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ANALYSIS OF BALI'S ECONOMIC RESILIENCE THROUGH SECTORAL DIVERSIFICATION BEYOND TOURISM

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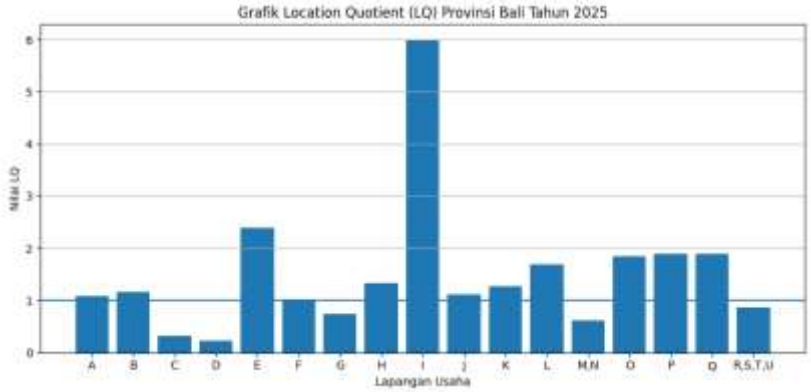
Abstract

This study aims to analyze the effects of leading sectors and economic diversification on the economic resilience of Bali Province. The study employs secondary data on the Gross Regional Domestic Product (GRDP) of nine regencies/municipalities in Bali Province for the 2015–2025 period, comprising a total of 99 observations. The analysis was conducted using the Location Quotient (LQ), the Herfindahl-Hirschman Index (HHI), and panel data regression. The results indicate that leading sectors and economic diversification have significant effects on Bali Province's economic resilience, both partially and simultaneously. These findings demonstrate that strengthening leading non-tourism sectors and effectively managing the economic structure are important components of enhancing Bali's economic resilience in the face of economic shocks.
Keywords: economic resilience, economic diversification, leading sectors, LQ, HHI

INTRODUCTION

Bali Province is highly dependent on the tourism sector as a source of income and employment, particularly through the Accommodation and Food Service Activities category, which is used as a primary indicator of tourism activity within the GRDP structure (Badan Pusat Statistik, 2025). This dependence increases Bali's economic vulnerability to external shocks, as demonstrated by the 2002 and 2005 Bali bombings and the COVID-19 pandemic, which resulted in declining tourist arrivals, rising unemployment, and a weakening of the regional economy (Pratiwi & Purwanti, 2024). Economic diversification is an important strategy for strengthening economic resilience and growth, as demonstrated by the experiences of Singapore and Malaysia in developing more diversified economic structures through the expansion of services, manufacturing, and other industries (Tan & Chen, 2016; Soesanto et al., 2024; Blankenship, 2024). Therefore, diversifying economic sectors beyond activities directly related to tourism is relevant to reducing Bali's dependence on tourism while simultaneously strengthening the resilience of the regional economy in the face of various economic shocks.

Figure 1. Location Quotient (LQ) of Bali Province in 2025



Source: Data Processed from Statistics Indonesia (BPS), 2025

Based on Figure 1, several sectors have a Location Quotient (LQ) value greater than one (LQ > 1), indicating that these sectors are classified as leading sectors in Bali Province. The accommodation and food service activities sector has the highest LQ value, reflecting the prominent role of tourism in the regional economy. In addition, other sectors, such as transportation and storage, information and communication, and financial services, also have LQ values above one, indicating their potential for further development as non-tourism sectors. However, several sectors still have LQ values below one, indicating that their relative contribution is lower than that at the national level.

The economic structure of Bali Province exhibits diverse characteristics across economic sectors, which can be observed not only from their contribution to GRDP but also from the degree of sectoral specialization as measured using Location Quotient (LQ) analysis.

The agriculture, forestry, and fisheries sector continues to play a crucial role, particularly in areas such as Bangli, Karangasem, Jembrana, and Tabanan, indicating that the primary economic base remains strong in non-urban areas. This suggests that agriculture remains an important pillar of regional economies and has the potential to serve as a source of economic resilience, particularly when the tourism sector experiences a downturn.

In addition, the manufacturing and construction sectors make relatively consistent contributions across almost all regencies/municipalities. This condition indicates the potential to strengthen the secondary sector as an alternative source of economic growth. The development of industries based on local resources and infrastructure development could promote more equitable economic growth while strengthening Bali's economic foundation beyond the tourism sector.

