objects or activities that have certain variations set by researchers to study and then draw conclusions". The object of this research is the open unemployment rate in Bali Province with the variables that influence it, namely district / city minimum wages, economic growth, dependency ratio and employment opportunities.

The number of observations in this study was taken through annual level data. This research uses panel data. This panel data is a combination of two data characteristics, namely cross section and time series. In cross section data which has a total of 9 districts / cities in Bali Province and time series data using 12 years of data starting from 2011-2022. Thus the number of observations that will be made in this study, amounting to 108 data that will be collected from the variable data that will be needed.

The type of data used in this study is quantitative data, namely data measured on a numerical scale (numbers). The data source used in this research is secondary data. Secondary data is data that is already available and collected by other parties. Secondary data in this study were obtained from the Central Bureau of Statistics of Bali Province.

The data needed in this study include:

- 1) Data on the level of open unemployment that occurred by district/city in Bali Province.
- 2) Data on the amount of district / city minimum wages in Bali Province
- 3) Data on the amount of economic growth by district / city in Bali Province
- 4) Data on the dependency ratio/city in Bali Province
- 5) Data on the number of working population by district/city in Bali Province

The method used in data collection is a literature study. Literature study is a technique to obtain information through records, literature, documentation, and others that are still relevant in this study. The data used in this research is secondary data obtained in the form of figures from the Central Statistics Agency (BPS) of Bali Province. The data obtained is in annual form for each variable.

### IV. RESEARCH RESULTS AND DISCUSSION

**Table 4.1 Open Unemployment Rate by Regency/City in Bali Province 2011-2022**

Year	Jembrana	Tabanan	Badung	Gianyar	Klungkung	Bangli	Karangasem	Buleleng	Denpasar
2011	3.53	2.80	2.28	2.11	2.35	0.81	2.70	3.28	4.56
2012	1.97	2.18	1.67	1.81	2.09	0.90	1.31	3.13	2.57
2013	3.46	0.80	0.80	2.23	2.08	0.77	1.39	2.15	2.72
2014	2.95	2.25	0.48	1.43	1.94	0.67	2.06	2.74	2.32
2015	1.59	1.73	0.34	1.93	1.39	1.72	2.15	2.04	3.54
2016	1.13	1.76	0.41	1.48	1.17	1.10	1.40	2.20	3.00
2017	0.67	1.79	0.48	1.02	0.94	0.48	0.72	2.41	2.63

## Analysis of the Factors That Influence the Level of Open Unemployment in the Province of Bali

<b>2018</b>	1.41	1.45	0.46	1.61	1.47	0.81	1.03	1.88	1.87
<b>2019</b>	1.44	1.29	0.40	1.46	1.57	0.75	0.62	3.12	2.29
<b>2020</b>	4.52	4.21	6.92	7.53	5.42	1.86	2.42	5.19	7.62
<b>2021</b>	4.11	3.94	6.93	6.90	5.35	1.80	2.32	5.38	7.02
<b>2022</b>	3.94	3.83	6.87	6.78	1.96	0.76	3.09	5.20	5.08

*Source: Central Bureau of Statistics 2011 – 2022*

The development of the open unemployment rate in Bali Province from 2011 to 2022 experienced fluctuations. From 2011 to 2022, the most frequent increase in the percentage of unemployment occurred in Buleleng Regency. In a period of 12 years, there were six increases in the percentage of unemployment in Buleleng Regency. Then Karangasem Regency experienced five increases in the percentage of unemployment. Four regencies and one city experienced four increases in the percentage of unemployment, namely Jembrana, Tabanan, Badung, Gianyar, and Denpasar City. Klungkung and Bangli regencies experienced three increases in the percentage of unemployment within 11 years, from 2011 to 2022. In most regencies and cities in Bali Province, the increase in the percentage of unemployment in 2020 was the highest from 2011 to 2022. Denpasar City is the area with the highest percentage of unemployment in 2020, at 7.62 percent. The high percentage of unemployment will hinder the achievement of the expected economic development goals.

