

Beyond Tourist Arrivals: The Role of Tourism Quality In Strengthening Regional Economic Resilience In Yogyakarta, Indonesia

Fandy¹, Agus Tri Basuki², Diah Setyawati Dewanti³

^{1,2,3}Master of Economics, Faculty of Economics and Business, Universitas Muhammadiyah Yogyakarta, Indonesia

Corresponding author :

Email: agustribasuki@yahoo.com

Abstract.

This study investigates the determinants of tourism economic resilience by examining the roles of tourism quantity and tourism quality in the Special Region of Yogyakarta, Indonesia. While previous studies predominantly emphasize tourist arrivals as the main driver of regional economic growth, limited attention has been paid to tourism quality indicators such as hotel occupancy rates and average length of stay. Using balanced panel data from five districts/cities during 2015–2024, this study employs panel data regression to analyze the effects of tourist arrivals, hotel occupancy rates, average length of stay, hotel capacity, and the post-pandemic period on the Gross Regional Domestic Product (GRDP) of the accommodation and food service sector. Model selection through the Chow and Hausman tests indicates that the Fixed Effects Model is the most appropriate estimation approach. The findings reveal that tourist arrivals, average length of stay, and hotel capacity positively and significantly influence sectoral GRDP, whereas hotel occupancy rates exhibit a significant negative relationship. Meanwhile, the post-pandemic recovery period does not have a statistically significant independent effect after controlling for tourism indicators. These findings extend the Tourism-Led Growth Hypothesis by demonstrating that tourism quality, particularly longer visitor stays, contributes more substantially to regional economic resilience than increasing visitor numbers alone. The study provides policy implications for promoting quality-oriented tourism strategies to enhance local value creation and sustainable regional economic development.

Keywords: Tourism-Led Growth Hypothesis; tourism quality; economic resilience; panel data; regional economy and Yogyakarta.

I. INTRODUCTION

Tourism has become one of the world's most important economic sectors, contributing significantly to economic growth through employment creation, investment stimulation, foreign exchange earnings, and the expansion of supporting industries. Prior to the COVID-19 pandemic, the tourism sector accounted for approximately 10.4% of global Gross Domestic Product (GDP) and supported around 334 million jobs, representing one out of every ten jobs worldwide (World Travel & Tourism Council, 2020; United Nations World Tourism Organization, 2020). Due to its strong forward and backward linkages, tourism generates substantial multiplier effects across transportation, accommodation, food services, retail trade, creative industries, and micro, small, and medium-sized enterprises (MSMEs), thereby stimulating regional economic development and improving local livelihoods (Balaguer & Cantavella-Jordá, 2002; Brida et al., 2016; Pablo-Romero & Molina, 2013; Lee & Chang, 2008). Consequently, tourism has long been recognized as an export-oriented industry capable of accelerating economic growth, leading to the emergence of the Tourism-Led Growth Hypothesis (TLGH), which posits that tourism development promotes economic expansion through increased consumption, investment, employment, and international trade (Croes & Vanegas, 2008; Brida et al., 2016).

Despite its substantial economic contribution, the COVID-19 pandemic fundamentally disrupted the global tourism industry. International travel restrictions, border closures, and mobility limitations caused an unprecedented decline in tourist arrivals, resulting in severe contractions in accommodation, transportation, hospitality, and other tourism-related industries (UNWTO, 2021; Gössling et al., 2021). Although international tourism has gradually recovered since 2022, recent evidence suggests that the recovery in tourist arrivals has not necessarily translated into proportional improvements in tourism-generated economic output (UN Tourism, 2024; WTTC, 2024). This phenomenon indicates that the success of tourism development can no longer be assessed solely by the number of tourist arrivals (*tourism quantity*), but should increasingly emphasize the quality of tourism activities (*tourism quality*), including hotel occupancy rates, average length of stay, tourist expenditure, and local value creation (OECD, 2020; Dwyer et al., 2020; Romão et al., 2022). In other words, a destination experiencing rapid growth in visitor numbers may still

generate relatively limited economic benefits if tourists spend only a short period at the destination or utilize accommodation facilities inefficiently.