The wholesale and retail trade and repair of motor vehicles and motorcycles sector makes a significant contribution across various regions, including Denpasar and Badung. This illustrates the importance of trade and supporting services as drivers of local economic activity, as well as their capacity to adapt to changing economic conditions.

Notably, the transportation and storage, information and communication, and financial and insurance activities sectors play important roles in several areas, particularly in urban regions. This indicates that modern and service-based economic

sectors are beginning to expand and could provide a new foundation for Bali's economic diversification. These sectors have considerable potential to strengthen economic resilience because they are not entirely dependent on tourist arrivals.

Meanwhile, the accommodation and food service activities sector continues to play a dominant role in areas with high levels of tourism activity, such as Badung and Denpasar. Differences in the contribution of this sector across regions indicate that dependence on tourism has contributed to an uneven economic structure that remains vulnerable to external shocks (Badan Pusat Statistik Provinsi Bali, 2025).

In this study, regional economic resilience is understood as the ability of Bali's economic structure to withstand, adapt to, and recover from economic shocks through the strengthening of non-tourism economic sectors.

Given these conditions, it is necessary to examine the economic resilience of Bali Province through the development of sectors beyond the tourism industry. This study is expected to identify the contribution of non-tourism sectors to strengthening the regional economic foundation and provide insights into the potential of economic diversification as a strategy for enhancing Bali's economic resilience in the future (Marbun, 2022; Susilawati, 2018).

Previous studies, including Hidayati et al. (2025) and Jafar and Meilvidiri (2022), have analyzed regional economies and economic resilience using various approaches. Studies on economic diversification generally emphasize the identification of leading sectors using the Location Quotient (LQ) method and analyze the contribution of these sectors to regional economic development. In contrast, studies related to economic resilience tend to focus more on macroeconomic aspects, such as economic stability, the capacity to recover from crises, and the role of government policies in responding to economic shocks.

However, these studies have several limitations. First, most studies continue to examine leading sectors separately without directly linking them to the concept of regional economic resilience, thereby providing limited explanations of how economic structure affects a region's ability to withstand economic shocks. Second, studies on economic resilience are generally conducted at the national or interregional level, providing limited insight into the dynamics of economic resilience in regions that are highly dependent on a single dominant sector.

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In addition to identifying leading sectors, this study also examines the overall diversity of Bali's economic structure, as the presence of leading sectors alone is insufficient to describe a region's vulnerability to economic shocks. A region may have several leading sectors; however, if its GRDP contribution remains concentrated in one or two dominant sectors, such as tourism, the risk of economic instability remains high. Therefore, the level of economic diversification in this study is measured using the

Herfindahl-Hirschman Index (HHI), which provides a more comprehensive measure of the degree of concentration or distribution of GRDP contributions across sectors than merely counting the number of leading sectors.

Therefore, this study seeks to address these research gaps by incorporating an analysis of leading non-tourism sectors using the Location Quotient (LQ) method and measuring the degree of economic diversification using the Herfindahl-Hirschman Index (HHI) within the context of regional economic resilience. The effects of these two variables on economic resilience are subsequently analyzed using multiple linear regression. This study aims not only to identify leading sectors but also to evaluate their role in strengthening economic resilience by considering the capacity to withstand, recover from, and adapt to economic shocks. This approach provides a more holistic perspective by not only identifying leading sectors but also measuring the diversity of the economic structure and simultaneously examining the effects of both factors within a dynamic framework of regional economic resilience.

RESEARCH METHOD

This study employs a quantitative approach with a causal-associative research design to analyze the effects of leading sectors and economic diversification on regional economic resilience in Bali Province. The study covers nine regencies/municipalities in Bali Province, namely Jembrana, Tabanan, Badung, Gianyar, Klungkung, Bangli, Karangasem, Buleleng, and Denpasar. These areas were selected based on the characteristics of Bali's economy, which is highly dependent on the tourism sector while also possessing potential alternative sectors such as agriculture, fisheries, and manufacturing. The object of this study is the regional economic structure as reflected in Gross Regional Domestic Product (GRDP) by industry, with a particular focus on identifying leading non-tourism sectors as part of efforts to promote diversification and strengthen regional economic resilience. The study uses secondary quantitative panel data obtained from publications of Statistics Indonesia (BPS) of Bali Province and the BPS offices of each regency/municipality for the 2015–2025 period. With nine cross-sectional units and eleven years of observation, the dataset comprises 99 observations. Data were collected using the documentation method through systematic stages of identification, downloading, classification, and compilation of sectoral GRDP and economic growth data (Sugiyono, 2019; BPS Provinsi Bali, 2015–2025).