**Table 4.2 Minimum Wage by Regency/City in Bali Province 2011-2022**

<b>Year</b>	<b>Jembrana</b>	<b>Tabanan</b>	<b>Badung</b>	<b>Gianyar</b>	<b>Klungkung</b>	<b>Bangli</b>	<b>Karangasem</b>	<b>Buleleng</b>	<b>Denpasar</b>
<b>2011</b>	927500	910000	1221000	1003625	927000	893000	953750	895000	1191500
<b>2012</b>	1000000	1005000	1290000	1104000	995000	970000	1039600	975000	1259000
<b>2013</b>	1212500	1250000	1401000	1230000	1190000	1182000	1195000	1200000	1358000
<b>2014</b>	1542600	1542600	1728000	1543000	1545000	1542600	1542600	1542600	1656900
<b>2015</b>	1662500	1706700	1905000	1707750	1650000	1622000	1700000	1650000	1800000
<b>2016</b>	1807600	1902970	2124075	1904141	1839750	1808530	1895500	1839750	2007000
<b>2017</b>	2006617	2059965	2299311	2061233	1991529	1957734	2051879	1991529	2173000
<b>2018</b>	2181393	2239500	2499581	2240766	2164992	2128253	2180000	2165000	2363000
<b>2019</b>	2356559	2419332	2700297	2421000	2338840	2299152	2355054	2338850	2553000
<b>2020</b>	2557102	2625217	2930093	2627000	2538000	2494810	2555469	2538000	2770300
<b>2021</b>	2557102	2625217	2930093	2627000	2538000	2494810	2555469	2538000	2770300
<b>2022</b>	2563364	2643779	2961285	2656009	2540848	2516971	2555470	2542312	2802926

*Source: Central Bureau Statistics, 2022*

Based on MSE data in all districts / cities of Bali Province from 2011 to 2022, there has always been an increase. Only 2021 did not experience an increase in MSEs. The increase in MSEs from 2010 to 2022 varies. The highest increase in MSEs in all districts / cities occurred in 2014, which increased above 250,000.

Badung Regency has the highest minimum wage in Bali Province from 2011 to 2022. Meanwhile, the MSE of Bangli Regency was the lowest from 2011 to 2022. In 2016, only Badung Regency and Denpasar City had MSEs above two million rupiah. Meanwhile, the other 7 districts still had MSEs of around one million rupiah. Then in 2018, all districts/cities in Bali Province had a minimum wage above two million rupiah. The nominal difference in MSEs in all districts/cities in Bali Province is due to differences in economic growth in each district/city.

**Table 4.3 Economic Growth by Regency/City in Bali Province 2011-2022**

<b>Year</b>	<b>Jembrana</b>	<b>Tabanan</b>	<b>Badung</b>	<b>Gianyar</b>	<b>Klungkung</b>	<b>Bangli</b>	<b>Karangasem</b>	<b>Buleleng</b>	<b>Denpasar</b>
<b>2011</b>	5.89	6.11	7.07	7.15	6.11	6.14	5.43	6.44	7.16
<b>2012</b>	6.11	6.12	7.64	7.08	6.25	6.20	5.93	6.78	7.51
<b>2013</b>	5.69	6.45	6.82	6.82	6.05	5.94	6.16	7.15	6.96
<b>2014</b>	6.05	6.53	6.98	6.80	5.98	5.83	6.01	6.96	7.00
<b>2015</b>	6.19	6.19	6.24	6.30	6.11	6.16	6.00	6.07	6.14
<b>2016</b>	5.96	6.14	6.81	6.31	6.28	6.24	5.92	6.02	6.51
<b>2017</b>	5.28	5.37	6.08	5.46	5.32	5.31	5.06	5.38	6.05



## Analysis of the Factors That Influence the Level of Open Unemployment in the Province of Bali

2018	5.59	5.71	6.73	6.01	5.48	5.48	5.44	5.60	6.42
2019	5.56	5.58	5.81	5.62	5.42	5.45	5.50	5.51	5.82
2020	-4.98	-6.17	-16.55	-8.39	-6.38	-4.10	-4.49	-5.80	-9.44
2021	-0.65	-1.98	-6.74	-1.05	-0.23	-0.33	-0.56	-1.27	-0.92
2022	2.98	2.94	9.97	4.04	3.12	2.79	2.58	3.11	5.06

Source: Central Bureau Statistics, 2022

Based on data on economic growth by district or city in Bali Province, there were fluctuations from 2011 to 2022. From 2011 to 2022, there was an increase in the percentage of economic growth as high as six times in the districts of Tabanan, Badung, Klungkung Bangli, Karangasem, and Denpasar City. Then there was an increase of five times in the districts of Jembrana and Buleleng. The lowest percentage increase in economic growth was in Gianyar Regency, which was four times. In 2020, all districts and cities experienced a decrease in the percentage of economic growth due to the COVID-19 pandemic.

