

Effects of Demographic Bonus, Population Growth, Unemployment, Inflation And Indonesia's Democracy Index On Economic Growth in Jambi Province

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Received	Revised	Accepted	Published
January 2026	20 May 2026	31 May 2026	30 June 2026

ABSTRACT

This study aims to examine and analyze the influence of the demographic bonus, population growth, unemployment, inflation, and Indonesia's democracy index on economic growth in Jambi Province from 2009 to 2024. The methods used in this study are descriptive and quantitative analyses. The data used in this study are secondary data from 2009-2024 on a quarterly basis, obtained from the Central Bureau of Statistics. The analytical tool used is the Error Correction Model (ECM). The results of the study indicate that the ECT value has a significant effect, showing that there is an influence between variables in achieving long-term equilibrium. In the short term, the variables of demographic bonus, unemployment rate, inflation, and Indonesia's democracy index do not have a significant effect on economic growth in Jambi Province, whereas population growth has a significant effect. Meanwhile, in the long-term influence, the variables of population growth, unemployment rate, and inflation significantly affect economic growth in Jambi Province, while the variables of demographic bonus and Indonesia's democracy index do not have a significant effect on economic growth in Jambi Province.

Keywords: *Demographic Bonus, Population Growth, Unemployment, Inflation, Indonesia's Democracy Index, And Economic Growth*

How to Cite:

Ovilania, O., Junaidi, J., Umiyati, E., Khodijah, S., & Nurhayani, N. Effects of demographic bonus, population growth, unemployment, inflation, and Indonesia's democracy index on economic growth in Jambi Province. *The Asian Journal of Professional & Business Studies*, 7(1). <https://doi.org/10.61688/ajpbs.v7i1.488>

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1. INTRODUCTION

Economic growth is a process in an economy that increases the quantity of goods and services produced and improves society's welfare. Economic growth can be viewed as a long-term macroeconomic issue. This increase in capability is driven by production factors that continually grow in both quantity and quality (Todaro, 2009).

As one of the main indicators of development, economic growth reflects a country's progress through increased production capacity, national income, and societal welfare. In the ever-changing global landscape, marked by technological advancements, geopolitical shifts, and the impacts of climate change, it is important to understand the factors that drive or hinder economic growth and to implement sustainable development strategies that can reduce inequality and create employment opportunities. Economic growth is a form of long-term, inclusive economic planning, meaning it involves all layers of society, allowing all individuals and groups to participate in economic activities and enjoy its benefits.

Based on data from the Asian Development Bank (2025), the average economic growth of ASEAN countries shows considerable variation. From 2001 to 2024, Indonesia ranked eighth among countries, with an average economic growth rate of 3.89 percent. The highest economic growth was in Malaysia, averaging 12.38 percent, while the lowest was in Brunei Darussalam, averaging 2.38 percent. Indonesia faces structural challenges that hinder accelerated economic growth, such as reliance on domestic consumption, uneven infrastructure, the need to improve human resource quality, and an investment climate that still requires optimization. Indonesia has indeed not maximized its growth potential compared to several ASEAN countries that are more aggressive in economic reforms. However, by leveraging the demographic bonus momentum and accelerating improvements in human resource quality, Indonesia still has the opportunity to catch up and become one of the major economic powers in Southeast Asia.

Economic growth also becomes an important issue at the regional level, including in Jambi Province. Over the past five years (2020–2024), the economic growth of Jambi Province has tended to fluctuate and show a slowdown, with an average of 3.50 percent during 2020–2024. Economic growth in 2020 declined by -0.51, in 2021 economic growth increased by 3.70 percent, in 2022 economic growth rose to 5.12 percent, in 2023 economic growth was lower than the previous year, increasing only by 4.67 percent, and in 2024 economic growth was still lower than the previous year with an increase of only 4.51 percent. The tendency of economic growth in Jambi Province to slow down and decline will have an impact on the weakening of the economy.

The factors causing the economic slowdown in Jambi Province are due to the fact that in 2020, major sectors such as trade, transportation, tourism, and services experienced a drastic decline due to restrictions on economic activities. Although there was a transitional economic recovery in 2021 and 2022, the pace of recovery was not sustainable, because in 2023 and 2024, economic growth weakened, indicating that the economic recovery was not strong or supported by a solid structural foundation. Furthermore, the economic weakness is also caused by suboptimal investment, due to infrastructure, human resources, or a business climate that is not competitive. Thus, uneven infrastructure, limited accessibility, and the quality of human resources that are not fully ready to support economic transformation contribute to the situation.

According to Kuznets in Todaro (2009), economic growth is the increase in the long-term capacity of a country to provide various economic goods to its population. This increase in capacity is made possible by technological, institutional, and ideological advancements or adjustments to existing conditions. Several factors influence economic growth through the production of goods and services. High economic growth is assumed to occur under good economic conditions in order to improve the standard of living and the welfare of the community (Kuncoro, 2015).