The research variables consist of leading sectors (X1), economic diversification (X2), and economic resilience (Y). Leading sectors are identified using the Location Quotient (LQ) method, which compares the share of a particular sector in the GRDP of a regency/municipality with the share of the same sector in Bali Province as the reference region. An LQ value greater than 1 ($LQ > 1$) indicates a basic or leading sector, whereas an LQ value of 1 or less ($LQ \leq 1$) indicates a non-basic sector. Variable X1 is measured based on the number of sectors with LQ values greater than 1 in each regency/municipality and year of observation. Economic diversification (X2) is measured using the Herfindahl-Hirschman Index (HHI), based on the GRDP shares of 17 industry categories. A lower HHI value indicates a more diversified economic structure, whereas a higher value indicates greater economic concentration (Belbali et al., 2024; Capoani & Martini, 2024). Meanwhile, economic resilience (Y) is proxied by economic growth

based on GRDP at constant prices. LQ analysis is used to identify basic sectors based on the degree of specialization and comparative advantage of a region (Tarigan, 2005). Data analysis was conducted using multiple linear regression with a panel data approach to examine the effects of leading sectors and economic diversification on economic resilience. The research model is specified as $Y_{it} = \alpha + \beta_1 X1_{it} + \beta_2 X2_{it} + e_{it}$, comprising nine cross-sectional units and eleven time periods, resulting in a total of 99 observations. Estimation was conducted using three alternative models: the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Model selection was performed using the Chow test to determine between CEM and FEM, the Hausman test to determine between FEM and REM, and the Lagrange Multiplier (LM) test to determine between CEM and REM. The selected model was subsequently used for hypothesis testing through the t-test to determine the partial effect of each independent variable, the F-test to determine the simultaneous effects of leading sectors and economic diversification on economic resilience, and the coefficient of determination (R^2) to measure the ability of the independent variables to explain variations in regional economic resilience (Wooldridge, 2019; Gujarati & Porter, 2009).

RESULTS AND DISCUSSION

Analysis of Leading Sectors Based on the Location Quotient (LQ)

Table 1. Leading Non-Tourism Sectors in Regencies/Municipalities of Bali Province Based on the Average Location Quotient (LQ), 2015–2025

Regency/Municipality	Number of Non-Tourism Basic Sectors
Jembrana	6
Tabanan	6
Badung	4
Gianyar	9
Klungkung	8
Bangli	6
Karangasem	6
Buleleng	7
Denpasar	10

Source: Processed by the researchers.

Based on Table 1, Denpasar has the largest number of non-tourism basic sectors, with 10 sectors, whereas Badung has the smallest number, with only four sectors. Details of the basic sectors and their respective average LQ values for each regency/municipality are presented in the Appendix.

Overall, Table 1 demonstrates that all regencies/municipalities in Bali Province have leading non-tourism sectors, although their numbers and compositions vary. These findings indicate that Bali's economic base is not entirely dependent on the tourism sector but is also supported by primary, secondary, and other service sectors that possess comparative advantages in particular regions.

Regencies/Municipalities with the Most Diverse Non-Tourism Sectors

Based on Location Quotient values (LQ > 1), Denpasar has the greatest diversity of non-tourism basic sectors, with ten sectors, followed by Gianyar Regency with nine sectors and Klungkung Regency with eight sectors. In contrast, Badung Regency has only four non-tourism basic sectors, indicating that its economic structure is relatively concentrated in tourism and tourism-supporting activities and is therefore less diversified than those of other regions. Meanwhile, Denpasar exhibits a more diversified urban service economy, with basic sectors including electricity and gas, education, business services, financial and insurance activities, and various other modern service sectors.

Non-Tourism Sectors Most Frequently Identified as Basic Sectors

An analysis of the nine regencies/municipalities shows that Public Administration and Defence; Compulsory Social Security and Other Service Activities are the sectors most frequently identified as basic sectors, each occurring in six regions. Meanwhile, Agriculture, Forestry and Fisheries; Mining and Quarrying; and Real Estate Activities are identified as basic sectors in five regions. Among these sectors, Agriculture, Forestry and Fisheries has strong relevance to economic diversification because it represents a real sector that absorbs labor and forms the economic base of agrarian regions. In contrast, the dominance of Public Administration and Defence; Compulsory Social Security should be interpreted cautiously because it more closely reflects the substantial role of government expenditure. Transportation and Storage, Construction, and Wholesale and Retail Trade also have the potential to support diversification; however, their degree of independence from tourism varies across regions. In Badung, for example, these sectors remain closely associated with tourism activities, whereas in Jembrana, Karangasem, Bangli, Buleleng, and Denpasar, they more strongly reflect logistics, trade, distribution, and local economic activities.