**Table 4.4 Dependency Ratio by Regency/City in Bali Province 2011-2022**

Year	Jembrana	Tabanan	Badung	Gianyar	Klungkung	Bangli	Karangasem	Buleleng	Denpasar
2011	47.65	45.70	43.50	46.85	53.43	53.25	56.29	52.59	38.44
2012	47.32	45.41	43.28	46.61	53.08	52.95	55.97	52.26	38.22
2013	47.01	45.14	43.07	46.39	52.75	52.66	55.66	51.93	38.01
2014	46.72	44.90	42.89	46.19	52.45	52.38	55.36	51.63	37.82
2015	46.33	44.61	42.63	45.90	52.06	52.01	54.96	51.22	37.56
2016	45.90	44.29	42.32	45.56	51.63	51.60	54.49	50.76	37.25
2017	45.35	43.88	41.90	45.12	51.10	51.07	53.90	50.16	36.84
2018	44.83	43.53	41.50	44.71	50.61	50.58	53.35	49.59	36.44
2019	44.36	43.22	41.12	44.33	50.17	50.13	52.83	49.07	36.05
2020	43.91	42.95	40.75	43.97	49.79	49.73	52.35	48.58	35.66
2021	42.93	42.08	39.49	41.84	46.39	44.24	48.20	44.50	37.48
2022	42.71	42.07	39.31	41.77	46.48	44.25	46.84	44.32	37.22

Source: Central Bureau Statistics 2011-2022

Based on data on the dependency ratio by district or city in Bali Province, it shows a decrease in the dependency ratio in all districts and cities from 2011 to 2022. All districts and cities in Bali Province experienced a decrease in the dependency ratio, reaching a level below 50 percent in 2020. The lowest dependency ratio is in Denpasar City, at 35.66 percent. Only Karangasem Regency has a dependency ratio above 50 percent in 2020, which is 52.35 percent. 2021 was the year with the highest decrease in dependency ratio in most districts in Bali Province. A total of six districts or cities achieved a decrease of more than 1 percent. Meanwhile, Jembrana and Tabanan Regencies were only able to reduce the dependency ratio below 1 percent. Only Denpasar City experienced an increase in the dependency ratio in 2021. The dependency ratio in Denpasar City in 2020 was 35.66 percent and increased in 2021 to 37.48 percent. The decrease in the dependency ratio every year shows the lower dependency of the productive-age population on the unproductive population in Bali Province.

**Table 4.5 Employment Opportunities by Regency or City in Bali Province, 2011-2022**

Year	Jembrana	Tabanan	Badung	Gianyar	Klungkung	Bangli	Karangasem	Buleleng	Denpasar
2011	146869	244038	302822	258004	92772	139202	232241	332090	411120
2012	152066	261379	319930	266747	96527	141782	238928	348514	426602
2013	135611	262044	325012	262409	99416	140122	242195	345423	429844
2014	142086	262006	322913	265787	100803	143857	240451	333594	461135
2015	142434	264113	338816	283779	104130	135709	241983	345326	468515
2016	152550	255434	341023	292075	104051	139134	240363	351717	485212
2017	162665	246754	343229	300370	103972	142559	238742	358107	501909
2018	162872	274282	364318	310651	106942	148423	256342	375393	526484
2019	143403	270736	382119	303944	105314	145481	254667	339818	523524
2020	158203	265435	367619	270591	101058	143650	252869	362851	501143

## Analysis of the Factors That Influence the Level of Open Unemployment in the Province of Bali

2021	171760	266889	376637	270510	98691	144897	256630	355940	499900
2022	172282	276569	388428	314934	112973	150045	270291	371334	550214

Source: Central Bureau Statistics 2011-2022

Based on data on employment opportunities in Bali Province, the number of people working in Bali Province from 2011 to 2022 fluctuates. Klungkung and Tabanan regencies are the areas that most often experience a decrease in the number of working people. Over a period of 12 years, there were six decreases in the working population. Meanwhile, Jembrana Regency is the region that most often experiences an increase in the number of working people. Over a period of 12 years, there have been 10 increases in the number of working people.