Many studies have been conducted to identify the factors that influence economic growth. Some researchers, such as Pakpahan (2020), Wahyudi & Permatasari (2018), Zebua (2023), Gea Anisa (2024), Jafrin (2021), Nadya & Risdiana (2022), Hermawan (2019), and Nobel (2023), found that the demographic bonus has a positive and significant impact on

economic growth. Meanwhile, Harun (2018), Gunawan (2020), and Abdul Wahab (2022) studied the impact of population growth on economic growth. Another factor that affects economic growth is the unemployment rate. Research by Dea, Effendi & Fauzi (2025), Wicaksono (2023), Farathika (2020), Nadya & Risdiana Himmati (2022), Putri & Fanny (2022), Hermawan (2019), Pakpahan (2020), Jafrin (2021), Sinha (2023), and Gea Anisa (2025) shows that the unemployment rate also influences economic growth. In addition, inflation is also a focus in the research by Putri & Fanny (2022), Abdul Wahab (2022), and Dea, Effendi & Fauzi (2025), who found that inflation affects economic growth.

From these studies, several factors that influence economic growth were identified, such as the demographic bonus, TPAK, poverty, education, HDI, government policies, life expectancy, population size, population growth, democracy, governance, industrialization, urbanization, unemployment rate, inflation, corruption perception index, and average years of schooling.

The research gap from several research variables examined in previous studies that are used as independent variables includes demographic bonus, population growth, unemployment rate, inflation, and the Indonesian democracy index, due to the lack of studies explaining the effect of the Indonesian democracy index on economic growth. The selection of the Indonesian democracy index is due to its contribution to economic growth through political stability, transparency, and public participation. However, obstacles such as political instability and corruption still need to be addressed to ensure sustainable growth. This is supported by research findings (Wahyudi & Permatasari, 2018) indicating that current government policies are considered not yet optimal. Research by (Huda et al., 2021) suggests that the impact of the demographic bonus on economic growth is not automatically positive, but highly dependent on public policy. Research (Hasan et al., 2025) shows that democracy and good governance are proven to support the sustainability of economic development and environmental sustainability.

The phenomenon that has occurred over the last five years from 2020 to 2024 shows that the economic growth of Jambi Province has slowed down and become unstable, indicating figures below the national average of 3.89%, and even lagging far behind provinces with the highest growth such as North Maluku, Central Sulawesi, and Papua. This condition indicates the presence of structural challenges in the regional economy that could potentially hinder sustainable development and the welfare of the community. In fact, Jambi Province has abundant natural resources, ranging from agriculture, plantations, forestry, to mining. However, these resource potentials have not been able to optimally drive economic growth. Based on this issue, the purpose of the study is to determine and analyze the influence of demographic bonus, population growth, unemployment, inflation, and Indonesia's democracy index on economic growth in Jambi Province from 2009 to 2024.

2. LITERATURE REVIEW

2.1. Economic Growth

According to Kuznets, this definition has three components: first, a nation's economic growth is seen from the continuous increase in the supply of goods; second, advanced technology is a factor in economic growth that determines the rate of growth in the ability to provide a variety of goods to the population; third, the broad and efficient use of technology requires adjustments in institutional ideology so that the innovations produced can be beneficial in an appropriate way (Todaro, 2009).

2.2. Independent Variable

2.2.1. Demographic Bonus

The demographic bonus is a phenomenon characterized by a number of working-age population that is much larger than the number of non-working-age population (Suwito, 2020). The original term is called “demographic dividend”, which

refers to a situation in which the age structure of the population is at a stage of low dependency ratio during the development process. In this condition, a positive impact on the economy will arise as a result of changes in the population structure, which is referred to as an economic “dividend” (Miao, 2023).

2.2.2. Population Growth

The population is an important element in efforts to increase production and develop economic activities. The population plays a crucial role because it provides labor, experts, company leaders, and entrepreneurs needed to create economic activities. In addition, the increase in population results in a growing and increasingly complex set of needs (Kuncoro, 2015).

2.2.3. Unemployment Rate

Unemployment is a macroeconomic problem that directly affects humans and is the most severe issue. For many people, losing a job means a decline in living standards and psychological pressure. Therefore, it is not surprising that unemployment often becomes a topic of discussion in political debates, and politicians frequently claim that the policies they offer will help create jobs (Kuncoro, 2015). The unemployment rate is the ratio of the number of people who are unemployed divided by the labor force. Meanwhile, the inflow rate is the ratio of the inflow divided by the labor force. Thus, an increase in the unemployment rate can be caused by an increase in the inflow rate or the duration of unemployment. The Open Unemployment Rate (TPT) is the percentage of the number of unemployed people relative to the labor force (Kuncoro, 2015).

2.2.4. Inflation

According to Mulyani (2020), inflation is a monetary event that results in a decline in the value of money against a particular good. This event can cause disruptions to the function of money, price distortions, damage to output, a collapse in efficiency and productive investment, as well as create injustice and social tension.