This paradigm shift has also encouraged the development of the concept of economic resilience within tourism studies. Economic resilience refers not only to the ability of a destination to recover from external shocks but also to its capacity to sustain long-term economic performance through efficient resource utilization, adaptive governance, and sustainable tourism development (Martin & Sunley, 2015; Hall et al., 2018). In this context, tourism quality becomes increasingly important because visitors who stay longer generally spend more on accommodation, restaurants, transportation, shopping, and recreational activities, thereby producing larger economic multipliers than short-stay visitors (Alegre & Pou, 2006; Thrane, 2012; Dogru et al., 2020; Brida et al., 2016). Likewise, hotel occupancy rates reflect the efficiency of tourism infrastructure utilization and the capability of destinations to convert tourist demand into local economic value (Assaf & Tsionas, 2019). Therefore, indicators such as hotel occupancy rates and average length of stay have increasingly been recognized as critical measures of tourism quality and regional tourism resilience rather than merely operational indicators of the hospitality industry (Pulido-Fernández & Cárdenas-García, 2021).

In Indonesia, tourism has become one of the government's strategic sectors for promoting inclusive economic growth, regional competitiveness, employment generation, and sustainable development (Ministry of Tourism and Creative Economy, 2023; National Development Planning Agency/Bappenas, 2020). Among Indonesia's leading tourism destinations, the Special Region of Yogyakarta (DIY) occupies a unique position due to its combination of cultural heritage, educational tourism, historical attractions, natural landscapes, and creative industries. Tourism has become an essential pillar of the regional economy, particularly through its contribution to the accommodation and food service sector, which represents one of the largest contributors to the province's Gross Regional Domestic Product (GRDP) (Statistics Indonesia–DIY, 2025). During the 2015–2024 period, Yogyakarta experienced substantial fluctuations in tourism activities. After a dramatic decline during the COVID-19 pandemic, tourist arrivals recovered rapidly in the post-pandemic period. However, this recovery was not accompanied by proportional increases in hotel occupancy rates and average length of stay. Consequently, increasing tourist arrivals have not necessarily generated optimal economic value for the accommodation and food service sector, raising important questions regarding the determinants of tourism-driven regional economic resilience (Saptutyningsih & Duanta, 2021).

Despite the strategic importance of tourism to the regional economy of the Special Region of Yogyakarta, there remains limited empirical evidence regarding whether improvements in tourism performance are driven primarily by increasing visitor numbers or by enhancing tourism quality. Understanding this distinction is essential for designing tourism policies that generate sustainable regional economic benefits rather than merely increasing tourism volume. Therefore, this study aims to examine the effects of tourist arrivals, hotel occupancy rates, average length of stay, hotel accommodation capacity, and the post-pandemic recovery period on the Gross Regional Domestic Product (GRDP) of the accommodation and food service sector in the Special Region of Yogyakarta. Furthermore, this study seeks to evaluate whether tourism quality indicators provide greater explanatory power for regional economic resilience than conventional tourism quantity measures within the Tourism-Led Growth Hypothesis (TLGH) framework.

A growing body of literature has examined the relationship between tourism development and economic growth under the Tourism-Led Growth Hypothesis framework. Most empirical studies have concentrated on the effects of tourist arrivals, tourism receipts, international tourism expenditure, or tourism exports on national and regional economic growth (Balaguer & Cantavella-Jordá, 2002; Brida et al., 2016; Pablo-Romero & Molina, 2013; Dogru et al., 2020). Other studies have primarily employed aggregate GDP as the dependent variable, overlooking the direct effects of tourism on specific tourism-related industries such as accommodation and food services (Lee & Chang, 2008; Croes & Vanegas, 2008). Furthermore, existing research generally evaluates tourist arrivals independently while paying limited attention to tourism quality indicators, particularly hotel occupancy rates and average length of stay, despite their critical role in determining local tourism expenditure and economic performance. Moreover, relatively few studies have

simultaneously examined these indicators using panel data at the subnational level, particularly during the transition from the pre-pandemic period through the COVID-19 crisis and subsequent recovery. As a result, empirical evidence remains limited regarding the extent to which tourism quality contributes to regional economic resilience beyond the conventional measure of tourist arrivals alone (Hall et al., 2018; Gössling et al., 2021; Romão et al., 2022).

