

Tourism Transformation and the Limits of Local Fiscal Capture: Evidence from Bangka Belitung

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Abstract: *This study investigates whether tourism-led economic transformation has generated employment and strengthened local fiscal capacity in Bangka Belitung Province, Indonesia. This issue is important because the province has historically relied on tin mining, while tourism has increasingly been positioned as an alternative pathway for post-mining development. Using panel data from seven regencies and municipalities during 2011–2025, the study applies descriptive analysis, fixed-effects estimation, first-difference models, and a dynamic difference-in-differences/event-study approach. Tourism transformation is proxied by the share of tourism-related gross regional domestic product, while local own-source revenue and employment are used as the main outcome variables. The findings show that tourism transformation has not consistently increased local own-source revenue or employment. Event-study estimates indicate a positive early employment response, but no corresponding improvement in fiscal capacity. These results suggest that tourism creates labor-market benefits more rapidly than local fiscal gains, revealing a weak mechanism of local revenue capture from tourism activity. The study underscores the importance of strengthening tourism fiscal governance, business formalization, digital tax administration, and linkages between tourism and local micro, small, and medium enterprises.*

Keywords: Tourism Transformation; Local Revenue; Employment

JEL: H71; J21; R11

1. INTRODUCTION

Resource-dependent regions often face persistent challenges in moving from extractive-based economies toward more diversified and resilient development pathways. Although natural resource sectors may initially contribute to regional output, employment, infrastructure expansion, and fiscal activity, excessive reliance on extractive commodities can expose local economies to long-term vulnerabilities, including commodity price volatility, environmental degradation, limited productive diversification, and weak sustainability of development outcomes. The resource curse literature suggests that these vulnerabilities are not driven solely by resource abundance, but also by institutional weaknesses, limited sectoral reallocation, and the inability to transform resource rents into broader and more inclusive development benefits (Awoa Awoa & Ondo, 2024; Badeeb et al., 2017; Lashitew et al., 2021).

This issue is particularly relevant to Bangka Belitung, Indonesia, a province whose economic structure has long been shaped by tin mining. For decades, tin mining has supported regional economic activity, but it has also reinforced dependence on resource-based sectors and generated governance, social, and environmental challenges, including coastal resource conflicts, land degradation, biodiversity loss, and unresolved post-mining reclamation issues (Ibrahim et al., 2022; Pratiwi et al., 2025; Sulista & Rosyid, 2022). Against this background, post-tin economic transformation has become an urgent development agenda for the province. Such transformation requires alternative sectors that are capable not only of absorbing labor and generating value added, but also of expanding the fiscal base needed to finance regional development.

Tourism has increasingly been promoted as one potential pathway for this transformation. Bangka Belitung possesses considerable tourism assets, including beaches, islands, local culture,

culinary traditions, and post-mining landscapes. Tourism is also linked to accommodation, food and beverages, transportation, local trade, creative industries, and small-scale services. In post-mining regions, tourism can reinterpret local landscapes, cultural assets, and regional identity as sources of economic value. However, its capacity to support regional transformation depends on destination competitiveness, adaptive destination management, institutional support, and the ability to convert local assets into sustainable tourism products (Armis & Kanegae, 2021; Pukowiec-Kurda & Apollo, 2024).

Tourism-led transformation should not be evaluated solely through the expansion of tourism activities or the rising contribution of tourism-related sectors to gross regional domestic product. From a structural transformation perspective, sectoral change becomes economically meaningful when it improves productivity, reallocates resources toward more productive activities, creates employment opportunities, and contributes to broader development outcomes (Diao et al., 2017; Erumban & de Vries, 2024). As many developing economies face constraints in relying on manufacturing as the dominant engine of transformation, service sectors, including tourism, have become increasingly important in regional development strategies (Rodrik, 2016).

Two channels are particularly relevant in assessing tourism-led transformation: employment creation and local fiscal capture. Tourism can generate labor demand through hotels, restaurants, transportation, travel services, retail trade, cultural activities, and other local services. Yet tourism employment is heterogeneous, often involving formal and informal work, seasonal jobs, different skill requirements, and diverse employment arrangements (Ladkin et al., 2023; Nguyen et al., 2025). At the same time, under fiscal decentralization, tourism can potentially strengthen local own-source revenue through hotel taxes, restaurant taxes, entertainment taxes, parking fees, destination retributions, permits, and other local revenue instruments. However, the conversion of tourism activity into local fiscal capacity depends on tax authority, administrative capacity, institutional quality, compliance behavior, and incentives for local tax enforcement (Bellofatto & Besfamille, 2018; Jia et al., 2020; Martinez-Vazquez et al., 2017). This implies that tourism may generate visible labor-market benefits more quickly than fiscal gains, particularly when tourism-related activities remain informal, seasonal, small-scale, or weakly integrated into local revenue systems.

Despite growing research on tourism-led regional development, limited attention has been paid to whether tourism transformation in resource-dependent regions produces parallel gains in employment and local fiscal capacity. Existing studies have generally emphasized tourism growth, destination development, regional competitiveness, or employment effects, while the fiscal mechanism through which tourism-related economic activity is captured by local governments remains less clearly examined. This gap is important because local governments in decentralized economies are expected to finance development through own-source revenue, yet they often lack the administrative capacity, tax instruments, and institutional arrangements needed to capture the fiscal value of expanding tourism activity. Consequently, tourism may appear successful in terms of output growth or job creation while still failing to strengthen the fiscal capacity required for long-term regional transformation.

This study addresses this gap by examining whether tourism transformation in Bangka Belitung merely expands economic activity or also translates into measurable employment gains and stronger local own-source revenue. Its novelty lies in conceptualizing tourism-led transformation as a dual transmission mechanism operating through two potentially asymmetric channels: labor-market absorption and local fiscal capture. This distinction is crucial because employment gains may emerge earlier than fiscal gains, especially in regions where tourism activities are dominated by small-scale, informal, or weakly registered businesses. Empirically, this study uses regency- and municipality-level panel data covering seven local governments over the 2011–2025 period and combines fixed-effects estimation, first-difference models, and a dynamic difference-in-differences/event-study approach. By focusing on the asymmetry between tourism's employment and fiscal responses, this study provides new evidence on the limits of local fiscal capture in a post-mining province where tourism has been promoted as a pathway for economic diversification.