2.2.5. Indonesian Democracy Index

The Merriam-Webster English Dictionary defines an index as a ratio or number derived from various observations to be used as an indicator or measure. It can be concluded that the democracy index refers to the measurement of the level or health of democracy based on an indicator. In 2006, the Economist Intelligence Unit (EIU) began conducting research on the democracy index by providing an overview of the state of democracy in 165 independent countries around the world. Initially, publications on the democracy index were conducted only once every two years, but since 2010, reports on the democracy index have been published annually. This research covers almost the entire world population and most countries in the world (microstates or countries with small populations whose sovereignty is not recognized by any country or organization). There are five categories that form the basis of the democracy index, namely electoral process and pluralism, functioning of government, political participation, political culture, and civil liberties.

3. METHODOLOGY

The type of data used in this study is secondary time series data in the form of quantitative data covering demographic bonuses, population growth, unemployment rate, inflation, Indonesia democracy index, and economic growth for the period 2009 to 2024. The data was obtained through the Central Statistics Agency website. The analysis tool used is the Error Correction Model. The regression equation of the Error Correction Model is stated as follows (Widarjono, A. (2022):

$$EG = \beta_0 + \beta_1 DB + \beta_2 PG + \beta_3 OUR + \beta_4 INF + \beta_5 IDI + e$$

Description:

EG = Economic Growth (Percent)

$\beta_1 - \beta_5$ = Regression Coefficients

DB = Demographic Bonus (Percent)

PG	= Population Growth (Percent)
OUR	= Open Unemployment Rate (Percent)
INF	= Inflation (Percent)
IDI	= Indonesia Democracy Index (Points)
β_0	= Constant
e	= Error Term (disturbance error)

The data testing approach used in this research process employs the Error Correction Model, by conducting underlying assumption tests, namely the assumptions of data stationarity and cointegration of the combination of research variables in the long term. The data stationarity problem test, or unit root test, is intended to see the extent of the linear relationship of the data in each research period. The data stationarity test is used to determine the degree of data integration. In this study, the method used involves examining the Augmented Dickey Fuller (ADF) critical values.

Cointegration testing uses the Engel-Granger approach by looking at the critical value of the Augmented Dickey Fuller residual-based test method or by conducting a new residual test where the data is first tested in the long term and the new residual is obtained (Widarjono, 2022).

One way to identify relationships among non-stationary variables is by using a dynamic econometric model, one of which is the Error Correction Model (ECM). The ECM (Error Correction Model) is an econometric model used to find long-term equilibrium regression equations as well as short-term equilibrium. ECM testing can be conducted once the requirements have been met, starting with stationarity tests on each variable, followed by a cointegration test (Widarjono, 2022).

After the test is conducted and meets the requirements in ECM regression analysis, ECM regression can then be carried out. The existence of cointegration between the two means there is a long-term relationship or equilibrium between the variables. In the short term, there may be an imbalance. This imbalance is often encountered in economic behavior. This is what requires adjustment. The ECM model is what incorporates adjustments to correct the imbalance. ECM is a technique used to correct short-term imbalances towards the long term, and can explain the relationship between independent variables when there is cointegration in a group of non-stationary variables (Widarjono, 2022).

4. FINDINGS AND DISCUSSION

Before performing regression with the ECM (Error Correction Model) test in analyzing the influence of demographic bonus, population growth, unemployment, inflation, and the Indonesian democracy index on economic growth in Jambi Province from 2009 to 2024 in the long and short term, the initial step that must be carried out is to conduct a stationarity test. The tests are as follows:

Stationarity Testing of Unit Root Test Data

The stages before performing regression with the ECM test involve first conducting a stationarity test to determine whether the variables used are stationary or not. If the data is non-stationary, it will result in a spurious regression, whereas if the data to be used is stationary, OLS regression can be applied. However, if it is not stationary, the stationarity of the data needs to be examined through the degree of integration test. At this stage, a unit root test is conducted using the Augmented Dickey-Fuller (ADF) method as follows:

Table 1. Results of the Augmented Dickey-Fuller Test at the Level

Variable	ADF test statistic value	Probability	Description
Demographic Bonus	-0.624261	0.8570	Non-Stationarity
Population Growth	0.185375	0.9695	Non-Stationarity
Unemployment Rate	-2.808959	0.0629	Non-Stationarity
Inflation	-1.940954	0.3118	Non-Stationarity
Indonesian Democracy Index	-1.459151	0.5474	Non-Stationarity
Economic Growth	-2.699941	0.0799	Non-Stationarity

Source: Processed data, 2026

Based on Table 1, it can be seen that all variables, namely demographic bonus with a probability value of 0.8570, population growth with a probability value of 0.9695, unemployment rate with a probability value of 0.0629, inflation with a probability value of 0.3118, Indonesia democracy index with a probability value of 0.5474, and economic growth with a

probability value of 0.0799, indicate that the data is not stationary in the augmented Dickey-Fuller test at the level because the values are greater than 0.05. Since not all variables are stationary at the level, the Augmented Dickey-Fuller stationarity test is conducted at the first difference level, as follows:

Table 2. Results of the Augmented Dickey-Fuller Test at First Difference Level

Variable	ADF test statistic value	Probability	Description
Demographic Bonus	-5.535902	0.0000	Stationarity
Population Growth	-4.532407	0.0005	Stationarity
Unemployment Rate	-4.342159	0.0009	Stationarity
Inflation	-5.042594	0.0001	Stationarity
Indonesian Democracy Index	-4.382250	0.0008	Stationarity
Economic Growth	-4.885800	0.0002	Stationarity

Source: Processed data, 2026

Based on Table 2, it can be seen that the probability values for all variables, namely demographic bonus with a probability value of 0.0000, population growth with a probability value of 0.0005, unemployment rate with a probability value of 0.0009, inflation with a probability value of 0.0001, Indonesia's democracy index with a probability value of 0.0008, and economic growth with a probability value of 0.0002, indicate that the data is stationary in the augmented Dickey-Fuller test at the first difference level because it is smaller than 0.05. This means that at the first difference level, all variables are considered stationary.

Cointegration Test

After conducting the stationarity test, the next step is the cointegration test, which aims to determine whether the variables are cointegrated, indicating short- and long-term relationships between them. The cointegration test in this study uses the Augmented Dickey-Fuller cointegration test. To meet the criterion that the variables studied are cointegrated, observe the behavior of the residuals from the regression equation used; the residuals must be stationary with a probability value of less than 0.05. The results of the regression residual stationarity test are as follows:

Table 3. Cointegration Test Results

	t-Statistic	Probability	Description
ECT	-4.030045	0.0024	Stationarity

Source: Processed data, 2026

Based on Table 3, ECT has a probability value of $0.0024 < 0.05$, indicating that the data has been stationary in the augmented Dickey-Fuller test at the level. Therefore, it can be concluded that there is cointegration or a long-term effect between the variables of demographic bonus, population growth, unemployment, inflation, and the Indonesian democracy index on economic growth in Jambi Province from 2009 to 2024.

Short-Term Influence Model

The ECM estimation results will show the short-term and long-term effects. In this study, economic growth is used as the dependent variable, while demographic bonus, population growth, unemployment, inflation, and the Indonesian democracy index are used as independent variables. The short-term ECM estimation results are as follows:

Table 4. Short-Term ECM Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.108781	0.216846	0.501650	0.6179
D(DB)	-0.464841	0.630370	-0.737410	0.4640
D(PG)	12.53553	5.325539	2.353852	0.0221
D(OUR)	0.729253	0.629366	1.158710	0.2515
D(INF)	0.196721	0.108697	1.809811	0.0757
D(IDI)	0.052972	0.101033	0.524307	0.6021
ECT(-1)	-0.436574	0.106961	-4.081614	0.0001
R-squared	0.387734	Mean dependent var		0.061270
Adjusted R-squared	0.322134	S.D. dependent var		1.950343
S.E. of regression	1.605768	Akaike info criterion		3.889521
Sum squared resid	144.3955	Schwarz criterion		4.127647
Log likelihood	-115.5199	Hannan-Quinn criter.		3.983177

F-statistic	5.910590	Durbin-Watson stat	1.762407
Prob(F-statistic)	0.000079		

Source: Processed data, 2026

Table 4 shows the equation obtained from the short-term estimation results as follows:

$$D(EG) = 0.108781 - 0.464841 D(DB) + 12.53553 D(PG) + 0.729253 D(OUR) + 0.196721 D(INF) + 0.052972 D(IDI) - 0.436574 ECT (-1)$$

Based on the results of the short-term regression equation, it can be explained as follows. The constant value of 0.108781 means that if the variables of demographic bonus, population growth, unemployment, inflation, and the Indonesian democracy index do not change, then short-term economic growth will remain constant at 0.108781 percent.

The demographic bonus has a regression coefficient value of -0.464841 , which means that if the demographic bonus increases by 1 percent, in the short term, economic growth decreases by 0.464841 percent. Population growth has a regression coefficient value of 12.53553, which means that if population growth increases by 1 percent, in the short term, economic growth increases by 12.53553 percent. The unemployment rate has a regression coefficient value of 0.729253, which means that if the unemployment rate increases by 1 percent, in the short term, economic growth increases by 0.729253 percent. Inflation has a regression coefficient value of 0.196721, which means that if inflation increases by 1 percent, in the short term, economic growth increases by 0.196721 percent. The Indonesian democracy index has a regression coefficient value of 0.052972, which means that if the Indonesian democracy index increases by 1 percent, in the short term, economic growth increases by 0.052972 percent. It is known that the error correction term (ECT) value is the residual that arises in the ECM method. If the ECT coefficient < 1 , the model specification used is valid (Safari, 2016). In the results above, the ECT produces a value of $-0.436574 < 1$, confirming that the results of this study are valid.