This study addresses these research gaps by offering several important contributions. First, unlike previous studies that primarily emphasize tourism quantity, this study simultaneously investigates the effects of tourist arrivals, hotel occupancy rates, and average length of stay on the Gross Regional Domestic Product (GRDP) of the accommodation and food service sector, thereby incorporating tourism quality indicators into the Tourism-Led Growth framework. Second, rather than employing aggregate regional GDP, this study uses sector-specific GRDP, enabling a more direct assessment of tourism's economic contribution to industries most closely associated with tourism activities. Third, this study utilizes panel data covering five districts/cities in the Special Region of Yogyakarta from 2015 to 2024, encompassing the pre-pandemic, pandemic, and post-pandemic recovery periods, thereby providing a comprehensive perspective on tourism economic resilience. Finally, this study extends the Tourism-Led Growth Hypothesis by integrating tourism quality dimensions into the analysis of regional economic resilience. The findings are expected to provide empirical evidence supporting the transition from quantity-oriented tourism policies toward quality tourism strategies, emphasizing longer visitor stays, higher accommodation utilization, greater local value creation, and stronger regional economic resilience.

II. DATA AND METHOD

1.1 Data Source

This study employs a quantitative approach using balanced panel data to examine the determinants of tourism economic resilience in the Special Region of Yogyakarta, Indonesia. The dataset consists of annual observations from five administrative regions, namely Yogyakarta City, Sleman Regency, Bantul Regency, Kulon Progo Regency, and Gunungkidul Regency, covering the period from 2015 to 2024.

Secondary data were collected from several official government institutions to ensure data reliability and consistency. Gross Regional Domestic Product (GRDP) of the accommodation and food service sector, tourist arrivals, hotel occupancy rates, average length of stay, and the number of hotel rooms were obtained from the Statistics Indonesia (BPS), including *BPS-Statistics of the Special Region of Yogyakarta and Regency/Municipality in Figures*. Additional tourism statistics were compiled from the Ministry of Tourism and Creative Economy of the Republic of Indonesia. The use of official secondary data minimizes measurement errors and enhances the validity of the empirical findings. The study period is intentionally selected to capture three distinct phases of tourism development, namely the pre-pandemic period (2015–2019), the COVID-19 pandemic period (2020–2021), and the post-pandemic recovery period (2022–2024). This time span enables a comprehensive assessment of regional tourism economic resilience under different economic conditions.

1.2 Variable Measurement

The dependent variable in this study is the Gross Regional Domestic Product (GRDP) of the Accommodation and Food Service Sector (LPDRB), which represents the economic performance of tourism-related industries in each district/city. Following previous tourism-growth studies (Balaguer & Cantavella-Jordá, 2002; Brida et al., 2016), GRDP is transformed into its natural logarithm to reduce heteroscedasticity and facilitate elasticity interpretation. Four explanatory variables are incorporated into the empirical model. First, tourist arrivals are measured as the annual number of domestic and international tourists visiting each district/city. This variable is transformed into natural logarithms to reduce data skewness and estimate elasticity. Second, hotel occupancy rate is measured as the percentage of occupied hotel rooms relative to the total available rooms during a given year. This indicator reflects the effectiveness of tourism demand in utilizing accommodation facilities and is widely recognized as a proxy for tourism performance.

Third, average length of stay is measured as the average number of nights tourists spend in hotels. This variable serves as a proxy for tourism quality because longer stays generally generate higher tourism expenditure and stronger local economic multipliers (Alegre & Pou, 2006; Thrane, 2012). Fourth, the number of hotel rooms is included as a control variable representing tourism accommodation capacity. Similar to tourist arrivals, this variable is transformed into natural logarithms. To capture structural changes associated with the post-pandemic tourism recovery, this study also introduces a post-pandemic dummy variable. The dummy equals 1 for the years 2022–2024 and 0 for the years 2015–2021. Table 1 summarizes the definitions and measurements of the variables employed in this study (Saptutyningsih & Duanta, 2021; Setiawan & Saptutyningsih, 2022).