2. LITERATURE REVIEW

2.1 Resource Dependence, Structural Transformation, and Post-Mining Tourism

Resource-dependent regions often struggle to achieve sustainable development beyond extractive activities. Although natural resources can generate output, employment, and fiscal revenue, prolonged dependence may hinder diversification and create economic and institutional vulnerabilities. The resource curse literature suggests that resource abundance does not automatically lead to long-term development, but may instead generate volatility, rent-seeking behavior, institutional weakness, and stagnation of non-resource sectors (Awoa Awoa & Ondo, 2024; Badeeb et al., 2017; Lashitew et al., 2021). As a result, structural transformation has become a central challenge for post-mining regions seeking more resilient growth.

Structural transformation involves shifting labor and production toward more productive activities with stronger development linkages (Diao et al., 2017; Erumban & de Vries, 2024). Given the limitations of manufacturing-led transformation in many developing economies, tourism has emerged as an important alternative strategy (Rodrik, 2016). Recent studies view mine closure as a broader process of economic, social, institutional, environmental, and spatial transition that requires long-term planning and post-mining land repurposing (McCullough et al., 2020; Measham et al., 2024; Pagouni et al., 2024; Rosa et al., 2018). In this context, tourism can support regional transformation by converting mining landscapes, heritage assets, and local identity into productive resources. Evidence from Indonesia and other post-mining regions highlights the importance of competitiveness, infrastructure, institutional coordination, destination image, and local participation in enabling tourism-based transition (Armis & Kanegae, 2021; Nicola & Schmitz, 2024; Pukowiec-Kurda & Apollo, 2024).

2.2 Tourism, Employment, and Local Economic Linkages

Tourism is widely regarded as a labor-absorbing sector because it generates demand across accommodation, food services, transportation, retail trade, recreation, cultural activities, and creative industries. Tourism investment and consumption can support employment growth, particularly when accompanied by strong institutional quality (Nguyen et al., 2025). This role is especially important for post-mining regions seeking alternative employment opportunities beyond extractive industries. However, tourism employment is heterogeneous, encompassing formal and informal work, permanent and seasonal jobs, as well as low- and high-skilled occupations. Workforce outcomes are therefore influenced by factors such as skills, wages, job quality, seasonality, career development, labor arrangements, destination governance, and business formalization (Baum et al., 2016; Ladkin et al., 2023).

At the same time, tourism development does not automatically ensure inclusive labor-market outcomes. Tourism growth may coexist with informality and unequal income distribution, depending on local economic structures and policy environments (Lv, 2020; J. Zhang, 2021). Consequently, the employment contribution of tourism should be evaluated not only by the number of jobs created but also by job quality, formality, productivity, and income stability. More broadly, tourism can generate wider economic linkages with local businesses, communities, and institutions, affecting growth, employment, income distribution, and sustainability through multiple channels (Dwyer, 2024; Elgin & Elveren, 2024; Tyagi, 2024). Therefore, tourism transformation should be understood not merely as the expansion of tourism activities, but as the strengthening of productive local linkages that support long-term regional development.

2.3 Tourism Fiscal Capture and Local Own-Source Revenue

The fiscal dimension of tourism is particularly important in decentralized systems because local governments depend on own-source revenue to finance public services and regional development. Tourism can potentially increase local revenue through hotel, restaurant, entertainment, and tourism-related taxes and fees. However, tourism growth does not automatically translate into stronger fiscal capacity when businesses remain informal, transactions are poorly recorded, or tax administration is weak. Fiscal decentralization studies show that revenue performance depends on institutional capacity, tax authority, administrative quality, and incentives for tax enforcement (Bellofatto & Besfamille, 2018; Jia et al., 2020; Martinez-Vazquez

et al., 2017). Therefore, tourism-related fiscal gains depend not only on the scale of tourism activity but also on the ability of local governments to identify businesses, monitor transactions, enforce taxes, and manage local charges.

Evidence from Indonesia supports this perspective. Tourism-related local revenue is influenced by tourist arrivals, destinations, accommodation services, and tourism taxes, while local governments face increasing challenges in capturing tourism-related transactions, particularly through digital platforms (Lusiana et al., 2021; Saptono et al., 2023). Effective tourism taxation therefore requires strong governance, institutional quality, and administrative capacity to balance revenue generation, destination competitiveness, and sustainability (Rosselló-Nadal & Sard, 2026; Sun et al., 2025). Digital transformation can improve business registration, transaction recording, and tax administration, although it may also weaken local taxing power when consumption shifts online (Saptono et al., 2023; Y. Zhang et al., 2025). Overall, the literature suggests that tourism-led transformation may generate employment and local economic linkages while producing uneven fiscal outcomes when activities remain informal, seasonal, digitally mediated, or weakly integrated into local revenue systems. This study addresses this issue by examining whether tourism transformation in Bangka Belitung generates parallel gains in employment creation and local fiscal capacity, or instead reveals limitations in local fiscal capture.

3. METHOD

3.1 Data Type and Source

This study uses a quantitative approach to examine the relationship between tourism transformation, employment, and local fiscal capacity in Bangka Belitung. The research uses secondary data in the form of panel data, combining cross-sectional observations across regencies/municipalities and time-series observations across years. Panel data are appropriate for regional economic analysis because they allow researchers to observe variations across units and over time, while also controlling for unobserved heterogeneity that may affect the relationship between variables (Baltagi, 2021; Wooldridge, 2010).

The study covers all seven regencies/municipalities in Bangka Belitung Province: Bangka, West Bangka, Central Bangka, South Bangka, Belitung, East Belitung, and Pangkal Pinang. The observation period spans 2011–2025, yielding a balanced panel of 105 regency/municipality-year observations. Because all administrative units in the province are included, the study applies a saturated sampling approach rather than a sample selection procedure. The data were obtained from official government sources. Data on gross regional domestic product (GRDP), tourism-related GRDP, and employment were obtained from Statistics Indonesia (BPS).