Short-Term F Statistic Test

The F test used in this study aims to test comprehensively and collectively whether all independent variables significantly influence the dependent variable, with the provision that if the F-statistical probability value is less than the significance level, namely $\alpha = 0.05$, then collectively the independent variables have an effect on the dependent variable. Based on Table 4, the F-statistic test probability value is $0.000079 < 0.05$, meaning that collectively the variables of demographic bonus, population growth, unemployment, inflation, and the Indonesian democracy index in the short term significantly affect the economic growth of Jambi Province for the period 2009-2024.

Short-Term t-Statistic Test

The t-test used in this study aims to individually examine whether each independent variable has a significant effect on the dependent variable with the provision that if the t-statistical probability value is less than the significance level, namely $\alpha = 0.05$, the estimation results are as follows:

Table 5. t-Test Statistics

Variable	Probability	alpha level	Conclusion
D(DB)	0.4640	0,05	No Effect
D(PG)	0.0221	0,05	Effect
D(OUR)	0.2515	0,05	No Effect
D(INF)	0.0757	0,05	No Effect
D(IDI)	0.6021	0,05	No Effect
ECT(-1)	0.0001	0,05	Effect

Source: Processed data, 2026

Based on Table 5, the partial test in the short term is explained as follows. The demographic bonus in the short term does not affect the economic growth of Jambi Province from 2009 to 2024 because the probability value is $0.4640 > 0.05$. Population growth in the short term affects the economic growth of Jambi Province from 2009 to 2024 because the probability value is $0.0221 < 0.05$. The unemployment rate in the short term does not affect the economic growth of Jambi Province from 2009 to 2024 because the probability value is $0.2515 > 0.05$. Inflation in the short term does not affect the economic growth of Jambi Province from 2009 to 2024 because the probability value is $0.0757 > 0.05$. The Indonesian democracy index in the short term does not affect the economic growth of Jambi Province from 2009 to 2024 because the probability value is $0.6021 > 0.05$. It is known that the probability value of the residual error correction term (ECT) is $0.0001 < 0.05$, which means that in the short term it affects the economic growth of Jambi Province from 2009 to 2024.

Short-Term Determination Coefficient

Determinance is used to measure the magnitude of the effect of independent variables on the dependent variable. The results of the coefficient of determination from the short-term regression in Table 4 show an R-Squared value of 0.387734, meaning that the independent variables of demographic bonus, population growth, unemployment, inflation, and Indonesia's democracy index in the short-term equation influence the economic growth of Jambi Province from 2009 to 2024 by 38.77 percent, while the remaining 61.23 percent is influenced by other factors outside the model.

Long-Term Impact Model

The ECM estimation results will show the long-term relationship. In this study, the economic growth variable is used as the dependent variable, while demographic bonus, population growth, unemployment, inflation, and the Indonesian democracy index are used as independent variables. The long-term ECM estimation results are as follows:

Table 6. Long-Term ECM Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15.71665	12.79549	1.228296	0.2243
DB	-0.425078	0.234369	-1.813714	0.0749
PG	5.851138	2.706239	2.162092	0.0347
OUR	-1.229093	0.532750	-2.307073	0.0246
INF	0.340333	0.118494	2.872155	0.0057
IDI	0.057134	0.092140	0.620077	0.5376
R-squared	0.368270	Mean dependent var		4.562500
Adjusted R-squared	0.313810	S.D. dependent var		2.452612
S.E. of regression	2.031660	Akaike info criterion		4.344643
Sum squared resid	239.4032	Schwarz criterion		4.547039
Log likelihood	-133.0286	Hannan-Quinn criter.		4.424377
F-statistic	6.762271	Durbin-Watson stat		0.955224
Prob(F-statistic)	0.000050			

Source: Processed data, 2026

Table 6 shows the equation obtained from the long-term estimation results as follows:

$$EG = 15.71665 - 0.425078 DB + 5.851138 PG - 1.229093 OUR + 0.340333 INF + 0.057134 IDI$$

Based on the results of the long-term regression equation, it can be explained as follows. The constant value is 15.71665, which means that if the independent variables, namely demographic bonus, population growth, unemployment, inflation, and the Indonesian democracy index, do not change, then the economic growth of Jambi Province will remain at a constant value of 15.71665 percent.

The demographic bonus has a regression coefficient value of -0.425078, which means that if the demographic bonus increases by 1 percent, the long-term economic growth of Jambi Province decreases by 0.425078 percent. Population growth has a regression coefficient value of 5.851138, which means that if population growth increases by 1 percent, the long-term economic growth of Jambi Province increases by 5.851138 percent. The unemployment rate has a regression coefficient of -1.229093, which means that if the unemployment rate increases by 1 percent, the economic growth of Jambi

Province in the long term decreases by 1.229093 percent. Inflation has a regression coefficient of 0.340333, which means that if inflation increases by 1 percent, the economic growth of Jambi Province in the long term increases by 0.340333 percent. The Indonesian democracy index has a regression coefficient of 0.057134, which means that if the Indonesian democracy index increases by 1 percent, the economic growth of Jambi Province in the long term increases by 0.057134 percent.