Table 1. Variable Measurement

Variable	Measurement
Gross Regional Domestic Product of Accommodation and Food Service Sector	Natural logarithm of the Gross Regional Domestic Product of the accommodation and food service sector at constant prices (million IDR)
Tourist Arrivals	Natural logarithm of the total number of domestic and international tourist arrivals
Hotel Occupancy Rate	Percentage of occupied hotel rooms relative to the total available rooms
Average Length of Stay	Average number of nights spent by guests in classified and non-classified hotels
Number of Hotel Rooms	Natural logarithm of the total number of available hotel rooms
Post-pandemic Dummy	Dummy variable: 1 = 2022–2024 (post-pandemic recovery); 0 = 2015–2021

1.3 Data Analysis

This study employs panel data regression analysis, which combines cross-sectional and time-series information to improve estimation efficiency and control for unobserved regional heterogeneity (Baltagi, 2021; Wooldridge, 2020). Compared with conventional cross-sectional or time-series regression, panel data estimation provides more degrees of freedom, reduces omitted variable bias, and captures both temporal and regional variations.

The empirical model is specified as follows:

$$LPDRB_{it} = \beta_0 + \beta_1 LWIS_{it} + \beta_2 TPK_{it} + \beta_3 RLM_{it} + \beta_4 LROOM_{it} + \beta_5 DP_{it} + \varepsilon_{it}$$

where:

- $LPDRB_{it}$ = GRDP of the accommodation and food service sector in region i and year t ;
- $LWIS_{it}$ = Tourist arrivals;
- TPK_{it} = Hotel occupancy rate;
- RLM_{it} = Average length of stay;
- $LROOM_{it}$ = Number of hotel rooms;
- DP_{it} = Post-pandemic dummy variable;
- ε_{it} = Error term.

The estimation procedure begins with descriptive statistics to describe the characteristics and distribution of the data. Subsequently, panel regression estimation is conducted using three alternative models, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The most appropriate specification is selected through a series of statistical tests. The Chow test is employed to determine whether FEM is preferred to CEM, while the Hausman test is used to choose between FEM and REM. If necessary, the Breusch–Pagan Lagrange Multiplier (LM) test is conducted to compare REM with CEM (Baltagi, 2021; Gujarati & Porter, 2009).

Following model selection, classical diagnostic tests are performed to ensure the robustness of the estimation results. These include multicollinearity analysis using the Variance Inflation Factor (VIF), heteroscedasticity testing, and residual diagnostics. The statistical significance of individual coefficients is evaluated using the t-test, whereas the overall model significance is assessed using the F-test. The explanatory power of the regression model is measured by the coefficient of determination (Adjusted R^2).

III. RESULTS AND DISCUSSION

1.4 Results

The descriptive statistics reveal substantial variation across the study variables. The average logarithmic value of the Gross Regional Domestic Product (GRDP) of the accommodation and food service sector (LPDRB) is 27.462, with values ranging from 25.676 to 29.180, indicating differences in tourism economic performance across districts and years. Tourist arrivals (LWIS) have an average logarithmic value of 14.568 and vary between 12.124 and 15.959, suggesting considerable fluctuations in tourism demand during the study period. Among the explanatory variables, the hotel occupancy rate (TPK) exhibits the highest variability, with an average of 42.95%, ranging from 18.20% to 66.20%, reflecting substantial differences in accommodation utilization.

The average length of stay (RLM) is 1.53 nights, indicating that tourists generally spend relatively short periods in Yogyakarta. Meanwhile, the number of hotel rooms (LKAMAR) has an average logarithmic value of 8.061, with values ranging from 5.700 to 9.868, illustrating differences in accommodation capacity across districts. The post-pandemic dummy variable has a mean value of 0.30, indicating that 30% of the observations represent the post-pandemic recovery period (2022–2024). Overall, the descriptive statistics demonstrate considerable cross-sectional and temporal variation, supporting the suitability of panel data regression for analyzing tourism economic performance in the Special Region of Yogyakarta.

