International Journal of Management Research and Economics
Volume. 2 No. November 4, 2024
e-ISSN: 2986-7045, and p-ISSN: 2986-7398, Page. 524-547
DOI: https://doi.org/10.54066/ijmre-itb.v2i4.2703
Available online at: https://jurnal.itbsemarang.ac.id/index.php/Ijmre

The Influence of Education Level, Population, and Wages on Employment Absorption in Regencies/Cities of Bali Province

I Nyoman Agus Wiranata[1], Ni Made Tisnawati[2]
Faculty of Economics and Business, Udayana University, Bali, Indonesia
E-mail:Agus.wiranata032@student.unud.ac.id

Abstract. *Labor absorption is an important issue in the development of a region. Labor can be used as a benchmark for success in the development of a region. This study aims to analyze the effect of education level, population, and wages on labor absorption in the districts/cities of Bali Province using secondary data from 2017-2023. Data collection uses the observation method and is analyzed using panel data regression with the help ofsoftwareE-Views 12. The results of the study indicate that the level of education, population, and wages simultaneously have a significant effect on labor absorption. Partially, the level of education has a negative but not significant effect on labor absorption, the population has a significant positive effect on labor absorption, and wages have a significant negative effect on labor absorption. The district/city governments in Bali Province should pay more attention to the education sector, by increasing the quality of education through the development of infrastructure and supporting facilities, it is hoped that this will be able to increase labor absorption which will ultimately encourage economic development. In addition, the district/city governments of Bali Province must be more sensitive to the potential of their respective regions so that existing funds can be utilized properly to improve people's standard of living through income equality.*

Keywords: *Labor Absorption; Education Level; Population;Wages;*

INTRODUCTION

Economic development is a series of efforts and policies that aim to improve people's standard of living, equalize people's income, expand employment opportunities, improve regional economic relations and understand the shift in the structure of economic activities from the primary sector to the secondary and tertiary sectors (Mulyaputri & Kartika, 2020). The aspect that plays an important role in driving the success of economic development is the employment aspect. The employment aspect is expected to be able to support economic development, but in reality this employment aspect still experiences problems in it. Employment problems cannot be separated from human resource development and labor absorption. Labor absorption is an important problem in the development of a region. The workforce can be used as a benchmark for success in the development of a region. Employment conditions can also describe economic and social conditions, even the level of welfare of the population in an area within a certain period of time (Mahendra & Arka, 2021).

Kuncoro (2002) stated that labor absorption is the number of jobs that have been filled which is reflected in the number of people working. According to Simanjuntak (1985; 13) and Handoko (1985; 18), labor absorption is influenced by internal and external factors. Internally it is influenced by wage levels, education/labor productivity, capital (technology), population and other non-wage expenditures. While externally it is influenced by the level of economic

Received September 30 , 202 4 ; Revised October 30, 2024; Accepted November 18 , 2024; Online Available November 21 , 2024

growth, inflation rate, unemployment and interest rate. The amount of ability to absorb labor is not the same between one sector and another (Sumarsono, 2003). If the amount of labor absorption is comparable to the available job opportunities then there will be no unemployment, but if labor absorption is smaller than the available job opportunities then unemployment will arise (Feriyanto, 2020: 73-74). The increasing unemployment rate will increase poverty, crime rates, decrease the level of prosperity and public health, and development will also be hampered, therefore the government needs to provide as many job opportunities as possible and is expected to be able to absorb the existing workforce.

Bali Province is one of the regions with rapid economic growth. Despite its rapid economic growth, Bali Province still experiences problems related to labor absorption, this is influenced by its densely populated area and Bali Province is often used as a destination for migration or urbanization by residents from other areas. This can affect employment conditions which cause the number of productive age population to increase, so that the opportunity to get a job will be increasingly difficult and the number of unemployed will increase (Budiarto & Dewi, 2015). One of the goals of development is to create as many job opportunities as possible so that the available workforce can be properly absorbed (Rimbawan, 2012). The number of available workforce must be utilized properly in order to accelerate development, if the number of available workforce cannot be properly absorbed it will result in an increase in the number of unemployed which will cause development inequality between regions. Data on the working population in the districts/cities of Bali Province can be seen in table 1.