Data on local own-source revenue and capital expenditure were obtained from the Directorate General of Treasury, Ministry of Finance of the Republic of Indonesia. Tourism-related GRDP is proxied by economic activities related to tourism, particularly accommodation and food and beverage activities. Because tourism is not recorded as a single sector in regional accounts, accommodation and food and beverage activities are used as the closest available proxy for tourism-related GRDP. This proxy captures core tourism-related services, although it may not fully represent all tourism-linked activities such as transportation, retail trade, cultural services, and creative industries.

3.2 Research Variables

The dependent variables are local own-source revenue and employment. Local own-source revenue refers to realized regional revenue generated from local sources, including local taxes, retributions, separated regional wealth management, and other legitimate local revenues. This variable is transformed into natural logarithm form in the estimation model to reduce scale differences across regions. Employment is measured as the number of employed persons in each regency/municipality and year.

The main independent variable is tourism transformation. This variable is measured by the share of tourism-related GRDP in total GRDP. The tourism share represents the relative contribution of tourism-related economic activities to the regional economy. The formula is

written as follows:

$$TourismShare_{it} = \frac{TourismGRDP_{it}}{TotalGRDP_{it}} \times 100 \dots\dots\dots (1)$$

Description:

- $TourismShare_{it}$: tourism share in regency/municipality i in year t
- $TourismGRDP_{it}$: tourism-related GRDP in regency/municipality i in year t
- $TotalGRDP_{it}$: total GRDP in regency/municipality i in year t

Capital expenditure is included as a control variable. It represents local government development spending used to acquire or build fixed assets, such as infrastructure, public facilities, and other assets that may support regional economic activity. Capital expenditure is included as a control variable because local public investment may influence both employment opportunities and local revenue capacity through infrastructure provision, public facilities, and broader regional economic activity. In the estimation model, capital expenditure is transformed into natural logarithm form.

3.3 Model Specification

The analysis is conducted in three stages. First, descriptive statistics are used to describe the characteristics of local own-source revenue, employment, capital expenditure, total GRDP, and tourism-related GRDP across regencies/municipalities and over time. Second, this study estimates a fixed effects model to examine the relationship between tourism transformation and the two dependent variables. Fixed effects are appropriate when unobserved time-invariant characteristics of each region may be correlated with the explanatory variables, such as geography, initial economic structure, institutional capacity, and local development characteristics (Wooldridge, 2010). Year fixed effects are also included to control for common shocks affecting all regions in a given year, such as national policy changes, macroeconomic conditions, or external disturbances. The model is specified as follows:

$$Y_{it} = \alpha + \beta TourismShare_{it} + \gamma \ln (CapitalExpenditure_{it}) + \mu_i + \lambda_t + \varepsilon_{it} \dots\dots\dots(2)$$

Description:

- Y_{it} : dependent variable, namely $\ln (LocalOwnSourceRevenue_{it})$ or $Employment_{it}$
- $TourismShare_{it}$: share of tourism-related GRDP in total GRDP
- $\ln (CapitalExpenditure_{it})$: natural logarithm of capital expenditure
- μ_i : regency/municipality fixed effects
- λ_t : year fixed effects
- ε_{it} : error term

Third, a first-difference model is used as a robustness check. This model examines whether annual changes in tourism share are associated with annual changes in local own-source revenue and employment. The first-difference model is written as follows:

$$\Delta Y_{it} = \alpha + \beta \Delta TourismShare_{it} + \gamma \Delta \ln (CapitalExpenditure_{it}) + \lambda_t + \Delta \varepsilon_{it} \dots\dots\dots(3)$$

Description:

- ΔY_{it} : annual change in the dependent variable
- $\Delta TourismShare_{it}$: annual change in tourism share
- $\Delta \ln (CapitalExpenditure_{it})$: annual change in the natural logarithm of capital expenditure
- λ_t : year fixed effects
- $\Delta \varepsilon_{it}$: differenced error term

3.4 Dynamic Difference-in-Differences and Event Study

In addition to fixed effects and first-difference estimations, this study applies a dynamic difference-in-differences or event-study approach. Difference-in-differences is widely used to evaluate changes before and after a treatment, while dynamic/event-study specifications allow

researchers to observe the timing and evolution of treatment effects across relative periods. This approach is especially useful when treatment timing varies across units, because it enables the analysis of pre-treatment and post-treatment dynamics (Callaway & Sant’Anna, 2021).

Tourism transformation is defined as a condition in which the share of tourism-related GRDP increases consecutively for at least two periods. This definition treats tourism transformation as an empirical event rather than an externally assigned policy treatment. The two-period criterion is used to distinguish a persistent increase in the tourism share from short-term fluctuations. Accordingly, the event-study estimates are interpreted as dynamic associations or post-transformation responses, rather than as definitive causal effects. The first year in which this condition is fulfilled is treated as the treatment year. Regencies/municipalities that do not meet this criterion during the observation period are treated as comparison units.

The event-study model is specified as follows:

$$Y_{it} = \alpha + \sum_{k \neq -1} \delta_k D_{it}^k + \gamma \ln(CapitalExpenditure_{it}) + \mu_i + \lambda_t + \varepsilon_{it} \dots\dots\dots(4)$$

Description:

- D_{it}^k : indicator for the relative period k from the treatment year
- $k < 0$: pre-treatment period
- $k > 0$: post-treatment period
- $k = -1$: reference period
- δ_k : dynamic treatment effect in relative period k

The pre-treatment coefficients are used to assess whether treated and comparison regions had different trends before tourism transformation. The post-treatment coefficients are used to examine the direction and magnitude of changes after tourism transformation. All models are estimated separately for local own-source revenue and employment. Robust standard errors clustered at the regency/municipality level are used to account for heteroskedasticity and serial correlation within regions over time, following the recommendation that clustered inference is appropriate when observations may be correlated within regional units (Cameron & Miller, 2015). Given the relatively small number of regional clusters, the estimates are interpreted cautiously.