Table 2. Descriptive Statistics

Variabel	Berarti	Maksimum	Minimum	Standar Deviasi
Gross Regional Domestic Product of Accommodation and Food Service Sector	27.4622	29.1804	25.6757	1.1994
Tourist Arrivals	14.5681	15.9591	12.1238	1.0737
Hotel Occupancy Rate	42.9540	66.2000	18.2000	13.4790
Average Length of Stay	1.5276	2.0500	1.1000	0,2842
Number of Hotel Rooms	8.0605	9.8682	5.7004	1.3301
Post-pandemic Dummy	0,3000	1.0000	0,0000	0,4629

Source: Author Calculation

Selecting the appropriate panel data model is a crucial step to obtain consistent and efficient parameter estimates. Panel data analysis generally considers three alternative estimators, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Each model is based on different assumptions regarding unobserved heterogeneity across cross-sectional units. Therefore, specification tests are required to identify the most appropriate model before estimating the regression equation. In this study, model selection begins with the Chow test, which is used to compare the Common Effect Model and the Fixed Effect Model.

Table 3 presents the results of the Chow test. The null hypothesis states that the Common Effect Model is the appropriate specification, while the alternative hypothesis suggests that the Fixed Effect Model is more suitable because it accounts for individual-specific effects across districts/cities.

Table 3. Chow Test Results

Test	Statistic	Probability	Decision
Cross-section F	66.630	0.0000	Reject H_0
Cross-section Chi-square	101.820	0.0000	Reject H_0

Source: Author's calculation

As shown in Table 3, both the Cross-section F statistic (66.630) and the Cross-section Chi-square statistic (101.820) are statistically significant, with probability values of 0.0000, which are well below the 5% significance level. Consequently, the null hypothesis is rejected, indicating that the Fixed Effect Model (FEM) provides a significantly better fit than the Common Effect Model.

These results imply that the districts/cities included in this study exhibit significant unobserved individual characteristics that influence the Gross Regional Domestic Product (GRDP) of the accommodation and food service sector. Such regional-specific effects cannot be adequately captured by the Common Effect Model, which assumes homogeneous intercepts across cross-sectional units. Therefore, allowing each district/city to have its own intercept through the Fixed Effect Model provides a more

appropriate representation of the data structure. Based on the Chow test results, the Fixed Effect Model is preferred over the Common Effect Model and is subsequently evaluated against the Random Effect Model using the Hausman specification test to determine the final estimation model.

Following the Chow test, the Hausman specification test is conducted to determine whether the Fixed Effect Model (FEM) or the Random Effect Model (REM) is more appropriate for estimating the relationship between tourism indicators and the Gross Regional Domestic Product (GRDP) of the accommodation and food service sector. The Hausman test evaluates whether the individual-specific effects are correlated with the explanatory variables. The null hypothesis assumes that the Random Effect Model is appropriate because the individual effects are uncorrelated with the regressors, whereas the alternative hypothesis supports the Fixed Effect Model.

Table 4. Hausman Test Results

Test	Chi-square	Probability	Decision
Hausman Test	9.377	0.0523	Fixed Effect Model retained

Source: Author's calculation

As presented in Table 4, the Hausman test produces a Chi-square statistic of 9.377 with a probability value of 0.0523. Although this probability is slightly above the conventional 5% significance level, the result is very close to the rejection threshold, indicating only weak evidence in favor of the Random Effect Model. In applied panel data studies, model selection should not rely solely on the Hausman test but should also consider the characteristics of the dataset and the research objective (Baltagi, 2021; Wooldridge, 2020).

This study analyzes a relatively small number of cross-sectional units, consisting of five districts/cities observed over ten years. These districts differ substantially in terms of tourism infrastructure, destination attractiveness, accommodation capacity, and local economic characteristics. Such time-invariant regional differences are likely to be correlated with tourism-related variables, thereby violating one of the key assumptions underlying the Random Effect Model. Consequently, controlling for these unobserved regional characteristics through the Fixed Effect Model is considered more appropriate.

Furthermore, the Chow test strongly rejects the Common Effect Model, confirming the existence of significant cross-sectional heterogeneity among districts/cities. The Fixed Effect Model is specifically designed to account for this heterogeneity by allowing each district/city to have its own intercept. Therefore, despite the marginal Hausman test result, the Fixed Effect Model (FEM) is retained as the preferred estimation model because it provides more robust and consistent estimates while effectively controlling for unobserved regional-specific effects. This modelling strategy is also consistent with previous panel data studies examining regional tourism and economic growth, where fixed effects are commonly employed to capture location-specific characteristics that cannot be directly observed (Baltagi, 2021; Hsiao, 2022).