Table 1. Population Employment Rate in Regency/City of Bali Province (Percent)

Regency/City	2018	2019	2020	2021	2022	2023
Jembrana Regency	0.13	-11.95	10.32	8.57	0.30	14.83
Tabanan Regency	11.16	-1.29	-1.96	0.55	3.63	0.20
Badung Regency	6.14	4.89	-3.79	2.45	3.13	-16.48
Gianyar Regency	3.42	-2.16	-10.97	-0.03	16.42	0.73
Klungkung Regency	2.86	-1.52	-4.04	-2.34	14.47	14.95

Bangli Regency	4.11	-1.98	-1.26	0.87	3.55	14.03
Karangasem Regency	7.37	-0.65	-0.71	1.49	5.32	18.95
Buleleng Regency	4.83	-9.48	6.78	-1.90	4.32	22.91
Denpasar City	4.90	-0.56	-4.28	-0.25	10.06	-23.23
Bali Province	**5.31**	**-2.24**	**-1.85**	**0.76**	**6.77**	**0.41**

Source: Central Statistics Agency of Bali Province, 2024

Table 1 shows the rate of working population in the regencies/cities of Bali Province from

2018-2023. In 2018, all regencies/cities experienced an increase in the working population with Tabanan Regency having the highest increase in that year, namely 11.16%, very far compared to Jembrana Regency which only experienced an increase of 0.13%. In 2019, almost all regencies/cities experienced a decrease in the working population, with Jembrana Regency experiencing the highest decrease, namely 11.95%. Badung Regency actually experienced an increase of 4.89%. In 2020, there were six regencies and one city that experienced a decrease in the number of working population, this was due to the Covid-19 pandemic which caused many workers to be laid off. Gianyar Regency was the regency that experienced the most significant decrease in the working population that year, namely 10.97% due to its high dependence on the tourism sector. In contrast to Buleleng Regency and Jembrana Regency, which are not too dependent on the tourism sector, they actually experienced an increase in the working population of 6.78% for Buleleng Regency and 10.32% for Jembrana Regency. In 2021, there were five regencies that experienced an increase in the working population with Jembrana Regency experiencing the highest increase that year, namely 8.57%, in contrast to three other regencies and one city that experienced a decrease in the working population with a figure that was not too large.

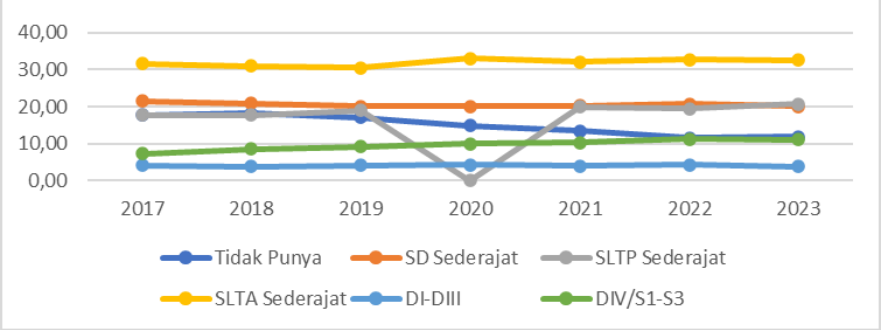
In 2022, all regencies/cities experienced an increase in the working population with Gianyar Regency, Klungkung Regency, and Denpasar City experiencing the most significant increase with an increase of over 10%, compared to other regencies which only experienced an increase of under 5.33%. In 2023, there were seven regencies that experienced an increase in the working population with Buleleng Regency experiencing the highest increase of 22.91%. In contrast to Badung Regency and Denpasar City which experienced a significant decrease in the working population, namely Badung Regency by 16.48% and Denpasar City by 23.23%.

Based on these data, it can be concluded that Bali Province is still experiencing problems related to fluctuating and uneven labor absorption between regions.

Labor market theory (Labor Market Theory) states that education level, wages, and population are the main factors that influence labor absorption. Education level increases the skills and productivity of the workforce, thereby increasing demand for them. Higher wages attract more labor into the market and increase motivation and productivity. An increasing population causes an increase in the number of available labor, which has an impact on labor absorption and the production capacity of a region. These three factors interact with each other to influence labor absorption, higher education, competitive wages, and population (labor) play a key role in creating an efficient and productive labor market (Tiller et al., 2014). This theory is in line with research conducted by Ganie (2017) which states that labor absorption can be influenced by education level, population and wage level.

Education plays an important role in shaping the ability of developing countries to create new knowledge, absorb modern technology, produce experts and develop capacity to create sustainable growth and development (Mekdad, et al., 2014). Education is used to prepare the workforce for work. For example, if education in terms of quality increases, workers can increase their productivity and this will have an impact on economic growth (Hasmawati, et al., 2021). The education and training that a person has will increase their skills and abilities, so that productivity will also increase (Nurkholis, 2018). With increased productivity through increased education, the opportunity for the workforce to be absorbed by the job market will increase.

Kemnaker (2021:21) stated that the high unemployment rate, despite increasing job opportunities, shows two main indications. First, rapid growth in the workforce exceeds the growth in job opportunities. Second, there is a mismatch between the quality of the workforce and the needs of the labor market, as indicated by the relatively high proportion of the low-educated workforce. This emphasizes that the level of education plays a very important role in the labor market. Data on the highest educational attainment trends in Bali Province can be seen in Figure 1.