Differences in the Economic Characteristics of Agrarian, Industrial, and Service/Urban Regions

The LQ analysis reveals three main economic characteristics across Bali. First, agrarian regions, including Tabanan, Bangli, Karangasem, Buleleng, and Jembrana, demonstrate comparative advantages in Agriculture, Forestry and Fisheries. Second, industrial characteristics are most evident in Gianyar and, to a more moderate extent, in Klungkung and Bangli. Third, service- and urban-oriented economic characteristics are represented by Denpasar. These patterns reflect differences in regional economic structures, ranging from the dominance of primary sectors and manufacturing and creative industries to modern services that have developed in line with Denpasar's role as a center of government, education, and business activities. These differences emphasize that economic diversification strategies should be tailored to the sectoral potential and comparative advantages of each regency/municipality.

Relationship Between LQ Results, Economic Diversification, and Regional Economic Resilience

The findings above are consistent with the concept of economic diversification, which refers to efforts to broaden a region's economic base so that it does not depend on a single sector. The presence of non-tourism basic sectors across all regencies/municipalities, particularly Agriculture, Manufacturing, and various service sectors, indicates that Bali Province possesses the structural potential to reduce its dependence on Accommodation and Food Service Activities.

Regions with a larger number of non-tourism basic sectors, such as Denpasar, Gianyar, and Klungkung, theoretically indicate a more diversified economic structure that may be better positioned to withstand shocks originating from the tourism sector, such as declines in tourist arrivals caused by global crises, natural disasters, or pandemics, because losses in one sector may be partially offset by the performance of other sectors.

In contrast, regions with a limited number of non-tourism basic sectors, such as Badung, may face a higher risk of economic vulnerability when the tourism sector comes under pressure. Therefore, strengthening non-tourism sectors in such regions is crucial. Accordingly, the LQ analysis in this study provides an empirical basis for sectoral diversification based on regional comparative advantages. In particular, strengthening Agriculture, Forestry and Fisheries; Manufacturing; Financial and Insurance Activities; Education; and trade oriented toward local demand can serve as a strategy to support the sustainable enhancement of regional economic resilience in Bali Province.

Economic Diversification Analysis Based on the Herfindahl-Hirschman Index (HHI)

Table 2. Economic Diversification Levels of Regencies/Municipalities in Bali Province Based on the Herfindahl-Hirschman Index (HHI), 2015–2025

Regency/Municipality	Average HHI 2015–2025	HHI 2015	HHI 2025	Change in HHI (2025–2015)	Diversification Interpretation
Badung	1.270	1.350	1.300	-50 (-3.43%)	Highly concentrated within Bali; slight improvement
Bangli	1.250	1.290	1.210	-80 (-5.77%)	Concentrated; slight diversification
Buleleng	1.100	1.130	1.060	-70 (-6.00%)	Relatively well diversified; improving trend
Denpasar	1.050	1.100	1.060	-40 (-3.81%)	Highly diversified; improving trend
Gianyar	1.090	1.100	1.110	+10 (+1.14%)	Relatively well diversified; slight increase in concentration
Jembrana	1.130	1.160	1.130	-30 (-2.46%)	Moderately diversified; relatively stable
Karangasem	1.200	1.280	1.120	-160 (-12.40%)	Moderately diversified; most significant improvement

Klungkung	1.040	2.020*	1.000	-90 (-7.98%)	Most diversified in Bali; continuing to improve*
Tabanan	1.170	1.200	1.140	-60 (-5.26%)	Moderately diversified; improving trend

Source: Processed by the researchers.

Based on Table 2, the degree of economic concentration across regencies/municipalities in Bali Province varied during the 2015–2025 period. Badung and Bangli had relatively higher average HHI values than several other regencies/municipalities, indicating relatively more concentrated economic structures. In contrast, Denpasar and Klungkung had relatively lower average HHI values, indicating more diversified economic structures. Overall, most regencies/municipalities experienced a decline in HHI values from 2015 to 2025, indicating a reduction in economic concentration and a tendency toward greater economic diversification. The largest decline was observed in Karangasem, whereas Gianyar experienced a slight increase in its HHI value.