Table 5. Results of the Classical Assumption Test for the Fixed Effects Model

Test	Method	Statistical Value/ p-value	Decision	Description
Multikolinearitas	Variance Inflation Factor (VIF)	Tourist Arrivals = 2,15 Hotel Occupancy Rate = 1,84 Average Length of Stay = 1,42 Hotel Rooms = 2,30	VIF < 10	Free from Multicollinearity
Heteroskedastisitas	Modified Wald Test (χ^2)	Prob > (χ^2) = 0,1240	p-value > 0,05	Homoskedasticity (Efficient)
Autokorelasi	Wooldridge Tes (F)	Prob > F = 0,2150	p-value > 0,05	No Autocorrelation
Normalitas	Jerque-Bere (χ^2)	Prob > = 0,3450	p-value > 0,05	Normally Distributed Residuals

Sumber: Hasil Olah Data

Based on Table 5. The results of the Multicollinearity test show that the VIF values for all independent variables are below the threshold of 10, this indicates that there is no serious linear relationship among the explanatory variables in the model. In the Heteroskedasticity test, a probability value of 0,1240 was obtained, which is greater than the 5% significance level, thus the null hypothesis fails to be rejected, meaning that the residual variables across the observed regions are homogeneous. Furthermore, the Autocorrelation test produces a probability value of 0,2150, because the probability value > 0,05 it can be

concluded that there is no autocorrelation problem over time. Finally, the Normality Test shows that the model residuals are normally distributed with a significance value $> 0,05$. Overall, all classical diagnostic tests have been satisfied. Therefore, the Fixed Effects Model (FEM) estimated in the next stage is confirmed to be robust, unbiased, and suitable for testing hypotheses and drawing economic policy conclusions.

After determining that the Fixed Effect Model is the most appropriate specification, the regression estimation is performed to examine the effects of tourist arrivals, hotel occupancy rates, average length of stay, hotel capacity, and the post-pandemic period on the Gross Regional Domestic Product (GRDP) of the accommodation and food service sector. The estimation results are presented in Table 5.

Table 5. Fixed Effect Model Estimation

Variable	Coefficient	Std. Error	t-statistic
Constant	20.3779***	1.2516	16.2812
Tourist Arrivals (LWIS)	0.3242***	0.1012	3.2039
Hotel Occupancy Rate (TPK)	-0.0199**	0.0088	-2.2703
Average Length of Stay (RLM)	1.2599**	0.5467	2.3044
Hotel Rooms (LROOM)	0.1578***	0.0425	3.7084
Post-pandemic Dummy (DP)	0.0662	0.0422	1.5680

Notes: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

The estimation results of the Fixed Effect Model are presented in Table 5. Overall, the estimated model demonstrates that the selected tourism indicators explain the variation in the Gross Regional Domestic Product of the accommodation and food service sector across districts/cities in the Special Region of Yogyakarta. Most explanatory variables are statistically significant at the conventional significance levels, indicating that tourism demand, tourist behavior, and accommodation capacity are closely associated with tourism-related economic performance.

The signs of the estimated coefficients generally conform to the expected relationships, although one variable exhibits an unexpected negative coefficient.

Among the explanatory variables, tourist arrivals, average length of stay, and hotel capacity have positive and statistically significant coefficients. These findings indicate that increases in tourist arrivals, longer visitor stays, and greater accommodation capacity are associated with higher economic output in the accommodation and food service sector. The statistical significance of these variables suggests that they consistently contribute to explaining regional variations in tourism-sector GRDP throughout the observation period.

Conversely, the hotel occupancy rate exhibits a negative and statistically significant coefficient. This result indicates that, after controlling for other explanatory variables and district-specific effects, higher hotel occupancy rates are associated with lower sectoral GRDP during the study period. The negative coefficient differs from the commonly expected positive relationship and suggests that the interaction between accommodation utilization and tourism economic performance may be more complex than initially anticipated. This issue is examined further in the Discussion section by considering the structural characteristics of tourism development in the Special Region of Yogyakarta and evidence from previous empirical studies.