Source: Central Statistics Agency of Bali Province, 2024

Picture 1. Top Trends in Education Completed in Bali Province

Figure 1 shows the trend of the highest education completed in Bali Province from 2017-2023. The figure shows that the majority of the working-age population in Bali Province is dominated by people with lower secondary education, which of course will affect the absorption of labor in Bali Province. This is in line with the labor market theory which states that education has an influence on labor absorption. Research from Rahayu (2020); Kurniawan et.al., (2022); Rahmah & Juliannisa (2022) states that the level of education has a positive coefficient and has a significant effect on labor absorption. However, there are different results from research conducted by Nihayati (2023) which states that the level of education has a significant negative effect on labor absorption.

Malthus (1798) stated that the population tends to grow geometrically (for example, 1, 2, 4, 8, 16, etc.) when there are no significant obstacles that the population can double in a certain period of time if there are no limiting factors that will then affect the opportunities and absorption of labor. This shows that the increasing population causes an increase in the number of available labor which has an impact on increasing the production capacity of a region. The large number of workers can be an obstacle to economic development if the increase in the number of workers is not balanced by an increase in the number of job opportunities (Herman, 2011). This condition can be a fairly big problem related to the increase in the number of unemployed if the increase in the population is not accompanied by an expansion of employment opportunities. Moreover, Kominfo (2020) states that Indonesia is expected to face an era of demographic bonus in 2030 to 2040. The demographic bonus is a period in which the productive age population (15-64 years) will be greater than the non-productive age (65 years and over) with a proportion of more than 60% of the total population of Indonesia.

The demographic bonus needs to be given more attention, considering that the demographic bonus can have two effects on economic development, the positive effect is that

with the abundance of available labor if it can be absorbed properly, it will increase regional productivity. While the negative effect is that if the abundance of available labor cannot be absorbed properly, it will increase the number of unemployed which will ultimately hinder development. This shows that population plays an important role in the labor market and is in line with labor market theory which states that population affects labor absorption. Research conducted by Bloom (1986); Bloom, et al., (2003); Ratnasari & Nugraha (2021); Cleland (2017) shows that population has a significant negative effect on labor absorption. However, there are different results from research conducted by Indah & Kustiawan (2022); Anggraini, et al. (2020); Jagaditha & Yasa (2022) stating that population has a positive effect on labor absorption.

Webb (1912) stated that the introduction or increase of minimum wages will have an impact on labor absorption, if the minimum wage is set above the market equilibrium level, it will cause unemployment because companies are unable and unwilling to employ as many workers as before at higher costs. However, in some cases the minimum wage can increase aggregate demand and labor productivity which in turn will increase labor absorption. Neumark & Wascher (2007) stated that the wage level is a supporting factor in labor absorption. The determination of minimum wage policies in the districts/cities of Bali Province still experiences inequality between regions. Badung Regency is a Regency that has the highest UMK compared to other regions in Bali Province, even the UMK of Badung Regency in 2023 is the 11th highest UMK in Indonesia with an amount of IDR 3,163,837.00, very far compared to Bangli Regency which only has an UMK amount following the UMP of Bali Province in the same year, which is IDR 2,713,672.00.

The existence of inequality in the determination of the UMK policy will affect the conditions of labor absorption between regions where workers will certainly be more interested in working in areas that have a higher UMK. This statement is in line with the labor market theory which states that wages have an influence on labor absorption. Research from Wiasih & Karmini (2021); Elpisah (2022); Putri et al, (2021) states that the wage level has a positive and significant effect on labor absorption. However, there are different results from research conducted by Nihayati (2023); Budiarto & Dewi (2015); Jaya & Kholilah (2020); Utomo (2022) states that wages have a negative effect on labor absorption. Based on empirical conditions and these problems, researchers are interested in analyzing the level of education, population, wages and labor absorption by raising the title "The Effect of Education Level, Population, and Wages on Labor Absorption in Regencies/Cities in Bali Province".

Labor market theory states that education level, population, and wages are the main factors that influence labor absorption. These three factors interact with each other to influence labor absorption, higher education, population (labor), and competitive wages play a key role in creating an efficient and productive labor market (Tiller et al., 2014). The level of education that a person has can cause labor absorption to be unstable. This is based on the incompatibility of the education criteria desired by the company with the level of education possessed by the prospective worker which will ultimately affect labor absorption. This is in line with research from Rahayu (2020); Kurniawan et.al., (2022); Rahmah & Juliannisa (2022) which states that the level of education has a positive coefficient and has a significant effect on labor absorption.