Regency/Municipality with the Highest Level of Economic Diversification

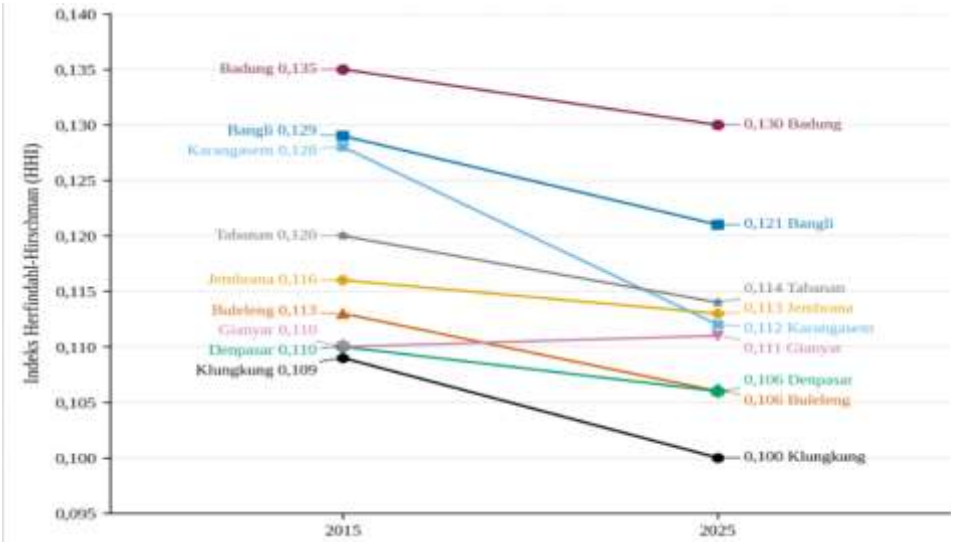
Based on the average HHI for the 2015–2025 period, Klungkung Regency had the highest level of economic diversification, with a value of 0.1040, followed by Denpasar Municipality (0.1053) and Gianyar Regency (0.1091), indicating a relatively even distribution of GRDP across various sectors. Klungkung's diversification is supported by a balance among the agriculture, manufacturing, and service sectors, while Denpasar reflects the characteristics of an urban economy supported by a diverse range of modern service sectors, consistent with the results of the LQ analysis. Theoretically, a more diversified economic structure is more resilient to sector-specific shocks because a decline in the performance of one sector can be offset by the performance of other sectors.

Regency/Municipality with the Highest Level of Economic Concentration

Badung Regency had the highest level of economic concentration in Bali, with an average HHI of 0.1273, followed by Bangli Regency (0.1249) and Karangasem Regency (0.1203). Badung's relatively high HHI indicates an economic structure that is comparatively concentrated in tourism-related sectors, particularly Accommodation and Food Service Activities and Transportation and Storage, resulting in a lower degree of diversification than in other regions. This condition increases economic vulnerability to shocks affecting the tourism sector, as reflected in changes in Badung's HHI during the 2020–2021 pandemic, when the contribution of the tourism sector to GRDP declined.

Changes in Bali's Economic Structure During the 2015–2025 Period

Figure 2. Changes in the HHI of Regencies/Municipalities in Bali Province, 2015–2025



The most significant decline in HHI occurred in Karangasem Regency, amounting to 0.0159 points or 12.40 percent, followed by Klungkung (7.98 percent) and Buleleng (6.00 percent). The improvement in economic diversification in these regions indicates the strengthening contribution of non-tourism sectors, such as agriculture, manufacturing, and trade, which have gradually broadened the regional economic base. The only region showing the opposite trend was Gianyar Regency, with an increase in HHI of 0.0013 points or 1.14 percent. This indicates a slight increase in economic concentration; however, the magnitude of the increase was relatively small, and its overall economic structure remained diversified.

In aggregate, the declining HHI trend across the majority of regencies/municipalities indicates that the economy of Bali Province gradually moved toward a more diversified structure and became less reliant on a single sector during the 2015–2025 period.