Long-Term F Statistic Test

The F test used in this study aims to test comprehensively and collectively whether all independent variables significantly influence the dependent variable, with the provision that if the F-statistical probability value is less than the significance level, namely $\alpha = 0.05$, then collectively the independent variables have an effect on the dependent variable. Based on Table 6, the F-statistic test probability value is obtained at $0.000050 < 0.05$, meaning that collectively the variables of

demographic bonus, population growth, unemployment, inflation, and the Indonesian democracy index in the long term significantly affect the economic growth of Jambi Province from 2009 to 2024.

Long-Term t-Statistic Test

The t-test used in this study aims to individually examine whether each independent variable has a significant effect on the dependent variable with the provision that if the t-statistical probability value is less than the significance level, namely $\alpha = 0.05$, the estimation results are as follows:

Table 7. t-Test Statistics

Variable	Probability	alpha level	Conclusion
DB	0.0749	0,05	No Effect
PG	0.0347	0,05	Effect
OUR	0.0246	0,05	Effect
INF	0.0057	0,05	Effect
IDI	0.5376	0,05	No Effect

Source: Processed data, 2026

Based on Table 7, partial tests in the long term are explained as follows. The demographic bonus in the long term does not affect the economic growth of Jambi Province from 2009 to 2024 because the probability value is $0.0749 > 0.05$. Population growth in the long term affects the economic growth of Jambi Province from 2009 to 2024 because the probability value is $0.0347 < 0.05$. The unemployment rate in the long term affects the economic growth of Jambi Province from 2009 to 2024 because the probability value is $0.0246 < 0.05$. Inflation in the long term affects the economic growth of Jambi Province from 2009 to 2024 because the probability value is $0.0057 < 0.05$. The Indonesian democracy index in the long term does not affect the economic growth of Jambi Province from 2009 to 2024 because the probability value is $0.5376 > 0.05$.

Long-Term Determination Coefficient

Determinance is used to measure the magnitude of the effect of independent variables on the dependent variable. The results of the coefficient of determination from the long-term regression in Table 6 show an R-Squared value of 0.368270, meaning that the independent variables of demographic bonus, population growth, unemployment, inflation, and Indonesia's democracy index in the long-term equation influence the economic growth of Jambi Province from 2009 to 2024 by 36.82 percent, while the remaining 63.18 percent is influenced by other factors outside the model.

The Impact of the Demographic Bonus on Economic Growth

The short-term and long-term effects of the demographic bonus do not have a significant impact on economic growth. The demographic bonus does not always have a significant effect on economic growth, either in the short term or long term, because a large working-age population is only an economic potential and not a guaranteed way to boost economic growth. In the short term, the impact of the demographic bonus is limited if it is not accompanied by adequate labor absorption, low-quality human resources, and a lack of investment and infrastructure. Meanwhile, in the long term, the demographic bonus can turn into a burden if it is not utilized during the limited 'window of opportunities,' so that when the population becomes non-productive (aging) without sufficient human capital and productivity, the dependency ratio increases again and hinders economic growth. Therefore, without appropriate economic policies, the demographic bonus will not make a significant contribution to economic development in Jambi Province.

The results of this study are in line with those conducted by Irwan (2019b), Nobel, I.C.Z. (2023), Pakpahan (2020), Wahyudi and Permatasari (2018), Kory et al. (2024), Citra et al. (2025), Felix and Budiman (2024), Putri and Fanny (2022), Zhou et al. (2023), Zebua (2023), Gea Anisa et al. (2024), Wicaksono (2023), Habriyanto, Ahmad Syukron Prasaja (2022), Desla (2024), Theresia Balok Meo et al. (2025), Hermawan (2019), Huda et al. (2021), Rostiana (2020), Gea Anisa et al. (2025), Jafrin et al. (2021), and Nadya & Risdiana Himmati (2022), confirming that the demographic bonus affects economic growth. The demographic bonus refers to a condition in which the proportion of the working-age population (15–64 years) is significantly larger compared to the non-productive age groups. This proves that by creating a low dependency ratio, the condition has the potential to drive economic growth if utilized properly. With more labor, the

economy can produce higher output, while increased income and savings from the productive age group stimulate investment and domestic consumption. Furthermore, educated and skilled young labor can enhance innovation and

productivity. However, the benefits of the demographic bonus do not automatically materialize, so appropriate policies are needed, such as the creation of adequate employment opportunities, improving the quality of education and training, and a conducive investment climate. If not managed strategically, the demographic bonus could actually pose the risk of mass unemployment and social instability. Therefore, the utilization of the demographic bonus must be accompanied by thorough economic and social planning to serve as a key driver of sustainable economic growth.