Malthus (1798) stated that population tends to grow geometrically (eg, 1, 2, 4, 8, 16, etc.) when there are no obstacles. This means that the population can double in a certain period of time if there are no limiting factors and then it will affect employment opportunities. This shows that the increasing population causes an increase in the number of available workers so that it has an impact on the production capacity of a region which will increase which will ultimately increase labor absorption. This is in line with research conducted by Indah & Kustiawan (2022); Anggraini, et al. (2020); Jagaditha & Yasa (2022) which states that population has a positive effect on labor absorption.

Labor market theory states that the imbalance in labor absorption in a region is caused by the inflexibility of wages in that region, this shows that wages affect labor absorption in a region (Jarmoÿowicz & Knapiÿska, 2011). Wages are very flexible, which means they react quickly to changes in the relationship between labor supply and demand (Wojciechowska 2005: 95). Higher wages attract more labor into the market and increase motivation and productivity. This is in line with research conducted by Wiasih & Karmini (2021); Elpisah (2022); Putri et al, (2021) which states that wage levels have a positive and significant effect on labor absorption.

RESEARCH METHODS

This study is categorized as associative research (relationship) because it aims to determine the causal influence of the variables studied. The location of this study was conducted in Bali Province which covers nine regencies/cities, namely Jembrana Regency, Tabanan Regency, Badung Regency, Gianyar Regency, Klungkung Regency, Bangli Regency, Karangasem Regency, Buleleng Regency and Denpasar City. This study focuses on four main variables, namely population, education level, wages and labor absorption in regencies/cities in Bali Province. The independent variables in this study are education level (X1it), population

(X2it), and wages (X3it) while the dependent variable is labor absorption in regencies/cities in Bali Province (Yit).

Labor absorption data (Yit) in this study is the population aged 15 years and over who work in the districts/cities of Bali Province in 2017-2023 in units of people.Education Level Data (X1it) in this study uses the average percentage of the population aged 15 years and over according to education completed at least high school or equivalent in the districts/cities of Bali Province in 2017-2023 in percent units. The choice of a minimum high school or equivalent education is due to the policy in the 2015-2019 national medium-term development plan, namely the policy of compulsory education for 12 years or equivalent to high school or equivalent. Population Data (X2it) in this study uses data on the number of workforce in the districts/cities of Bali Province in 2017-2023 which is expressed in people. Wage Data (X3it) in this study is the amount of the district/city minimum wage (UMK) set in the districts/cities of Bali Province in 2017-2023 in rupiah units. The number of observations in this study was in nine districts/cities in Bali Province in the period 2017 to 2023 (7 years), so the sample size is 9 x 7 = 63.

In this study, the quantitative data used are education level, population, wages, and labor absorption in Bali Province, while the qualitative data used are theories and explanations regarding education level, population, wages and labor absorption in Bali Province, as well as government policies related to labor absorption. The data in this study comes from secondary data in the form of data on education level, population, wages, and labor absorption in the districts/cities of Bali Province obtained from the BPS of Bali Province, in addition, it can come from books, journals, internet sites and related literature that supports and provides information regarding the object and research problems collected using the observation method.

This study uses a panel data regression analysis tool in a random effect model processed using E-Views 12 software. The formulation of the panel data regression model equation used is as follows:

$$Y_t = \beta_{it} + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \epsilon_{it}$$

Information:

Y_t = Absorption of labor

X_{1it} = Level of education

X_{2it} = Number of residents

X_{3it} = Wages

β_{it} = Constant

β_1,β_2,β_3 = Regression coefficient

i = Region

t = Time

ϵ_{it} =Error term

RESULTS AND DISCUSSION

In terms of scope, labor absorption is different from employment opportunities. Labor absorption has a wider scope compared to employment opportunities, where labor absorption includes the population aged 15 years and over who are included in the workforce and not in the workforce. While employment opportunities themselves are included in the workforce, more precisely the number of people who work, so even though the scope is different, employment opportunities are still included in the workforce absorption. Labor absorption can be influenced by internal and external factors. Internally, it is influenced by wage levels, education/labor productivity, capital (technology), population and other non-wage expenditures. While externally, it is influenced by the level of economic growth, inflation rate, unemployment and interest rates. Labor absorption can be seen from the number of people working in the area. Data on the development of the working population (labor absorption) in Bali Province can be seen in table 2.