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics and Tourism Development Pattern

This section outlines the distribution of the main variables and the pattern of tourism development across regencies and municipalities in Bangka Belitung. Rather than serving only as a statistical summary, the descriptive analysis helps clarify whether fiscal capacity, employment, public investment, and tourism-related output vary sufficiently across regions and over time to support further empirical examination.

Table 1 reports 105 regency/municipality-year observations. Local own-source revenue averages approximately IDR 104 billion, with a standard deviation of IDR 54.5 billion. The sizeable dispersion points to substantial differences in fiscal capacity across local governments. Some regencies and municipalities appear better positioned to mobilize local revenue, while others remain more constrained. Capital expenditure also varies considerably, averaging IDR 162 billion with a standard deviation of IDR 55.4 billion. This variation reflects differences not only in revenue capacity, but also in the ability of local governments to finance development-related spending.

Employment also differs markedly across the province. The average number of employed workers is 96,746, ranging from 43,520 to 170,795 workers. These figures show that labor absorption capacity is unevenly distributed across local economies. On the production side, total GRDP averages IDR 7,266.29 billion, while tourism-related GRDP averages IDR 183.10 billion. The variation in tourism-related GRDP further indicates that tourism has not developed at the same scale or pace across all regencies and municipalities.

Table 1. Descriptive Statistics of Research Variables

Variable	Mean	Std. Dev.	Min	Max	Obs.
Local own-source revenue	1.04E+11	5.45E+10	1.93E+10	2.39E+11	105
Employment	96,746.15	25,811.56	43,520	170,795	105
Capital expenditure	1.62E+11	5.54E+10	3.88E+10	3.36E+11	105
Total GRDP	7,266.29	2,168.85	3,798.79	12,282.92	105
Tourism-related GRDP	183.1	87.1	60.94	484.84	105

Source: Processed by the authors, 2026.

Figure 1 presents the trend of tourism share in GRDP across regencies and municipalities during 2011–2025. The figure shows a general upward movement in tourism share, although the trajectory is far from uniform. Some areas recorded a more visible increase in tourism-related activities, whereas others followed a slower and more gradual path. Tourism transformation in Bangka Belitung therefore appears spatially uneven rather than province-wide and homogeneous. This uneven trajectory may reflect differences in tourism assets, infrastructure readiness, destination management, market access, and the strength of local service economies. It also shows why tourism should not be treated as a single provincial process. Local conditions are likely to shape whether tourism expansion produces employment gains, fiscal gains, or both.

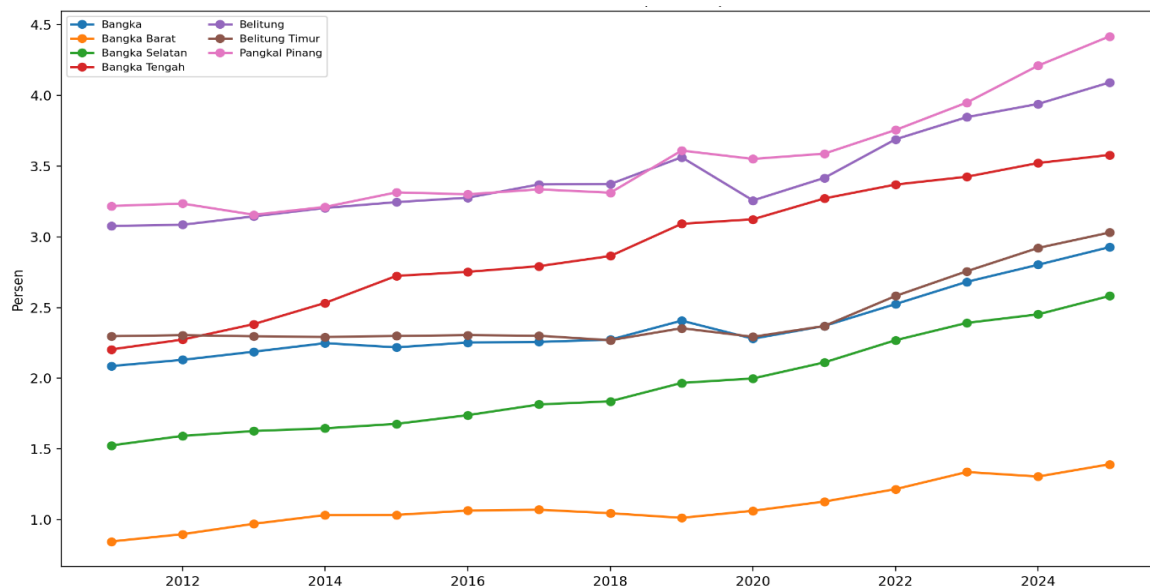


Figure 1. Tourism GRDP Share by Regency/Municipality in Bangka Belitung, 2011–2025

Source: Statistics Indonesia, processed by the authors, 2026

Overall, the descriptive evidence shows that tourism has become an increasingly relevant part of regional economic change in Bangka Belitung. At the same time, its uneven development raises a central empirical question: whether the expansion of tourism-related activities has translated into employment creation and stronger local own-source revenue. The following sections address this question through fixed effects, first-difference, and event-study estimations.

4.2 Fixed Effects and First-Difference Estimation

The baseline estimations assess whether tourism transformation is associated with local fiscal capacity and employment while controlling for time-invariant regional characteristics and common year-specific shocks. Both the fixed effects and first-difference models indicate that tourism share does not have a stable and statistically significant relationship with either local own-source revenue or employment. Although the estimated coefficients are positive, the results suggest that a higher tourism-related GRDP share is not consistently followed by stronger fiscal capacity or greater labor absorption. This finding highlights that an increasing tourism share should not automatically be interpreted as successful economic transformation, as sectoral expansion in output does not necessarily translate into broader developmental outcomes.