In 2012 and 2018, all districts and cities in Bali Province simultaneously experienced an increase in the working population. Tabanan Regency is the area with the largest increase in the working population in Bali Province. Then in 2021, five districts experienced an increase in the working population, namely Jembrana, Tabanan, Badung, Bangli, and Karangasem. Meanwhile, four districts actually experienced a decrease in the working population, namely Gianyar, Klungkung, Buleleng, and Denpasar City.

### ANALYSIS RESULTS

#### DESCRIPTIVE ANALYSIS

Descriptive statistical analysis in research aims to provide an overview of research data consisting of the number of observations, minimum value, maximum value, average value, and standard deviation. Descriptive statistical analysis in this study using STATA 14.

Table 4.6 Descriptive Analysis Results

Variable		Mean	Std. Dev.	Min	Max	Observations
Y	overall	2.485093	1.789862	.34	7.62	N = 108
	between	.8048926	1.035833	3.768333		n = 9
	within	1.619369	.4809259	7.078426		T = 12
X1	overall	1926759	597032.6	893000	2961285	N = 108
	between		112783	1825822	2165811	n = 9
	within		587397.3	925902.2	2722233	T = 12
X2	overall	4.198982	4.349937	-16.55	9.97	N = 108
	between		.1835362	3.905	4.5225	n = 9
	within		4.346462	-16.25602	10.26398	T = 12
X3	overall	46.41102	5.263148	35.66	56.29	N = 108
	between		5.107339	37.24917	53.35	n = 9
	within		2.073026	39.90102	49.35102	T = 12
X4	overall	263685.8	115686.6	92772	550214	N = 108
	between		120401.5	102220.8	482133.5	n = 9
	within		19420.43	192672.3	331766.3	T = 12

Based on the results of the descriptive analysis in Table 4.6, the number of observations in this study is 108, which are included in the panel data with time series data during 2011–2022 (12 years) and cross-section data for 9 regencies and cities in Bali Province. Table 4.6 shows that the district or city minimum wage variable (X1) has the lowest or minimum value of 893000, or IDR 893,000, where the district or city minimum wage with this lowest value occurred in 2011 in Bangli district and the highest (maximum) value of IDR 2,961,285 occurred in 2022 in Badung district. The average value (mean) of the minimum wage, namely 1,926,759 with a standard deviation of 597032.6, shows that the average value of the district or city minimum wage is greater than the standard deviation, which means that the deviation is smaller than the average value, so it can be concluded that the average of all data on the district or city minimum wage variable can describe all variables with good conditions.

The economic growth variable (X2) has the lowest (minimum) value of -16.55 percent, where the lowest economic growth occurred in 2020 in Badung district and the highest (maximum) value of 9.97 percent occurred in 2022 in Badung district. The average value (mean) of the economic growth variable is 4.198982 percent with a standard deviation of 4.349937. This shows that the average value of economic growth is smaller than the standard deviation, which means that the deviation is greater than the average value, so it can be concluded that the average of all data on economic growth variables can describe all variables with poor conditions.

The dependency ratio variable (X3) has the lowest (minimum) value of 35.66 percent, where the lowest dependency ratio occurred in 2020 in Denpasar city and the highest (maximum) value of 56.29 percent occurred in 2011 in Karangasem district. The average value (mean) of the dependency ratio variable is 46.41102 percent with a standard deviation of 5.263148. This shows that the average value of the dependency ratio is greater than the standard deviation, which means that the deviation is smaller than the average value, so it can be concluded that the average of all data on economic growth variables can describe all variables with good conditions.

The employment opportunity variable (X4) has the lowest (minimum) value of 92,772, where the lowest employment opportunity occurred in 2011 in Klungkung district and the highest (maximum) value of 550,214 occurred in 2022 in Denpasar city. The average value (mean) of the employment opportunity variable is 263685.8 with a standard deviation of 115686.6. This shows that the

## Analysis of the Factors That Influence the Level of Open Unemployment in the Province of Bali

average value of employment opportunities is greater than the standard deviation, which means that the deviation is smaller than the average value, so it can be concluded that the average of all data on the employment opportunity variable can describe all variables with good conditions.