Relationship Between the HHI Results and the Research Objectives

The HHI analysis shows that the declining trend in economic concentration across the majority of regencies/municipalities reflects the development of economic diversification and the strengthening of non-tourism sectors, consistent with the findings of the LQ analysis. Klungkung, Denpasar, and Karangasem demonstrate relatively favorable levels of diversification, whereas the high level of economic concentration in Badung indicates the need to strengthen non-tourism sectors to reduce dependence on tourism. Therefore, the development of non-tourism sectors represents a strategic measure for strengthening diversification and enhancing Bali's economic resilience to various external shocks.

Results of the Research Data Analysis

Descriptive Statistics

Table 3. Descriptive Statistics of Research Variables

Statistic	X1	X2	Y
Mean	7.262626	0.114441	3.646061
Median	7.000000	0.112992	5.440000
Maximum	11.00000	0.139566	11.29000
Minimum	5.000000	0.095663	-16.55000
Std. Dev.	1.919746	0.009283	4.381560
Skewness	0.631512	0.526107	-2.095850
Kurtosis	2.167848	2.971625	7.814689
Observations	99	99	99

Source: Results of panel data processing using EViews 13, 2026 (processed data).

The descriptive statistics show that the number of leading sectors (X1) has an average of 7.2626 sectors, ranging from 5 to 11 sectors, with a standard deviation of 1.9197. These results reflect differences in economic structures across regencies/municipalities and observation years in Bali Province. Economic diversification (X2), measured using the Herfindahl-Hirschman Index (HHI), has an average value of 0.1144, with a minimum of 0.0957, a maximum of 0.1396, and a standard deviation of 0.0093, indicating relatively small variations in the degree of economic concentration across regions and observation years.

Meanwhile, economic resilience (Y), measured by GRDP growth at constant prices, has an average value of 3.6461 percent, with a minimum of –16.5500 percent, a maximum of 11.2900 percent, and a standard deviation of 4.3816, indicating considerable variation in economic growth. The variations in these three variables subsequently provide the basis for panel data regression analysis to examine the effects of the number of leading sectors and economic diversification on the economic resilience of regencies/municipalities in Bali Province.

Panel Data Regression Model Selection Results

1) **Chow Test**

Table 4. Chow Test

Redundant Fixed Effects Tests
Equation: FEM
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.268194	(8,88)	0.2704
Cross-section Chi-square	10.802362	8	0.2132

Source: Processed by the researchers

Based on the results of the Chow Test, the test was conducted to determine whether there was a structural change (structural break) in the relationships among variables during the study period. The results show a probability value of [value]. If the probability value is less than 0.05, a structural change is considered to have occurred

during the period under examination. Conversely, if the probability value is greater than 0.05, there is no evidence of a structural change

2) **LM Test**

Table 5. Common Effect Model (CEM)

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	1.025177 (0.3113)	243.1150 (0.0000)	244.1402 (0.0000)

Source: Results of data processing using EViews 13, 2026.

Based on the results of the Lagrange Multiplier (LM) Test presented in Table 5, the Breusch-Pagan cross-section probability value is 0.3113, which is greater than the 5 percent significance level (0.05). Therefore, the null hypothesis is not rejected, indicating that the Common Effect Model (CEM) is more appropriate than the Random Effect Model (REM). The previous Chow Test results also indicated that the CEM was more appropriate than the FEM. Accordingly, based on these two tests, the Common Effect Model (CEM) was selected for the panel data regression analysis in this study.

Panel Data Regression Estimation Results

Table 6. Panel Data Regression Estimation Results

Dependent Variable: Y
Method: Panel Least Squares
Date: 08/13/26
Time: 12:50
Sample: 2015–2025
Periods included: 11
Cross-sections included: 9
Total panel (balanced) observations: 99

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-20.42590	7.380588	-2.767517	0.0068
X1	0.616499	0.261158	2.360642	0.0203
X2	171.2195	54.00816	3.170253	0.0020

Statistic	Value	Statistic	Value
R-squared	0.100108	Mean dependent var	3.646061
Adjusted R-squared	0.081360	S.D. dependent var	4.381560
S.E. of regression	4.199537	Akaike info criterion	5.737660
Sum squared resid	1693.067	Schwarz criterion	5.816300
Log likelihood	-281.0142	Hannan-Quinn criter.	5.769478
F-statistic	5.339706	Durbin-Watson stat	1.390064
Prob(F-statistic)	0.006326		

Source: Processed by the researchers.