Table2 Population Aged 15 and Over Working in Regency/City of Bali Province 2017-2023 (people)

Regency/City	2017	2018	2019	2020	2021	2022	2023
Jembrana Regency	162665	162872	143403	158203	171760	172282	197832
Tabanan Regency	246754	274282	270736	265435	266889	276569	277112
Badung Regency	343229	364318	382119	367619	376637	388428	324403
Gianyar Regency	300370	310651	303944	270591	270510	314934	317231
Klungkung Regency	103972	106942	105314	101058	98691	112973	129864

Bangli Regency	142559	148423	145481	143650	144897	150045	171097
Karangasem Regency	238742	256342	254667	252869	256630	270291	321506
Buleleng Regency	358107	375393	339818	362851	355940	371334	456389
Denpasar City	501909	526484	523524	501143	499900	550214	422382
Bali Province	**2398307**	**2525707**	**2469006**	**2423419**	**2441854**	**2607070**	**2617816**

Source: Central Statistics Agency of Bali Province, 2024

Table 2 shows data on the population aged 15 and over who work in the regencies/cities of Bali Province from 2017-2023. The data shows that the rate of working population in Bali Province fluctuates and is also uneven between regions. In 2018, Denpasar City experienced an increase in the working population of 24,575 people, then in 2019 to 2021 it continued to decline, in 2018 the number of working population was 526,484 people, then in 2021 it became 499,900 people. Then in 2022 it increased to 550,214 people and in 2023 it decreased again to 422,382 people. In addition, in 2023 the largest number of working population was in Buleleng Regency, which was 456,389 people, while the area with the smallest number of working population was in Klungkung Regency, which was 129,864 people.

Education is one of the key factors that can increase labor productivity. Through education and training, workers can gain increased abilities and skills, which are very much needed in the world of work, this means that education is a factor that can influence labor absorption. One indicator of education is the highest education completed, the following is data on the average development of the population aged 15 years and over according to education completed at least high school or equivalent in the districts/cities of Bali Province in 2017-2023.

Table 3. Population Aged 15 Years and Over According to Education Completed at Least High School or Equivalent in Regency/City of Bali Province (percent)

Regency/City	2017	2018	2019	2020	2021	2022	2023
Jembrana Regency	10.70	11.28	12.13	11.99	13.32	13.78	12.82
Tabanan Regency	13.66	13.76	14.17	14.61	16.39	15.31	15.13
Badung Regency	19.19	19.06	19.38	19.52	20.55	19.76	20.46
Gianyar Regency	15.67	15.74	14.13	16.40	16.82	17.30	18.17

Klungkung Regency	12.63	13.84	14.84	13.36	12.37	15.15	14.10
Bangli Regency	8.50	10.32	9.49	9.69	9.91	10.52	10.47
Karangasem Regency	6.71	7.53	7.60	9.34	7.21	9.93	8.42
Buleleng Regency	9.76	9.21	9.05	11.57	10.60	11.26	9.62
Denpasar City	20.04	19.53	20.44	21.91	19.78	21.02	20.79
Bali Province	**14.36**	**14.45**	**14.60**	**15.74**	**15.46**	**16.11**	**15.79**

Source: Central Statistics Agency of Bali Province, 2024

Table 3 shows that in 2023 the area with the highest average proportion of population with at least high school education is in Denpasar City, which is 20.79% and the least is in Karangasem Regency, which is 8.42%. Badung Regency and Denpasar City are areas with the highest proportion of population aged 15 years and over who have completed at least high school or equivalent education and are also quite stable between the 2017-2023 period, where the proportion is always above 19%, in contrast to Karangasem Regency which has a proportion below 10% between the years.

Population is one of the important factors in economic development. Population can affect the absorption of labor in a region. The increasing number of population causes an increase in the number of available labor, which has an impact on the production capacity and productivity of a region. The increasing number of population must be balanced by the expansion of employment opportunities so that the large number of available labor can be properly absorbed. Data on the number of labor force population in regencies/cities in Bali Province can be seen in the following table:

Table 4. Workforce Population in Regency/City of Bali Province (people)

Regency/City	2017	2018	2019	2020	2021	2022	2023
Jembrana Regency	163765	165193	145505	165688	179114	179356	202938
Tabanan Regency	251253	278317	274263	277098	277828	287569	284632
Badung Regency	344882	365988	383662	394943	404664	417078	333483
Gianyar Regency	303470	315742	308450	292619	290574	337855	326918

Klungkung Regency	104956	108538	106993	106852	104268	115235	131562
Bangli Regency	143245	149640	146585	146377	147556	151191	172395
Karangasem Regency	240474	259007	256257	259153	262729	278920	330108
Buleleng Regency	366940	382591	350778	382712	376174	391692	473440
Denpasar City	515465	536502	535801	542477	537616	579643	434761
Bali Province	2434450	2561518	2508294	2567919	2580523	2738539	2690237

Source: Central Statistics Agency of Bali Province, 2024

Table 4 shows data on the number of working population in regencies/cities in Bali Province from 2017-2023. In 2023, the largest number of working population was in Buleleng Regency with 473,440 people and the lowest was in Klungkung Regency with 131,562 people, which was caused by the different geographical conditions of the region, where Buleleng Regency has an area of 1,322.68 hectares or 23.66% of the area of Bali Province, while Klungkung Regency is only 313.96 hectares or only 5.62% of the area of Bali Province.