The post-pandemic dummy variable has a positive but statistically insignificant coefficient, indicating that the post-pandemic period does not independently affect the GRDP of the accommodation and food service sector after accounting for tourism activity and regional fixed effects. This finding suggests that differences in tourism-related economic performance are more strongly explained by variations in tourism indicators than by the temporal distinction between the pre- and post-pandemic periods.

Overall, the estimation results indicate that four out of the five explanatory variables contribute to explaining tourism economic performance, although only three exhibit the expected positive relationship with sectoral GRDP. These findings demonstrate that tourism demand, visitor behavior, and accommodation capacity remain the principal determinants of economic performance in the accommodation and food service sector. The detailed economic interpretation of each coefficient, together with its consistency with the Tourism-Led Growth Hypothesis and previous empirical evidence, is discussed in the following section.

3.2 Discussion

The empirical findings reveal that tourist arrivals have a positive and statistically significant effect on the Gross Regional Domestic Product (GRDP) of the accommodation and food service sector in the Special Region of Yogyakarta. Specifically, the estimated elasticity indicates that a one percent increase in tourist arrivals is associated with an increase in sectoral GRDP, confirming that tourism demand remains a fundamental driver of local economic performance. This finding implies that the expansion of visitor flows stimulates a wide range of tourism-related economic activities, including accommodation services, restaurants, transportation, retail businesses, cultural attractions, and other supporting industries. As the number of visitors increases, tourism expenditure circulates throughout the local economy, generating additional business revenues, expanding employment opportunities, and encouraging private investment in tourism facilities. Consequently, tourism demand produces both direct economic effects through visitor spending and indirect multiplier effects through inter-sectoral linkages, thereby strengthening regional economic performance.

The positive relationship observed in this study strongly supports the Tourism-Led Growth Hypothesis (TLGH), which argues that tourism functions as an engine of economic growth by stimulating consumption, investment, employment creation, and productivity improvements (Balaguer & Cantavella-Jordá, 2002). Beyond its direct contribution to regional income, tourism also creates extensive backward and forward linkages with numerous sectors, including transportation, agriculture, creative industries, trade, communication, and financial services (Brida et al., 2016). In the context of the Special Region of Yogyakarta, these multiplier effects are particularly evident because tourism is deeply embedded within the regional economy. The province's comparative advantage lies not only in its cultural heritage and natural attractions but also in its strong creative economy, educational tourism, culinary businesses, and community-based tourism enterprises. Therefore, increasing tourist arrivals simultaneously stimulates production and service activities across multiple sectors rather than benefiting only the hospitality industry.

The findings are also consistent with the characteristics of tourism recovery observed after the COVID-19 pandemic. During the recovery period, the gradual restoration of tourist mobility substantially increased demand for accommodation, restaurants, transportation, and recreational services, accelerating the revival of tourism-dependent businesses. Higher visitor numbers enabled firms to restore business operations, re-employ workers, and improve capacity utilization, thereby contributing to regional economic recovery. This evidence suggests that tourism demand remains one of the primary mechanisms through which regional economies recover from external shocks, particularly in destinations where tourism constitutes a strategic economic sector.

These results are consistent with a substantial body of empirical literature supporting the positive relationship between tourism development and economic growth. Balaguer and Cantavella-Jordá (2002) demonstrated that tourism development significantly promotes long-run economic growth in Spain through increased tourism demand and investment. Similarly, Pablo-Romero and Molina (2013), in their comprehensive review of tourism-growth studies, concluded that the majority of empirical evidence confirms tourism as an important determinant of economic expansion across both developed and developing economies. Brida et al. (2016) further reported that most empirical studies validate the Tourism-Led Growth Hypothesis, particularly in destinations where tourism represents a major source of regional income. More recently, Dogru et al. (2020) emphasized that destinations experiencing faster recovery in tourist arrivals generally achieve stronger post-pandemic economic performance because tourism expenditure immediately stimulates accommodation, food services, transportation, and other tourism-supporting industries. Likewise, Sharma et al. (2021) argued that restoring tourism demand is one of the key determinants of tourism resilience following major external shocks.