The open unemployment rate variable (Y) has the lowest (minimum) value of 0.34 percent, where the lowest open unemployment occurred in 2015 in Badung district and the highest (maximum) value of 7.62 percent occurred in 2020 in Denpasar city. The average value (mean) of the open unemployment variable is 2.485093 with a standard deviation of 1.789862. This shows that the average value of open unemployment is greater than the standard deviation, which means that the deviation is smaller than the average value, so it can be concluded that the average of all data on the open unemployment variable can describe all variables with good conditions.

### PANEL DATA RESULTS

Panel data analysis is a research method that uses panel data in its research. There are several methods used in panel data analysis techniques, namely the common effect model, fixed effect model, and random effect model. Model selection depends on the assumptions used by researchers and the fulfillment of the correct statistical data processing requirements so that it can be accounted for statistically. Therefore, the first thing to do is to choose the right model from the three existing models. 1) Common Model Panel Data Regression Test Result Equation

The Common model panel data regression results are shown in Appendix-. When put into the equation, it is shown as follows:

$$\begin{aligned}\widehat{Y}_{it} &= 11,84419 - 0,8005582LnX_{1it} - 0,2768389X_{2it} - 0,0850541X_{3it} + 0,5891339LnX_{4it} \\ Se &= (8,53898) (0,4457792) (0,0328616) (0,0308311) (0,3156092) \\ t &= (1,39) (-1,80) (-8,42) (-2,76) (1,87) \\ Prob. &= (0,168) (0,075) (0,000) (0,007) (0,065) \\ R^2 &= 0,5243 \\ F &= 28,38\end{aligned}$$

Description:

Y = Open Unemployment Rate

X1 = District/City minimum wage

X2 = Economic Growth

X3 = Dependency Ratio

X4 = Employment Opportunities

Based on the Common Model Panel Data Regression Test Results in Appendix 2, it shows that the district or city minimum wage has no significant effect on the open unemployment rate, which is indicated by a probability value of 0.075, which is greater than the significance level of 0.05. Economic growth has a significant effect on the open unemployment rate, as indicated by a probability value of 0.000, which is smaller than the significance level of 0.05. Dependency ratio has an effect on the open unemployment rate, as indicated by a probability value of 0.007, which is smaller than the significance level of 0.05. Employment opportunity has no significant effect on the open unemployment rate, as shown by a probability value of 0.065, which is greater than the significance level of 0.05.

### 2) Equation of Panel Data Regression Test Results Fixed Model

The fixed model panel data regression results are shown in Appendix 2. When put into the equation, it is shown as follows:

$$\begin{aligned}\widehat{Y}_{it} &= 32,13866 - 1,210807LnX_{1it} - 0,2682044X_{2it} - 0,2179161X_{3it} + 0,774165LnX_{4it} \\ Se &= (30,07483) (0,6291596) (0,0308537) (0,08651) (2,620234) \\ t &= (1,07) (-1,92) (-8,69) (-2,52) (-0,03) \\ Prob. &= (0,288) (0,057) (0,000) (0,013) (0,976) \\ R^2 &= 0,4676 \\ F &= 28,95\end{aligned}$$

Description:

Y = Open Unemployment Rate

X1 = District/City minimum wage

X2 = Economic Growth

X3 = Dependency ratio

X4 = Employment Opportunities



## Analysis of the Factors That Influence the Level of Open Unemployment in the Province of Bali

Based on the results of the fixed model panel data regression test in Appendix 2, it shows that the district or city minimum wage has no significant effect on the open unemployment rate, which is indicated by a probability value of 0.057, which is greater than the significance level of 0.05. Economic growth has a significant effect on the open unemployment rate, as indicated by a probability value of 0.000, which is smaller than the significance level of 0.05. Dependency ratio has a significant effect on the open unemployment rate, as indicated by a probability value of 0.013, which is smaller than the significance level of 0.05.

Employment opportunity does not have a significant effect on the open unemployment rate, as indicated by a probability value of 0.976, which is greater than the significance level of 0.05.