Wages are one of the factors that can describe the economic conditions of a region, setting high wages usually describes the economic conditions in the region as more advanced compared to regions that set lower wages. In addition, wages can affect the absorption of labor in a region, if the wages set are high, this will attract workers to work in the region, on the other hand, these high wages will also affect the company's decision to employ employees because these wages arecostfor companies. The following is data on the development of minimum wages for districts/cities in Bali Province.

Table 5. Minimum Wage for Regency/City of Bali Province (Rp)

Regency/City	2017	2018	2019	2020	2021	2022	2023
Jembrana Regency	2,006,617	2,181,393	2,356,559	2,557,102	2,557,102	2,563,364	2,738,698
Tabanan Regency	2,059,965	2,239,500	2,419,332	2,625,217	2,625,217	2,643,779	2,824,613

Badung Regency	2,299,311	2,499,581	2,700,297	2,930,093	2,930,093	2,961,285	3,163,837
Gianyar Regency	2,061,233	2,240,766	2,421,000	2,627,000	2,627,000	2,656,009	2,837,680
Klungkung Regency	1,991,529	2,164,992	2,338,840	2,538,000	2,538,000	2,540,848	2,714,642
Bangli Regency	1,957,734	2,128,253	2,299,152	2,494,810	2,494,810	2,516,971	2,713,672
Karangasem Regency	2,051,879	2,180,000	2,355,054	2,555,469	2,555,469	2,555,470	2,730,264
Buleleng Regency	1,991,529	2,165,000	2,338,850	2,538,000	2,538,000	2,542,312	2,716,206
Denpasar City	2,173,000	2,363,000	2,553,000	2,770,300	2,770,300	2,802,926	2,994,646
Bali Province	1,956,727	2,127,157	2,297,969	2,493,523	2,493,523	2,516,971	2,713,672

Source: Central Statistics Agency of Bali Province, 2024

Table 5 shows the minimum wage data for districts/cities in Bali Province from 2017-2023. In 2023, the highest minimum wage was set by Badung Regency, which was IDR 3,163,837, while the lowest minimum wage was set by Bangli Regency, which was IDR 2,713,672, which can be influenced by various factors such as the level of investment in the region where Badung Regency is the region with the highest realization of domestic investment in Bali Province with investment of IDR 2,739,222,000,000, while Bangli Regency is the region with the lowest domestic investment in Bali Province which only touched IDR 67,117,000,000. Of course, this difference in investment will affect the minimum wage set.

Gujarati (2003), Wibisono (2005), in the book by Ajija et al. (2011:52) stated that another advantage of panel data is that panel data, especially those using REM in their testing, has the implication of not having to carry out classical assumption testing because REM uses the GLS approach, which is an approach that suppresses or even eliminates symptoms of heteroscedasticity that arise over time, so classical assumption tests such as normality, autocorrelation, and heteroscedasticity are not carried out, but in this study, multicollinearity tests are still carried out because they use more than 2 independent variables.

Table 6. Multicollinearity Test Results

	Correlation		
	X1	X2	X3
X1	1,000,000	0.559687	0.497012
X2	0.559687	1,000,000	0.348348
X3	0.497012	0.348348	1,000,000

Source: Processed Secondary Data, 2024

Based on the results of the Multicollinearity test in table 6, it can be seen that the correlation coefficient of X1 and X2 is 0.560 <0.90, the correlation coefficient of X1 and X3 is 0.497 <0.90, and the correlation coefficient of X2 and X3 is 0.348 <0.90. So it can be concluded that the regression model is free from multicollinearity symptoms.

In this study, the selected estimation model israndom effects model. Therefore, the regression analysis used is the result of data processing usingrandom effects model. The following are the results of processing panel data regression analysis inrandom effects model.

Table 7. Panel Data Regression Analysis Test Results (Random Effect Model)

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	31887.32	7147.042	4.461611	0.0000
X1	-88.29396	243.2602	-0.362961	0.7179
X2	0.957111	0.007436	128.7071	0.0000
X3	-0.011171	0.003263	-3.424107	0.0011
R-squared	0.998			
F-statistic	7922.93			
Prob(F-statistic)	0,000			

Source: Processed Secondary Data, 2024

Based on the results of the data processing that has been carried out, the following panel data regression equation is obtained.