A more meaningful transformation requires improvements in productivity, employment quality, business formalization, local economic linkages, and fiscal capture. In contrast to tourism share, capital expenditure shows a clearer relationship with local fiscal capacity. The fixed effects estimates reveal a positive and statistically significant association between capital expenditure and local own-source revenue, suggesting that development spending may strengthen fiscal capacity through better infrastructure, public facilities, market accessibility, and a more supportive business environment. However, its effect on employment remains statistically insignificant, indicating that public investment alone is insufficient to generate labor absorption unless it is closely linked to productive and labor-intensive local economic activities.

The first-difference estimates add a short-run perspective. The annual change in tourism share has a negative coefficient in the local own-source revenue model and is statistically significant at the 10 percent level. This result should be treated cautiously. It does not mean that tourism expansion reduces local revenue. A more plausible interpretation is that short-term increases in tourism share are not immediately matched by stronger fiscal capture. This can occur when tourism-related activities expand through informal, seasonal, or weakly recorded transactions. It can also occur when tourism share rises because other sectors grow more slowly, rather than because tourism itself generates a larger taxable base.

Table 2. Fixed Effects and First-Difference Estimation Results

Variable	FE: ln(Local own- source revenue)	FE: Employment	FD: Δln(Local own- source revenue)	FD: ΔEmployment
Tourism share	13.37 (13.2)	2.796 (6.287)		
Δ Tourism share			-28.920* (12.43)	-2.035 (4.979)
ln(Capital expenditure)	0.128** (0.051)	-0.003 (0.026)	-0.066 (0.057)	0.006 (0.019)
Observations	105	105	98	98
R-squared	0.918	0.88	0.544	0.165
Regency/municipality fixed effects	Yes	Yes	No	No
Year fixed effects	Yes	Yes	Yes	Yes

Notes: Robust-clustered standard errors are in parentheses. *** p < 0.01; ** p < 0.05; * p < 0.10.

Source: Processed by the authors, 2026.

In the employment model, the annual change in tourism share is negative but statistically insignificant. Year-to-year changes in tourism share are therefore not systematically followed by changes in employment. Changes in capital expenditure are also insignificant in the first-difference models, suggesting that public investment may require longer adjustment periods before it appears in fiscal or labor-market outcomes. The fixed effects and first-difference results provide an important baseline message: tourism transformation in Bangka Belitung has not yet produced a consistent average association with either local own-source revenue or employment. This does not make tourism irrelevant for regional development. Rather, it points to the importance of timing, institutional capacity, business formalization, and the degree to which tourism activities are integrated into local labor markets and revenue systems.

The differences between the fixed effects and first-difference estimates also show that tourism transformation is unlikely to operate as a uniform linear process. Fixed effects estimates capture average within-region associations over the observation period, whereas first-difference estimates focus on short-term annual changes. The absence of consistent results across these specifications implies that tourism’s development effects are time-dependent and mediated by local institutional conditions. The event-study analysis therefore provides a more suitable lens for examining whether employment and fiscal outcomes follow different trajectories around the tourism transformation period.

4.3 Dynamic Difference-in-Differences and Event Study

The event-study analysis examines whether employment and local own-source revenue follow different trajectories before and after tourism transformation. This approach is useful because tourism-led transformation may affect fiscal and labor-market outcomes through different time paths. Employment responses may appear relatively quickly because tourism activities are service-oriented and labor-intensive. Fiscal responses, by contrast, usually require business registration, transaction recording, tax compliance, retribution management, and stronger local revenue administration.

Table 3 presents the dynamic event-study results. The main finding is a clear asymmetry between employment and fiscal outcomes. Tourism transformation is associated with a positive early employment response, but it is not accompanied by stronger local fiscal capacity. This contrast forms the core empirical finding of the study.

Table 3. Dynamic Difference-in-Differences Event-Study Results

Treatment sector	Outcome	Pre-treatment summary	Post-treatment summary	Key dynamic effect
Tourism	Local own-source revenue	0.1459* (0.0871)	-0.0956** (0.0433)	Tp1 = -0.2073*** (0.0653)
Tourism	Employment	0.0651 (0.0765)	-0.0722 (0.0813)	Tp1 = 0.0614** (0.0239)

Notes: Pre-treatment summary refers to the average pre-treatment coefficient. Post-treatment summary refers to the average post-treatment coefficient. Tp1 refers to the first post-treatment period. *** p < 0.01; ** p < 0.05; * p < 0.10. Source: Processed by the authors, 2026.

For local own-source revenue, both the post-treatment summary and the first post-treatment coefficient are negative and statistically significant. Figure 2 shows a similar pattern, with the estimated coefficient declining after the transformation period. On the surface, this indicates that tourism transformation is not followed by stronger local fiscal capacity.

The revenue result, however, requires caution. The pre-treatment summary for local own-source revenue is positive and statistically significant, which suggests that treated and comparison regions may have differed before the tourism transformation event. This weakens a strict causal interpretation. For this reason, the fiscal results are interpreted as dynamic associations or post-transformation patterns rather than definitive causal effects. Even so, the absence of post-transformation fiscal strengthening remains important because it is consistent with the weak fiscal capture mechanism suggested by the baseline estimates and the broader literature.