After the regression results using the common and fixed models are obtained, the next step is to conduct a test to determine which estimation model is more appropriate between the common and fixed models. In determining between the two models, the Chow test is used as a panel data regression model selection test.

The Chow test is a test to determine whether the common effect or fixed effect model is more appropriate to use in estimating panel data. The provisions in the Chow Test are as follows:

1. If the probability values of cross-section F and cross-section Chi-square  $\geq 0.05$ , then  $H_0$  is accepted, and the regression model chosen is the common effect model (CEM)
2. If the probability values of cross-section F and cross-section Chi-square  $\leq 0.05$ , then  $H_0$  is rejected, and the regression model chosen is the fixed effect model (FEM)

In the Chow test results, which will state that  $H_0$  is accepted, then in the panel data regression technique that uses the common effect model, testing will stop here. If the Chow test result states that  $H_0$  is rejected, the next step will be carried out, which will carry out the Hausman test in determining the fixed model or random model to be used.

**Table 4.7 Chow Test Results**

<b>F( 8, 95) = 3.44</b>
<b>Prob &gt; F = 0.0016</b>

*Source: Appendix 2*

The test results with the Chow test in table 4.7 show that the cross-section Chi-square probability value of 0.0016 is smaller than 0.05 ( $0.0016 < 0.05$ ), which means that  $H_0$  is rejected and  $H_1$  is accepted, so the right and best model is the fixed effect model. Because the Chow test selected uses a fixed model, it is necessary to conduct further testing with the Hausman test to determine the fixed or random model used.

### 3) Equation of Panel Data Regression Test Results Random Model

The random model panel data regression results are shown in Appendix 2. When put into the equation, it is shown as follows:

$$\widehat{Y}_{it} = 17,2177 - 0,8701431LnX_{1it} - 0,2743058X_{2it} - 0,1206037X_{3it} + 0,3684822LnX_{4it}$$

$$Se = (11,45724) (0,4390673) (0,0302258) (0,0505949) (0,5713098)$$

$$t = (1,50) (-1,98) (-9,08) (-2,38) (0,64)$$

$$Prob. = (0,133) (0,048) (0,000) (0,017) (0,519)$$

$$R^2 = 0,5188$$

$$F = 119,27$$

Description:

Y = Open Unemployment Rate

X1 = District/City minimum wage

X2 = Economic Growth

X3 = Dependency ratio

X4 = Employment Opportunities

Based on the results of the random model panel data regression test in the Appendix, it shows that the district or city minimum wage has a significant effect on the open unemployment rate, as indicated by a probability value of 0.048, which is smaller than the significance level of 0.05. Economic growth has a significant effect on the open unemployment rate, as indicated by a probability value of 0.000, which is smaller than the significance level of 0.05. Dependency ratio has a significant effect on the open unemployment rate, as indicated by a probability value of 0.017, which is smaller than the significance level of 0.05.

## Analysis of the Factors That Influence the Level of Open Unemployment in the Province of Bali

Employment opportunity does not have a significant effect on the open unemployment rate, as indicated by a probability value of 0.519, which is greater than the significance level of 0.05.

**Table 4.8 Hausman Test**

<b>chi2(4)</b>	<b>= (b-B)'[(V_b-V_B)^(-1)](b-B)</b>
	<b>= 2.29</b>
<b>Prob&gt;chi2</b>	<b>= 0.6833</b>

The test results with the Hausman test in table 4.8 show that the cross-section random probability value of 0.6833 is greater than 0.05 ( $0.6833 > 0.05$ ), which means that H1 is rejected and H0 is accepted, so the right and best model is the random effect model. In the Hausman test results, choose to use a random model. Based on the results of model selection in panel data analysis, to assess the panel data regression test using a random model in determining the decision of the results of this study.

### CLASSICAL ASSUMPTION TEST RESULTS

Because the model results obtained are random effects, according to Gujarati and Porter, there is no need to test classical assumptions because the random effect model is an estimation method that uses generalized least squares (GLS). One of the advantages of the GLS method is that it does not need to fulfill classical assumptions. The GLS technique is believed to overcome the autocorrelation of time series and the correlation between observations (cross-section). The GLS method produces estimators that fulfill the best linear unbiased estimation (BLUE) properties. So, if the regression model uses random effects, there is no need to test classical assumptions. Conversely, if a common effect or fixed effect regression model is used, a classic assumption test needs to be performed (Melati & Suryowati, 2018).