Based on the Common Effect Model (CEM) regression estimation results presented in Table 6, the regression equation is formulated as follows:

$Y = -20.42590 + 0.616499X_1 + 171.2195X_2 + e$

Statistical Tests

Statistical tests were conducted to determine the effects of the independent variables on the dependent variable, both individually and simultaneously, as well as to assess the extent to which the model explains variations in the dependent variable. The statistical tests employed in this study include the t-test, F-test, and coefficient of determination (R^2). The tests were conducted based on the estimation results of the Common Effect Model (CEM) at a 5 percent significance level.

Partial Test (t-Test)

Table 7. Results of the Partial Test (t-Test)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-20.42590	7.380588	-2.767517	0.0068
X1	0.616499	0.261158	2.360642	0.0203
X2	171.2195	54.00816	3.170253	0.0020

Source: Data processed using EViews 13, 2026.

The results of the t-test indicate that the leading non-tourism sectors (X1) have a positive and significant effect on economic resilience, with a coefficient of 0.616499 and a probability value of 0.0203 < 0.05, thereby supporting H1. Meanwhile, HHI (X2) also has a significant effect, with a coefficient of 171.2195 and a probability value of 0.0020 < 0.05. However, the positive coefficient indicates that greater economic concentration is associated with higher economic resilience. Therefore, the result does not support the initial proposition that greater economic diversification strengthens economic resilience.

Simultaneous Test (F-Test)

Table 8. Results of the Simultaneous Test (F-Test)

Statistic	Value	Statistic	Value
R-squared	0.100108	Mean dependent var	3.646061
Adjusted R-squared	0.081360	S.D. dependent var	4.381560
S.E. of regression	4.199537	Akaike info criterion	5.737660
Sum squared resid	1693.067	Schwarz criterion	5.816300
Log likelihood	-281.0142	Hannan-Quinn criter.	5.769478
F-statistic	5.339706	Durbin-Watson stat	1.390064
Prob(F-statistic)	0.006326		

Source: Data processed using EViews 13, 2026.

The results of the F-test show an F-statistic of 5.339706 with a probability value of 0.006326 < 0.05; therefore, H_0 is rejected. Thus, the number of leading sectors (X1) and economic diversification (X2) simultaneously have a significant effect on the

economic resilience (Y) of regencies/municipalities in Bali Province during the 2015–2025 period.

Coefficient of Determination (R^2)

Table 9. Results of the Coefficient of Determination (R^2)

Statistic	Value	Statistic	Value
R-squared	0.100108	Mean dependent var	3.646061
Adjusted R-squared	0.081360	S.D. dependent var	4.381560

Source: Data processed using EViews 13, 2026.

Based on the estimation results of the Common Effect Model (CEM), the R-squared value is 0.100108. This value indicates that the leading sectors (X1) and economic diversification (X2) jointly explain 10.01 percent of the variation in economic resilience (Y). Meanwhile, the remaining 89.99 percent of the variation in economic resilience is explained by other factors not included in the research model.

Furthermore, the Adjusted R-squared value of 0.081360 indicates that, after accounting for the number of independent variables and observations included in the model, the leading sectors and economic diversification explain 8.14 percent of the variation in economic resilience. Therefore, other factors outside the model may also contribute to variations in the level of economic resilience across Bali Province.

Discussion

The Effect of Leading Sectors on the Economic Resilience of Bali Province

The estimation results of the Common Effect Model (CEM) indicate that leading non-tourism sectors identified using the Location Quotient (LQ) have a positive and significant effect on the economic resilience of Bali Province, with a coefficient of 0.616499, a t-statistic of 2.360642, and a probability value of 0.0203 < 0.05, thereby supporting H1. This finding indicates that a greater number of sectors with LQ > 1 is associated with a broader range of economic activities that can support the regional economy and reduce dependence on tourism. The presence of leading non-tourism sectors is particularly important for Bali because these sectors can strengthen the economic structure and help sustain economic activity when the tourism sector comes under pressure. Therefore, the identification of leading sectors using LQ can serve as a reference for developing potential sectors in accordance with the characteristics of each regency/municipality to strengthen Bali's economic resilience.