$\hat{Y} = 31887{,}32 - 88{,}293X_1 + 0{,}957X_2 - 0{,}011X_3$

$S_e = (7147{,}042)\ \ (243{,}260)$ (0.007) (0.003)

Prob. = (0.000)(0.718)(0.000)(0.001)

$R^2 = (0{,}998)$

F-statistic = (7922.93)

Prob(F-statistic) = (0.000)

Information:

$\hat{Y}$ = Prediction of Labor Absorption in Regency/City of Bali Province

X_1 = Education Level

X_2 = Population

X_3 = Wages

S_e = Standard error

R2 =R-squared

Table 8. Simultaneous Test Results (F Test)

Information	Value
F-statistic	7922.931
Prob (F-Statistic)	0.000000

Source: Processed Secondary Data, 2024

Based on the simultaneous test, the F-count value is 7922.931 > 2.76 and the probability value is 0.000 < 0.05. This means that H0 is rejected and Ha is accepted, which means that the level of education, population, and wages simultaneously affect labor absorption in the districts/cities of Bali Province. These results are in line with research conducted by Kawet, et al. (2021) which states that simultaneously the variables of population, education level and wage level have a significant effect on labor absorption in Manado City.

Table 9. Value of Determination Coefficient (R2))

R-square	0.997524
Adjusted R-square	0.997398

Source: Processed Secondary Data, 2024

The results show an R2 value of 0.998. This shows that 99.8% of the variation in labor absorption in the districts/cities of Bali Province is influenced by education level, population, and wages. While the remaining 0.2% is influenced by other variables not included in the study.

Table10Partial Test Results (t-Test)

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	31887.32	7147.042	4.461611	0.0000
X1	-88.29396	243.2602	-0.362961	0.7179
X2	0.957111	0.007436	128.7071	0.0000
X3	-0.011171	0.003263	-3.424107	0.0011

Source: Processed Secondary Data, 2024

The results of the analysis show that the t value obtained by the education level variable is -0.363 < 1.671 and the probability value is 0.718 > 0.05, meaning that the education level variable has a negative but insignificant effect on labor absorption in the districts/cities of Bali Province, which means that when there is an increase in the average proportion of at least high school education levels, labor absorption will decrease. The coefficient value of -88.294 means that if the average proportion of at least high school education levels increases by 1%, labor absorption in the districts/cities of Bali Province will decrease by 88 people, assuming other variables are constant. This is not in line with the theoryHuman Capitalby Becker who stated that the source of labor productivity is skills acquired through the education process, where workers with higher education can be a determining factor in workers being absorbed in the labor market, because a higher level of education can encourage increased company competitiveness and better company performance.

The results of this study are in line with the theory of allocation or status competition put forward in the 70s and supported by Lester Thurow (1974), Jhon Mayer (1977), and Randall Collins (1979) which states that the level of education is not always in line with the quality of work, so that workers with higher or lower education do not differ in productivity in doing the same job. This theory also emphasizes that in a modern economy like today, highly educated workers are no longer needed because of rapid technological developments and production processes can be facilitated. So that workers with low education but receive training will have

relatively the same productivity as workers with higher and formal education (Nugroho, 2014: 196-197). In addition, the large number of people who are highly educated but cannot be absorbed into the labor market due to the mismatch between the available jobs and the desires of job seekers can also cause a negative effect between education and labor absorption (Pratomo, 2011).

The results of this study are supported by research from Sihombing (2017) which states that the level of education does not have a significant effect on labor absorption due to the condition of society whose education is getting higher but is not balanced with the availability of jobs or job opportunities. In line with research from Makna (2016) which states that the average length of education in Java in 2012 had a negative and significant effect on labor absorption. This study is also supported by research conducted by Nihayati et al (2023) which states that the level of education has a negative effect on the absorption of small and medium-sized industrial labor in Indonesia. This is caused by the mismatch between the level of education possessed by the workforce and the level of education required by the company. So the researcher assumes that the mismatch between the number of available jobs and the last education completed by job seekers causes the relationship between the level of education and labor absorption in the districts/cities of Bali Province to have a negative effect. In line with research by Ganie (2017) which states that the level of education has a negative but not significant effect on labor absorption in Berau Regency.

Apart from being supported by previous research, this research is also supported by data from the Bali Province Central Statistics Agency based on the average level of years of schooling, the number of unemployed residents, and the unemployed population according to the highest level of education completed.

Table 11. Average Length of Schooling and Number of Unemployed in Bali Province 2017-2023

Year	Average length of schooling	Unemployment
2017	8.55	36.143
2018	8.65	35,811
2019	8.84	39,288
2020	8.95	144,500
2021	9.06	138,669
2022	9.39	131,469

2023	9.45	72,421

Source: Central Statistics Agency of Bali Province, 2024

Empirical conditions in Bali Province show that the influence of education on labor absorption in the 2017-2023 period is insignificant, as shown in Table 11. The average length of schooling in Bali Province is 9 years or equivalent to junior high school, while in Bali Province, residents with junior high school education or below are the largest contributors to open unemployment in Bali Province according to the highest education completed in the period of the year as shown in Table 12.