### DISCUSSION RESULTS

#### The Effect of Regency/City Minimum Wage on Open Unemployment Rate in Bali Province

The statistical results show that during the period 2011–2022, the district/city minimum wage had a significant effect on the open unemployment rate in Bali Province. The regression coefficient of the district/city minimum wage variable, which is 0.8701431, means that if there is an increase in the district/city minimum wage in Bali Province by one percent, the open unemployment rate (Y) in Bali Province will decrease by 0.870143 percent.

Based on the negative coefficient, this can be related to the existing theory, in which the statement of Bruce E Kaufman and Julie L Hotchkiss (1999) states that if a labor force sets a certain wage as the minimum wage, then if all wages offered are below that wage level, someone will refuse to get that wage and cause unemployment. If the wage set in a region is too low, it will result in a high unemployment rate in that region.

The results of this study are in line with research conducted by Prakoso (2021). In his research, he stated that the Regency/City Minimum Wage (UMK) variable affects the unemployment rate significantly and negatively. Which means that every increase in MSEs will reduce the number of unemployed people in Indonesia. The reason for this can be said to be because the MSE set by the government continues to increase, which increases people's purchasing power.

#### Effect of Economic Growth on Open Unemployment Rate in Bali Province

The statistical results show that during the period 2011–2022, economic growth had a negative and significant effect on the open unemployment rate in Bali Province. The coefficient on the regression of the economic growth variable of -0.2743058 means that if there is an increase in economic growth in Indonesia by one percent, the open unemployment rate (Y) in Bali Province will decrease by 0.2743058 percent.

Based on the negative coefficient, this can be related to the existing theory, where the statement of Okun's Law explains that the unemployment rate has a negative relationship with the growth of GDP, or gross domestic product. Economic growth is a reflection of the economic conditions in a region. High economic growth can trigger economic activity. In other words, an increase in economic activity in a region will tend to increase the productivity of a company and will tend to open employment opportunities for labor, so that later it is expected to reduce the unemployment rate. The results of this study are in line with the results of research by Muhammad Nurcholis (2014), which states that the economic growth variable has a negative and significant effect on the open unemployment rate.

#### Effect of Dependency ratio on Open Unemployment Rate in Bali Province

The statistical results show that during the period 2011–2022, the dependency ratio had a significant effect on the open unemployment rate in Bali Province. The regression coefficient of the dependency ratio variable, which is -0.1206037, means that if there is an increase in the dependency ratio in Bali Province by 1 percent, the open unemployment rate (Y) in Bali Province will decrease by 0.1206037 percent.

## **Analysis of the Factors That Influence the Level of Open Unemployment in the Province of Bali**

Based on the negative coefficient, this is not in accordance with the existing theory, in which the statement expressed by Frederick & Stamper states that a low level of dependency ratio or dependency will lead to a tendency to save and high capital investment because the non-productive age population borne by the productive age population is getting smaller so that there is an increased level of investment and increased employment opportunities through the opening of new jobs. As a result, there will be a decrease in the unemployment rate.

The results of this study are in line with research conducted by Dewi Kartika Sari (2017). In her research, she stated that dependency ratio and dependency have a negative and significant effect on the open unemployment rate. This means that if the dependency ratio or dependency is higher, the open unemployment rate will decrease.

### **Effect of Employment Opportunity on Open Unemployment Rate in Bali Province**

The statistical result shows that during the period of 2011–2022, employment opportunities had an insignificant effect on the open unemployment rate in Bali Province. The regression coefficient of the employment opportunity variable, which is equal to 0.3684822, means that if there is an increase in employment opportunity in Bali Province by one percent, then the open unemployment rate (Y) in Bali Province will increase by 0.870143 percent.

The results of this study are in line with research conducted by Diena Fadhillah and Nurlinda (2018). In their research, they stated that employment opportunities have a positive and insignificant effect on the open unemployment rate. This means that if employment opportunities are high, the open unemployment rate will increase. The number of company classifications that cannot be fulfilled by job seekers causes unemployment to increase. One of them is work experience in accordance with the job position; someone who does not have work experience cannot fulfill the classification, so it can cause an increase in the number of existing unemployed.