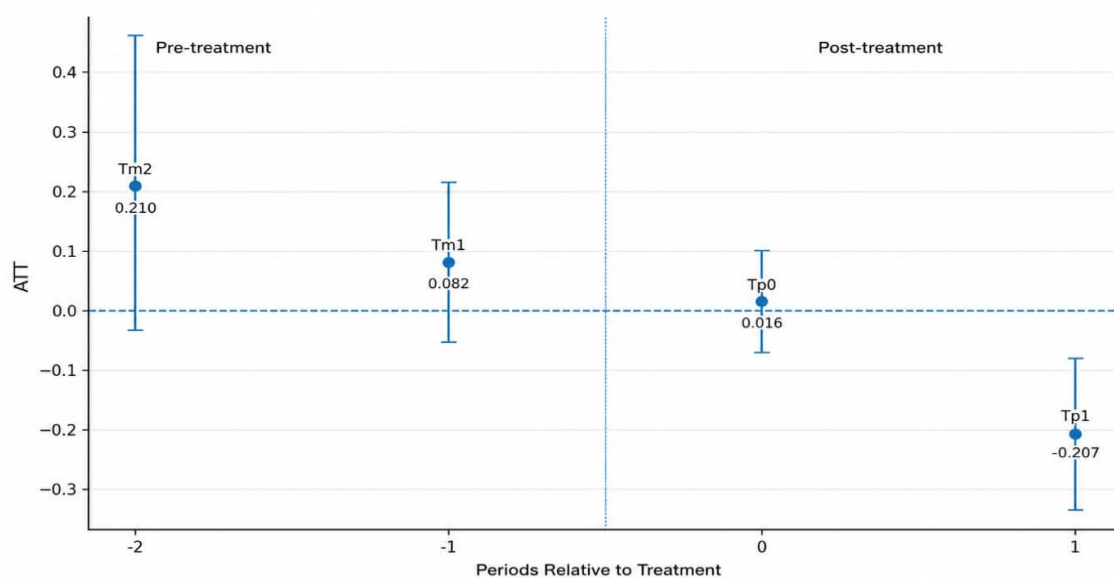


Figure 2. Event Study of Tourism Transformation on Local Own-Source Revenue

Source: Processed by the authors, 2026

Several mechanisms may explain this weak fiscal response. Tourism-related activity may expand through small-scale, informal, or seasonal businesses that are not fully registered in the local tax system. Transactions may also be weakly recorded, particularly when tourism consumption occurs through digital platforms, informal accommodation, community-based services, or small food and beverage enterprises. Under these conditions, tourism growth may increase local economic activity without generating proportional increases in hotel taxes, restaurant taxes, entertainment taxes, parking fees, destination retributions, or other local revenue instruments.

The employment results show a different dynamic. The pre-treatment summary for employment is not statistically significant, while the first post-treatment effect is positive and significant. Tourism transformation is therefore associated with an early increase in employment. Figure 3 supports this pattern by showing an employment increase in the first post-treatment period. This early response is consistent with the labor-intensive nature of tourism. Expansion in accommodation, food services, transportation, retail trade, local food businesses, cultural activities, and creative services can absorb workers relatively quickly. The average post-treatment effect on employment, however, is not statistically significant. The early employment response therefore appears to be temporary rather than sustained across later periods. This pattern is plausible because tourism employment is often seasonal, informal, flexible, and uneven in quality.

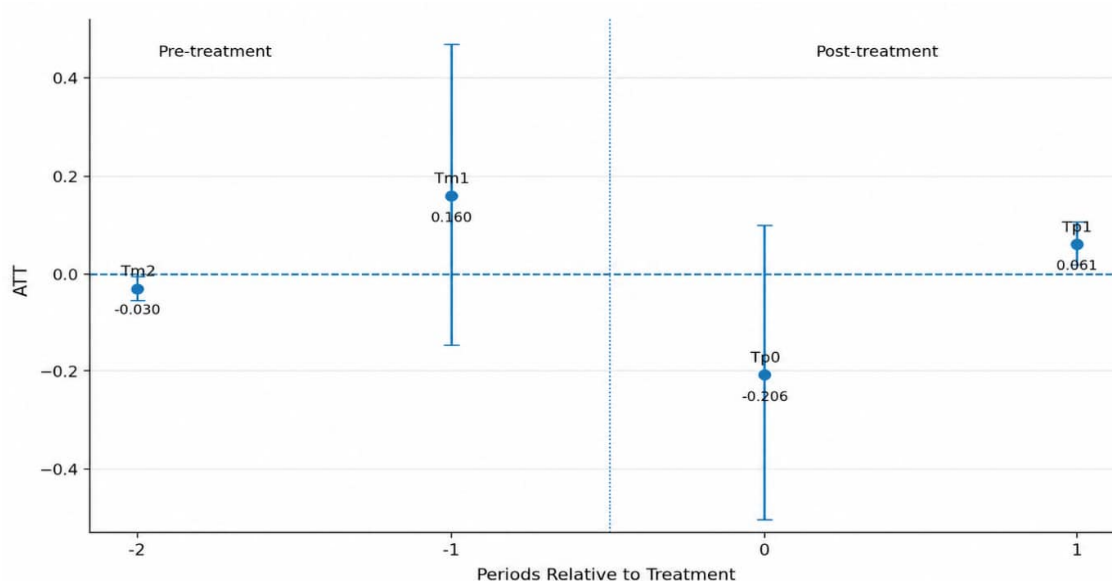


Figure 3. Event Study of Tourism Transformation on Employment

Source: Processed by the authors, 2026.

The contrast between employment and fiscal outcomes reveals an employment–fiscal gap in tourism-led transformation. Tourism appears to enter the labor market more quickly than it enters the local fiscal system. Employment can respond through service expansion and small-scale local activities. Fiscal gains, by contrast, depend on a more demanding institutional process: businesses must be registered, transactions must be measurable, taxes and retributions must be enforced, and local revenue instruments must be administered effectively. This asymmetry explains why tourism transformation may generate early labor-market benefits without producing equivalent fiscal gains.

4.4 Discussion: The Employment–Fiscal Gap in Tourism-Led Transformation

The results show that tourism transformation in Bangka Belitung remains partial and institutionally constrained. Tourism has become more visible in the regional economy, but its development effects are uneven across outcomes. The baseline estimates show no stable average association between tourism share and either local own-source revenue or employment. The event-study results add a more nuanced pattern: tourism transformation is associated with an early employment response, but it does not generate comparable improvements in local fiscal capacity. Tourism-led transformation should therefore not be evaluated only by the expansion of tourism-

related output. Its development value depends on whether tourism activities create productive employment and whether they can be captured by local fiscal systems.

This finding is closely related to the structural transformation literature. Sectoral change becomes developmentally meaningful when it improves productivity, strengthens intersectoral linkages, reallocates resources toward more productive activities, and generates broader welfare outcomes (Diao et al., 2017; Erumban & de Vries, 2024). In Bangka Belitung, the rising role of tourism-related activities indicates a movement away from dependence on extractive sectors. The empirical results, however, show that this movement has not yet matured into a deeper transformation process. Tourism has begun to generate a labor-market response, but its contribution to local fiscal capacity remains limited.