Table12Unemployed Population According to Highest Level of Education Completed (people)

Level of education	Year						
	2017	2018	2019	2020	2021	2022	2023
Junior high school and below	9.299	6.224	6.395	28,562	47,239	70,452	24,417
General High School	9.197	7,868	11,295	44,730	36,940	28.199	21,655
Vocational High School	8,851	12,914	9,830	37,927	31,456	15.256	15,090
Diploma I/II/III	8,796	3.191	5.197	16,496	9,065	6.019	4,551
University		5,614	6,571	16,785	13,969	11,543	6,708
Total	**36.143**	**35,811**	**39,288**	**144,500**	**138,669**	**131,469**	**72,421**

Source: Central Statistics Agency of Bali Province, 2024

The results of the study showed that the t value obtained by the population variable was 128.707 > 1.671 and the probability value was 0.000 < 0.05, meaning that the population variable had a positive and significant effect on labor absorption in the districts/cities of Bali Province. This means that every time there is an increase in the population, especially the workforce, the level of labor absorption in the districts/cities of Bali Province will also increase. The coefficient value of 0.957 means that if the population increases by 1000 people, labor absorption in the districts/cities of Bali Province will increase by 957 people, assuming other variables are constant.

The results of this study are in line with research conducted by Indah & Kustiawan (2022) which states that population has a significant positive effect on labor absorption in East Kalimantan Province. Jagaditha & Yasa (2022) also stated that population has a positive and

significant effect on labor absorption in Bali Province. In addition, Anggraini, et al. (2020) stated that population has a positive effect on labor absorption in Kutai Kartanegara Regency. The increasing population can be capital in increasing economic development, where the availability of abundant labor with qualified skills can increase company productivity and encourage the opening of new jobs, this means that with the increasing population balanced with increased skills, labor absorption will also increase. The population must be utilized properly so that labor absorption between regions can be more evenly distributed (Sari et al., 2016).

The results of the study show that the t value obtained by the wage variable is -3.424 > 1.671 and the probability value is 0.001 < 0.05, meaning that the wage variable has a negative and significant effect on labor absorption in the districts/cities of Bali Province. This means that every time there is an increase in wages, especially the UMK, the level of labor absorption in the districts/cities of Bali Province will decrease. The coefficient value of -0.011 means that if wages increase by Rp100, labor absorption in the districts/cities of Bali Province will decrease by 1 person, assuming other variables are constant.

According to Panjawa & Soebagiyo (2014) increasing wage levels will cause the company's production costs to also increase which will have an impact on reducing the workforce in a company because the company is unable and unwilling to employ as many workers as before at a higher cost so that it will reduce the number of workers who can be employed. This is in accordance with the opinion of (Patriansyah, 2018) which states that when the minimum wage in a region increases, the number of workers tends to decrease. This is because when the wage value is high, workers in the company or industry will decrease because reducing the workforce can overcome the increase in production costs and reduce the burden that must be paid.

The results of this study are in line with the theorybackward comparison supply curvewhich states that when a wage rises above a certain equilibrium level or point, the workforce will replace the time previously used for work (paid time) into free time, so that with higher wages it will reduce the time offered by the workforce to work or in other words this will reduce labor absorption (Friedman, 2000). The results of this study are also in line with research conducted by Nihayati (2023) which states that wages have a significant negative effect on labor absorption in Indonesia. Budiarto & Dewi (2015) wages have a negative effect on labor absorption in Bali Province. Jaya & Kholilah (2020) stated that wages have a negative effect on labor absorption in Indonesia. In addition, Utomo (2022) also stated that wages have a negative and significant effect on labor absorption in Java.

CONCLUSION AND SUGGESTIONS

Based on the results of the analysis that has been carried out previously, the following conclusions can be drawn: 1)In generalSimultaneously, education level, population, and wages influence labor absorption in the districts/cities of Bali Province. 2)The level of education has a negative but not significant effect on labor absorption in the districts/cities of Bali Province.3)The population has a positive and significant effect on labor absorption in the districts/cities of Bali Province.4)Wages have a negative and significant effect on labor absorption in districts/cities in Bali Province.

Suggestions that can be given to increase labor absorption in the districts/cities of Bali Province are as follows: Based on the results and discussions that have been presented, several suggestions that can be given to related parties such as the Ministry of Manpower, Labor Unions, Education and Culture Office, etc.) to increase labor absorption, especially in the districts/cities of Bali Province are as follows: In terms of education level, each district/city in Bali Province should pay more attention to the education sector, because the average length of schooling for residents in Bali Province is still at 9 years. Education itself is one way to improve the quality of human resources in a region, by increasing the quality of education through the development of infrastructure and supporting facilities, it is hoped that this will be able to increase labor absorption which will ultimately encourage economic development. The district/city government of Bali Province must be more sensitive to the potential of their respective regions so that existing funds can be utilized properly to improve the standard of living of the community through income equality.

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