## **V. RESEARCH IMPLICATIONS**

### **Theoretical Implications**

The results of this study can contribute to the provision of information and insight into the influence of district/city minimum wages, economic growth, dependency ratio, and employment opportunities on the level of open unemployment in Bali Province. The results of this study indicate that the district or city minimum wage has a negative and significant effect on the open unemployment rate in Bali Province. This means that if the district or city minimum wage increases, the open unemployment rate decreases. This condition requires cooperation between the three parties, namely the government, employers, and workers, so that the district or city minimum wage set is not detrimental to employers but also not detrimental to the workforce.

The results of this study indicate that economic growth has a negative and significant effect on open unemployment in Bali Province. This means that if economic growth increases, the level of open unemployment in Bali Province decreases. With economic growth that is able to reduce unemployment, the policies implemented by the local government have shown progress in solving problems related to unemployment. The policy of prioritizing the development of sectors that are oriented towards the development of sectors that are considered to absorb quite a lot of labor and use labor-intensive production patterns is an important indicator of reducing unemployment. The development of the tourism sector is believed to contribute quite a lot to the absorption of labor, which in turn has an impact on reducing unemployment.

The results showed that the dependency ratio has a negative and significant effect on the open unemployment rate in Bali Province. Which means that if there is an increase in the dependency ratio in Bali Province, the open unemployment rate in Bali Province will decrease. The low quality of human resources makes it difficult to get a job in Bali Province. Improving the quality of human resources is an important step to improving the lives of the population, especially in the fields of education and health.

The results showed that employment opportunities had a positive and insignificant effect on the open unemployment rate in Bali Province. By expanding or increasing employment opportunities, it will reduce the number of cases of open unemployment because many laborers will be absorbed. However, the number of company classifications that cannot be fulfilled by job seekers causes unemployment to increase.

### **PRACTICAL IMPLICATIONS**

The results of this study can be used as input or as the basis for decision-making by the government to reduce the open unemployment rate in Bali Province. To reduce the open unemployment rate, the government should be more aggressive in opening or expanding job opportunities for workers. In addition, the government should maximize improving the quality of human resources through education and training. The provision of health insurance for workers in order to improve the quality of human resources. With the expansion of employment opportunities, guaranteed education or training, and the provision of health insurance, it can reduce the unemployment rate in Bali Province.

## **CONCLUSIONS**

## Analysis of the Factors That Influence the Level of Open Unemployment in the Province of Bali

Based on the results of the analysis and discussion previously described, conclusions can be drawn to answer the problem formulation of this study as follows:

- 1) The minimum wage, economic growth, dependency ratio, and employment opportunities simultaneously have a significant effect on the open unemployment rate in Bali Province.
- 2) The district or city minimum wage partially has a negative and significant effect on the open unemployment rate in Bali Province.
- 3) Economic growth partially has a negative and significant effect on the open unemployment rate in Bali Province.
- 4) Dependency ratio partially has a negative and significant effect on the open unemployment rate in Bali Province.
- 5) Employment opportunity partially has a positive and insignificant effect on the level of open unemployment in Bali Province.

## SUGGESTIONS

Based on the research results and conclusions above, the following suggestions can be made:

- 1) The determination of MSEs by the government needs to take into account the abilities of all sectors. Not all sectors are able to provide wages according to the MSE, especially the informal sector. Therefore, a policy of assistance for informal sector business development. Attention is also needed for businesses that have low wages, such as the agricultural sector. The agricultural sector is dominated by workers from poor families. Technology utilization education and agricultural development education are needed so that farmers can come up with new innovations for their agriculture.
- 2) An increase in the productive-age population can be an opportunity or a threat to the economy and the welfare of society. Government policies in the areas of health, economy, social security, and family planning need to be improved. Policies related to young marriage age and family planning need to be more intensively socialized, as well as providing social security to the elderly who work, so as to reduce the dependence of the unproductive population on the productive population.
- 3) Considering that employment plays an important role in the economy, policies that support the increase of employment opportunities are needed. Therefore, special attention is needed to improve the quality of the productive population and increase the number of jobs in all sectors. To improve the quality of the population, it can be done by developing education and organizing job training. To increase the number of jobs, it can be done by providing entrepreneurship training so that people can create their own businesses.

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