The Impact of Population Growth on Economic Growth

The short-term and long-term effects of population growth significantly influence economic growth. Although the direction and magnitude of the population growth impact depend on the economic development conditions of each region, such as the quality of human resources, job availability, investment levels, and government policies. In the short term, increasing population growth can drive aggregate demand, such as rising public consumption, which will impact production and investment growth. The increased demand resulting from a higher population can expand businesses, thereby driving economic growth. However, if population growth is too rapid without being accompanied by an increase in production capacity, infrastructure, and employment opportunities, it can actually burden the economy and lower the quality of human resources, thereby hindering economic growth. In the long term, population growth followed by an improvement in the quality of human resources (through education, health, and skills) can become a major driver of sustainable economic growth. A large and productive population becomes human capital for creating innovation and increasing production, thereby generating broader investment. Because an abundant workforce can attract foreign and regional investment, especially if supported by political stability and a conducive business climate. However, if population growth is not matched by inclusive economic development, it can lead to structural unemployment and excessive urbanization that hinders long-term development.

The results of this study are in line with those conducted by Harun (2018), Abdul Wahab (2022), and Gunawan et al. (2020), who concluded that population growth affects economic growth. This proves that population growth has an impact on economic growth, as its effects can be either positive or negative depending on economic conditions, the quality of human resources, and implemented policies. Controlled population growth can expand the domestic market, increase demand for goods and services, and provide a larger workforce—factors that have the potential to drive investment and economic growth. If population growth is too rapid and not matched by an increase in employment, infrastructure, and access to education and healthcare, it can actually burden resources, lower per capita income, and worsen poverty and social inequality. The quality of population growth, such as the level of education, health, and workforce skills, determines its impact on the economy more than merely the population size. Thus, population growth can only drive economic growth if supported by policies that can turn the population into productive human resources.

The Effect of Unemployment Rate on Economic Growth

The short-term impact of the unemployment rate does not have a significant effect on economic growth, but in the long term, the unemployment rate has a significant effect on economic growth. The absence of a significant impact of the unemployment rate on economic growth in the short term is due to the fluctuating nature of the unemployment rate, which tends to go up and down. Short-term fluctuations in the unemployment rate, such as seasonal shifts or workers moving between sectors, are not large enough to directly change the rate of economic growth. This is because short-term economic growth is more influenced by factors such as aggregate demand, fiscal and monetary policies, or commodity prices. However, unemployment can have a significant impact on overall economic growth if it occurs on a large scale, as happened during the COVID-19 pandemic. Waves of mass layoffs occurred in almost all sectors, resulting in a drastic decline in labor productivity. This condition not only directly reduces economic output, but also directly affects national income, investment, and social stability. However, in the long term, high unemployment rates have a very significant impact on economic growth. Long-term unemployment reflects inefficiencies in resource allocation, due to the wastage of production potential, and impacts the decline of human capital. Individuals who are unemployed for a long time tend to lose skills and reduce work motivation, which directly affects the decline in national productivity. High unemployment rates impact household consumption, increase fiscal burdens, and create social instability that harms the investment climate. Conversely, an economy with low and stable unemployment tends to have optimal utilization of production capacity, which drives potential long-term economic growth. Therefore, in the short term, unemployment is not a cause of slowed economic growth; however, in the long term, high structural unemployment will hinder economic growth because it reduces productivity and the purchasing power of the community.

The results of this study are in line with those conducted by Putri and Fanny (2022), Gea Anisa et al. (2024), Lidyawati (2019), Farathika Putri Utami (2020), Gea Anisa et al. (2025), Sinha (2023), Pakpahan (2020), Nadya, & Risdiana Himmati

(2022), who concluded that unemployment has an impact on economic growth. This confirms that the unemployment rate has a significant negative effect on economic growth. High unemployment indicates that the labor force, one of the main factors of production, is not being utilized optimally, so the potential economic output of a country is not fully achieved. As a result, GDP growth is lower than its actual capacity. Unemployment reduces household income, which lowers purchasing power and consumption even though consumption is the largest component of aggregate demand. From a fiscal perspective, high unemployment also burdens the government budget due to the increased need for social assistance and social safety nets, while simultaneously reducing tax revenue from the labor sector. Conversely, a low unemployment rate generally reflects a healthy economy, where labor is efficiently absorbed, consumption remains strong, and productive investment continues, driving stable and inclusive economic growth. Therefore, reducing the unemployment rate often becomes a primary focus of government economic policy to promote sustainable growth.