The early employment response can be explained by the structure of tourism activities. Tourism is a service-oriented sector that creates labor demand through accommodation, restaurants, transportation, retail trade, local food businesses, cultural activities, and creative services. This finding aligns with studies showing that tourism investment and consumption can contribute to employment, particularly when supported by institutional quality (Nguyen et al., 2025). Yet the quality and durability of tourism jobs remain important. Tourism employment is often heterogeneous, seasonal, informal, and shaped by flexible labor arrangements (Baum et al., 2016; Ladkin et al., 2023). The positive early employment response should therefore not be read as evidence of stable and productive employment transformation unless tourism jobs become more formal, skill-intensive, and connected to local value chains. This interpretation is consistent with studies showing that tourism may coexist with informality and unequal distributional outcomes (Lv, 2020; J. Zhang, 2021).

The fiscal findings reveal a more fundamental constraint. Tourism transformation has not strengthened local own-source revenue, and the event-study estimates show a negative post-transformation association with local revenue. This does not mean that tourism harms fiscal capacity. Instead, it suggests that tourism-related economic activity has not been effectively converted into local revenue. Tourism may expand through informal businesses, seasonal enterprises, homestays, community-based services, online transactions, small food vendors, and local operators that are not fully registered, monitored, or taxed. In this setting, tourism growth may occur without proportional increases in hotel taxes, restaurant taxes, entertainment taxes, parking fees, destination retributions, or other local revenue sources.

This fiscal capture problem is closely linked to fiscal decentralization. Local revenue performance depends on administrative capacity, tax authority, institutional quality, business registration, transaction recording, and enforcement incentives (Bellofatto & Besfamille, 2018; Jia et al., 2020; Martinez-Vazquez et al., 2017). In Indonesia, tourism-related local revenue is also strongly connected to the ability of local governments to capture hotel, restaurant, accommodation, destination, and visitor-based transactions (Lusiana et al., 2021; Saptono et al., 2023). The findings therefore reinforce the argument that tourism growth does not automatically become local fiscal capacity. For tourism to contribute to regional finance, local governments must be able to identify taxable activities, monitor transactions, and integrate tourism businesses into the local revenue system.

The result on capital expenditure adds another layer to this interpretation. The fixed effects model shows that capital expenditure is positively associated with local own-source revenue, suggesting that public investment may support fiscal capacity through infrastructure, public facilities, market access, and a more formal economic environment. Its relationship with employment is not significant. Public investment alone is therefore insufficient to create labor absorption unless it is connected to productive sectors and labor-intensive local value chains. In the tourism context, capital expenditure should support not only physical accessibility, but also destination facilities, local markets, creative hubs, sanitation, parking systems, digital payment infrastructure, MSMEs, and community-based tourism.

These findings are particularly relevant for Bangka Belitung's post-mining transition. Post-mining transformation requires economic, social, institutional, environmental, and spatial

reconfiguration (Measham et al., 2024; Pagouni et al., 2024). Tourism assets such as beaches, islands, culinary traditions, local culture, and post-mining landscapes can support this transition only when they are connected to local entrepreneurship, employment quality, business formalization, and revenue administration. Without these linkages, tourism may become more visible as a growth sector but remain weak as a driver of fiscal capacity and long-term regional transformation.

The policy implication is that tourism should be managed as an integrated regional development strategy rather than merely as destination promotion. Local governments need to strengthen tourism fiscal governance by improving the registration of hotels, restaurants, homestays, tourism operators, parking services, destination-based businesses, and other tourism-linked enterprises. They also need to improve tax administration, destination retribution systems, digital tax collection, and transaction monitoring. Digital transformation and institutional arrangements can support tourism development by improving business registration, transaction recording, monitoring, and tax administration (Sun et al., 2025; Y. Zhang et al., 2025). At the same time, tourism taxation must be designed carefully so that revenue generation does not weaken destination competitiveness, sustainability, or community acceptance (Rosselló-Nadal & Sard, 2026).

Overall, the results show that tourism-led transformation in Bangka Belitung operates through two related but asymmetric channels. The employment channel appears more responsive in the early stage, while the fiscal channel remains weak. This employment–fiscal gap is the main contribution of the study. It shows that tourism may help absorb labor in a post-mining economy before it becomes a reliable source of local fiscal capacity. The broader implication is that tourism-led diversification in resource-dependent regions should be evaluated not only by sectoral growth, but also by whether tourism creates durable employment and expands the local fiscal base required to sustain public investment after extractive decline. Transforming tourism into a sustainable driver of post-tin regional development therefore requires more than expanding tourism output. It requires stronger business formalization, better institutional capacity, digital revenue administration, improved employment quality, and deeper linkages between tourism, MSMEs, local labor, and public finance.

5. CONCLUSION AND SUGGESTION

CONCLUSION

This study examined the relationship between tourism transformation, employment creation, and local fiscal capacity in Bangka Belitung, a province historically shaped by tin mining. Using regency- and municipality-level panel data for 2011–2025, the study assessed whether the growing role of tourism-related activities has been followed by stronger local own-source revenue and greater labor absorption. The findings show that tourism has become an important part of Bangka Belitung's post-tin economic transformation, although its contribution remains uneven.

The fixed effects and first-difference estimations show that tourism share has not been consistently associated with higher local own-source revenue or employment. The event-study results offer a more specific pattern: tourism transformation is linked to an early employment response, but not to a comparable increase in local own-source revenue. This points to an employment–fiscal gap in tourism-led transformation, where tourism can absorb labor relatively quickly but does not automatically strengthen local fiscal capacity.

The main conclusion is that tourism-led transformation in Bangka Belitung is still partial. Tourism has started to function as a labor-market channel through accommodation, food and beverages, transportation, local trade, and creative services, but it has not yet become a reliable fiscal instrument for local governments. This finding contributes to the literature by showing that tourism-led diversification in resource-dependent regions should be assessed not only through sectoral growth or job creation, but also through the ability of local governments to capture tourism-related activity as sustainable own-source revenue.