Nevertheless, the present findings also provide a more nuanced perspective on the Tourism-Led Growth Hypothesis. Although tourist arrivals significantly enhance sectoral GRDP, the estimated coefficient is smaller than that of the average length of stay. This indicates that increasing visitor numbers alone may not maximize tourism-generated economic value. In other words, tourism quantity is an important prerequisite for regional economic growth, but it is insufficient to ensure optimal economic resilience without

improvements in tourism quality. Visitors who spend only a short period at the destination generally generate lower levels of expenditure on accommodation, food services, transportation, shopping, and recreational activities than those who stay longer. Consequently, a destination receiving a relatively smaller number of high-spending tourists with longer stays may generate greater local economic benefits than a destination attracting large volumes of short-stay visitors. This finding reinforces the emerging paradigm of quality tourism, which emphasizes maximizing tourist expenditure, visitor experiences, and local value creation rather than simply increasing arrival numbers (UN Tourism, 2024).

From a theoretical perspective, this study extends the Tourism-Led Growth Hypothesis by demonstrating that tourism demand should not be interpreted solely in terms of visitor volume. Instead, the economic contribution of tourism depends on both the quantity and the quality of tourism activities. While previous studies have predominantly evaluated tourist arrivals as the principal indicator of tourism development, the present findings suggest that tourism quality indicators—particularly average length of stay—provide additional explanatory power in understanding regional economic resilience. Therefore, the relationship between tourism and economic growth is better understood as a multidimensional process in which the volume of visitors and the intensity of their economic engagement jointly determine tourism's contribution to regional development.

From a policy perspective, these findings imply that local governments should pursue a balanced strategy that simultaneously increases tourist arrivals and enhances tourism quality. Policies should move beyond destination marketing aimed solely at attracting more visitors and instead prioritize integrated tourism development capable of extending visitor stays and increasing local expenditure. This objective can be achieved through the development of multi-day tourism packages, cultural festivals, creative economy events, integrated heritage routes, culinary tourism, and community-based tourism experiences that encourage tourists to spend more time at the destination. Strengthening collaboration between local governments, tourism businesses, and creative industry actors would further increase local value creation and maximize tourism multiplier effects. Ultimately, policies emphasizing both tourism quantity and tourism quality are likely to generate more sustainable regional economic growth and strengthen tourism economic resilience in the post-pandemic era.

IV. CONCLUSION

This study examines the determinants of tourism economic resilience in the Special Region of Yogyakarta by incorporating both tourism quantity and tourism quality indicators within the Tourism-Led Growth Hypothesis (TLGH) framework. Using balanced panel data from five districts/cities during 2015–2024 and employing the Fixed Effects Model, the findings demonstrate that tourist arrivals, average length of stay, and hotel accommodation capacity significantly contribute to the Gross Regional Domestic Product (GRDP) of the accommodation and food service sector. In contrast, hotel occupancy rates exhibit a significant negative association with sectoral economic performance, while the post-pandemic period does not independently influence GRDP after controlling for tourism-related variables. These findings suggest that regional tourism resilience depends not only on increasing the number of visitors but also on improving the quality of tourism activities. In particular, extending tourists' length of stay generates greater local economic value through higher expenditure on accommodation, food services, transportation, and other tourism-related businesses. Consequently, this study extends the Tourism-Led Growth Hypothesis by demonstrating that tourism quality indicators provide additional explanatory power beyond conventional measures of tourist arrivals.

From a policy perspective, local governments should shift from quantity-oriented tourism policies toward quality-oriented tourism development by encouraging longer visitor stays, strengthening destination attractiveness, improving tourism products, and optimizing accommodation infrastructure. Such strategies are expected to enhance local value creation and strengthen regional economic resilience. This study has several limitations. First, the analysis is limited to five districts/cities in the Special Region of Yogyakarta and may not fully represent tourism dynamics in other Indonesian regions. Second, tourism quality is

measured only by hotel occupancy rates and average length of stay, while other important dimensions, such as tourist expenditure, visitor satisfaction, destination competitiveness, and digital tourism services, are not incorporated due to data limitations. Future research is encouraged to include broader tourism quality indicators, employ spatial or dynamic panel models, and conduct comparative analyses across provinces or tourism destinations to provide a more comprehensive understanding of tourism-driven regional economic resilience.

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