The Impact of Inflation on Economic Growth

The short-term impact of inflation does not have a significant effect on economic growth, but in the long term, inflation has a significant impact on economic growth. The lack of a significant effect of inflation on economic growth in the short term occurs because the economy is generally still able to absorb price changes, especially when inflation is in a low to moderate range and temporary, such as price increases due to seasonal supply disruptions of commodity prices in the market. As a result, inflation among the public remains controlled and does not affect aggregate demand, because monetary policy is still effective in addressing inflation problems. Thus, short-term inflation is not strong enough to hinder the rate of economic growth. The long-term effects of inflation influence economic growth because if prices continuously rise uncontrollably, it leads to monetary instability. When inflation is high, people lose confidence in the value of the currency, as their purchasing power decreases, and investment planning becomes obstructed. This creates a condition of declining monetary stability that can reduce purchasing power, lower savings, and decrease productivity for business actors to invest, which can hinder economic growth. Therefore, although the short-term effects of inflation are not significantly impactful if it can be consistently controlled to maintain stability and promote sustainable economic growth.

The results of this study are in line with those conducted by Putri and Fanny (2022), Dea, Effendi, and Fauzi (2025), Abdul Wahab (2022), and Rasnino et al. (2022), who concluded that inflation has an impact on economic growth. This confirms that inflation, which is the continual rise in the general prices of goods and services, affects economic growth. At low and stable levels (for example, 2–5% per year), inflation generally supports economic growth by encouraging consumption and investment. Moderate inflation provides room for central banks to implement flexible monetary policies, such as lowering interest rates to stimulate the economy. However, when inflation is high or uncontrolled (hyperinflation), the impact becomes very detrimental. High inflation creates economic uncertainty, reduces people's purchasing power, decreases the value of savings, and disrupts long-term investment planning. Transaction costs increase, the efficiency of resource allocation is disrupted, and confidence in the domestic currency can be low, which can trigger speculation or capital flight to foreign assets. Conversely, deflation (a general decline in prices) also has negative effects because it can delay consumption and investment as people wait for cheaper prices in the future. As a result, aggregate demand weakens, and the economy can get trapped in a prolonged recession.

The Influence of Indonesia's Democracy Index on Economic Growth

The short-term and long-term effects of Indonesia's democracy index do not have a significant impact on economic growth. The democracy index does not have a significant impact because public perceptions of the political situation in Indonesia vary. The quality of democracy developed by the Central Bureau of Statistics (BPS) to measure the level of democracy in Indonesia is based on three main aspects: civil liberties, political rights, and democratic institutions. In Indonesia, a healthy democracy tends to create political stability and legal certainty. This is important for the investment climate, both domestic and foreign, as well-functioning democratic institutions can improve regional economic performance, whereas poorly functioning democratic institutions can reduce economic performance. The democracy index does not directly affect economic growth, but it needs to be monitored because democracy in Indonesia has not been able to address political issues in the country, such as the tendency for corruption to increase. This will reduce public trust, which, in turn, impacts the democratic system in Indonesia.

This research is not in line with the study conducted by Hasan, Voumik, Mozumder, Miguel, Leslie Verteramo, Mihir Kumar (2025). The results indicate a positive and statistically significant relationship between the democracy index and economic growth. It confirms that the Democracy Index measures the level of a country's democracy quality, including aspects such as civil liberties, political rights, rule of law, transparency, accountability, and public participation in decision-making processes. The influence of the democracy index on economic growth is nonlinear; however, higher levels of

democracy tend to support long-term economic growth through several mechanisms. Although the relationship between democracy and economic growth is not always direct, economic conclusions suggest that stable and high-quality democracy provides a more sustainable foundation for inclusive economic growth.

5. CONCLUSION

The ECM test results show that the ECT value has a significant influence, indicating that there is an interaction between variables in reaching long-term equilibrium. In the short-term effects, the variables of demographic bonus, unemployment rate, inflation, and Indonesia's democracy index do not have a significant effect on economic growth in Jambi Province, whereas population growth has a significant impact on economic growth in Jambi Province. Meanwhile, in the long-term effects, the variables of population growth, unemployment rate, and inflation have a significant influence on economic growth in Jambi Province, while the variables of demographic bonus and Indonesia's democracy index do not have a significant impact on economic growth in Jambi Province.

6. ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to **Jambi University** for providing the resources and support necessary to complete this study. We would also like to thank all participants who contributed their time and insights to this research. Special appreciation is extended to colleagues and peers who offered valuable feedback during the development of this manuscript.

7. CONFLICT OF INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in the paper.

8. AUTHOR CONTRIBUTION STATEMENT

*Author's Ovilania*¹- contributed to the conceptualization, research design, and writing of the original draft.

*Author's Junaidi*²- was responsible for data collection, analysis, and validation of the results.

*Author's Etik Umiyati*³- provided supervision, critical review, and editing of the final manuscript.

All authors have read and approved the final version of the manuscript.

9. ETHICS STATEMENT

This research was conducted in accordance with the ethical standards of [**Jambi University**] and adhered to the principles outlined in the Declaration of Helsinki. Ethical approval was obtained from the [**Institutional Ethics Committee/Review Board**] under reference number [**Approval Number, if applicable**]. All participants were informed about the purpose of the study and provided written informed consent prior to participation. Participants' privacy and confidentiality were strictly maintained, and data collected were used solely for academic purposes.

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