The Effect of Economic Diversification on the Economic Resilience of Bali Province

The estimation results of the Common Effect Model (CEM) indicate that HHI (X2) has a significant effect on the economic resilience of Bali Province, with a coefficient of 171.2195, a t-statistic of 3.170253, and a probability value of 0.0020 < 0.05. However, the positive HHI coefficient indicates that greater concentration of the economic structure is associated with higher economic resilience. Thus, the direction of this relationship differs from the concept of diversification, which assumes that a lower HHI reflects greater diversification and stronger resilience. This finding suggests that concentration in certain sectors is not necessarily associated with lower economic resilience and is

consistent with the findings of Molu and Yılmaz (2025), who demonstrate that economic structure and specialization can play a role in regional resilience. Therefore, H2, which states that greater diversification of non-tourism economic sectors has a positive effect on Bali's economic resilience, is not supported, although the relationship between HHI and economic resilience is statistically significant.

The Simultaneous Effect of Leading Sectors and Economic Diversification on the Economic Resilience of Bali Province

Based on the results of the F-test, the F-statistic is 5.339706, with a probability value of 0.006326. Since the probability value is lower than the 5 percent significance level (0.05), it can be concluded that leading sectors (X1) and economic diversification (X2) simultaneously have a significant effect on the economic resilience of Bali Province. Therefore, the findings support H3, which states that leading sectors and economic diversification simultaneously have a significant effect on the economic resilience of Bali Province.

These results indicate that regional economic resilience depends not only on the presence of particular sectors with comparative advantages but also on the overall characteristics of the regional economic structure. Leading sectors can contribute to regional economic activity and economic strength, while economic diversification reflects how economic activities are distributed across different sectors. The combination of these two aspects provides a more comprehensive understanding of the ability of a regional economic structure to sustain economic activity when facing economic changes or pressures.

In the context of Bali Province, this simultaneous effect is particularly important because Bali's economic structure is strongly characterized by tourism-related activities. This condition increases the importance of economic sectors outside the dominant sector in developing a stronger economic structure that is capable of responding to various disruptions. Leading non-tourism sectors can provide additional sources of economic activity, while economic diversification reflects the extent to which economic activities are distributed across different industries. Therefore, these two variables can be jointly used to explain differences in economic resilience across regencies/municipalities in Bali Province.

These findings are consistent with the study by Purnawan and Dhoifullah (2026), which examined regional economic resilience across regencies/municipalities in Jambi Province. Using data from 11 regencies/municipalities over the five-year period from 2020 to 2024, their study found that economic diversification had a positive and relatively strong effect on regional economic resilience. The study also emphasized that the characteristics of regional economic structures constitute an important factor in strengthening a region's capacity to maintain economic stability when facing challenges in the development process.

The findings of the present study also indicate that efforts to enhance economic resilience in Bali Province should not focus solely on the growth of sectors that already serve as the main pillars of the regional economy. Local governments should also consider the development of leading sectors beyond tourism as well as the specific characteristics of the economic structure of each region. This approach enables

development policies to be tailored to the potential of each regency/municipality, thereby ensuring that sources of economic growth are not solely dependent on the largest sector.

Thus, the results of the F-test demonstrate that leading sectors and economic diversification jointly have a significant effect on the economic resilience of Bali Province. These findings reinforce the view that regional economic resilience is influenced by the overall characteristics of the local economic structure. Therefore, strengthening Bali's economic resilience requires the development of sectors with comparative advantages as well as the management of an economic structure capable of responding and adapting to economic changes and challenges.

Based on these results, H3 is supported, as leading sectors (X1) and economic diversification (X2) are simultaneously proven to have a significant effect on the economic resilience (Y) of Bali Province.

CONCLUSION

1. Leading sectors have a positive and significant effect on the economic resilience of Bali Province. This finding indicates that the presence of sectors with particular comparative advantages can contribute to strengthening the capacity of the regional economy to withstand economic pressures.
2. Economic diversification, as measured using the Herfindahl-Hirschman Index (HHI), has a significant effect on the economic resilience of Bali Province. The positive HHI coefficient indicates that, during the study period, greater concentration of the economic structure was positively associated with economic resilience, as proxied by economic growth. This finding suggests that sectors with substantial contributions continued to play an important role in maintaining regional economic performance; however, it does not imply that increasing dependence on a single sector should be pursued as an economic strategy.
3. Leading sectors and economic diversification simultaneously have a significant effect on the economic resilience of Bali Province. The findings indicate that Bali's economic resilience is influenced by the combination of the strength of its leading sectors and the characteristics of its regional economic structure.

Overall, this study demonstrates that strengthening the economic resilience of Bali Province requires both the development of leading sectors and the management of an economic structure that supports the region's capacity to withstand and adapt to various economic shocks.

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