SUGGESTION

Local governments in Bangka Belitung need to strengthen tourism fiscal governance so that tourism-related economic activity can be converted more effectively into local own-source revenue. This requires better business registration, improved hotel and restaurant tax administration, stronger destination retribution management, more systematic digital tax collection, and closer data integration among tourism offices, local revenue agencies, and business licensing institutions.

Tourism development should also be more closely connected with MSMEs, creative industries, local food businesses, transportation services, and community-based tourism. This connection is important to ensure that tourism does not only create short-term or seasonal jobs, but also supports more stable, productive, and locally embedded employment. Capital expenditure should therefore be directed toward infrastructure and public facilities that strengthen the tourism ecosystem, including destination access, sanitation, local markets, parking systems, digital payment infrastructure, and facilities that support MSMEs.

Future research should use more detailed tourism indicators, such as tourist arrivals, hotel occupancy, destination-level revenue, business registration data, tourism tax records, and informal tourism activities. Further studies could also combine quantitative analysis with interviews or field-based institutional analysis involving local revenue agencies, tourism offices, MSME actors, business owners, and destination managers. Such an approach would provide deeper insight into why tourism employment emerges earlier than local fiscal revenue and how local governments can close the employment–fiscal gap in tourism-led transformation.

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REFERENCES

- Armis, R., & Kanegae, H. (2021). Regional competitiveness of a post-mining city in tourism: Ombilin coal mining heritage of Sawahlunto, Indonesia. *Regional Science Policy & Practice*, 13(6), 1888–1911. <https://doi.org/10.1111/rsp3.12404>
- Awoa Awoa, P., & Ondo, H. A. (2024). Heterogeneous role of resource dependence on industrialization in developing countries. *Comparative Economic Studies*, 66(4), 753–781. <https://doi.org/10.1057/s41294-023-00231-9>
- Badeeb, R. A., Lean, H. H., & Clark, J. (2017). The evolution of the natural resource curse thesis: A critical literature survey. *Resources Policy*, 51, 123–134. <https://doi.org/10.1016/j.resourpol.2016.10.015>
- Baltagi, B. H. (2021). *Econometric Analysis of Panel Data*. Springer.
- Baum, T., Kralj, A., Robinson, R. N. S., & Solnet, D. J. (2016). Tourism workforce research: A review, taxonomy and agenda. *Annals of Tourism Research*, 60, 1–22. <https://doi.org/10.1016/j.annals.2016.04.003>
- Bellofatto, A. A., & Besfamille, M. (2018). Regional state capacity and the optimal degree of fiscal decentralization. *Journal of Public Economics*, 159, 225–243. <https://doi.org/10.1016/j.jpubeco.2017.12.010>
- Callaway, B., & Sant’Anna, P. H. C. (2021). Difference-in-Differences with multiple time periods. *Journal of Econometrics*, 225(2), 200–230. <https://doi.org/10.1016/j.jeconom.2020.12.001>
- Cameron, A. C., & Miller, D. L. (2015). A Practitioner’s Guide to Cluster-Robust Inference. *Journal of Human Resources*, 50(2), 317 LP – 372. <https://doi.org/10.3368/jhr.50.2.317>
- Diao, X., McMillan, M., & Rodrik, D. (2017). *The Recent Growth Boom in Developing Economies: A Structural Change Perspective* (23132). <https://doi.org/10.3386/w23132>

- Dwyer, L. (2024). Measuring the Sustainability of Tourism (SF-MST): New Wine in an Old Bottle? In *Sustainability* (Vol. 16, Issue 14, p. 5867). <https://doi.org/10.3390/su16145867>
- Elgin, C., & Elveren, A. Y. (2024). Unpacking the economic impact of tourism: A multidimensional approach to sustainable development. *Journal of Cleaner Production*, 478, 143947. <https://doi.org/10.1016/j.jclepro.2024.143947>
- Erumban, A. A., & de Vries, G. J. (2024). Structural change and poverty reduction in developing economies. *World Development*, 181, 106674. <https://doi.org/10.1016/j.worlddev.2024.106674>
- Ibrahim, I., Sulista, S., & Pratama, S. (2022). Struggling for power over the Bangka coast: Tin amongst the vortex of companies, the state, and residents. *The Extractive Industries and Society*, 10, 101055. <https://doi.org/10.1016/j.exis.2022.101055>
- Jia, J., Ding, S., & Liu, Y. (2020). Decentralization, incentives, and local tax enforcement. *Journal of Urban Economics*, 115, 103225. <https://doi.org/10.1016/j.jue.2019.103225>
- Ladkin, A., Mooney, S., Solnet, D., Baum, T., Robinson, R., & Yan, H. (2023). A review of research into tourism work and employment: Launching the Annals of Tourism Research curated collection on tourism work and employment. *Annals of Tourism Research*, 100, 103554. <https://doi.org/10.1016/j.annals.2023.103554>
- Lashitew, A. A., Ross, M. L., & Werker, E. (2021). What Drives Successful Economic Diversification in Resource-Rich Countries? *The World Bank Research Observer*, 36(2), 164–196. <https://doi.org/10.1093/wbro/lkaa001>
- Lusiana, Neldi, M., Sanjaya, S., & Zefriyenni. (2021). The Effect of Number of Visitors, Tourist Destinations, Hotel Room Tax and Accommodations on Original Local Government Revenue: Case Study West Sumatra Province, Indonesia. *International Journal of Financial Research*, 12(3), 230–239. <https://doi.org/10.5430/ijfr.v12n3p230>
- Lv, Z. (2020). Does tourism affect the informal sector? *Annals of Tourism Research*, 80, 102816. <https://doi.org/10.1016/j.annals.2019.102816>
- Martinez-Vazquez, J., Lago-Peñas, S., & Sacchi, A. (2017). The Impact of Fiscal Decentralization: A Survey. *Journal of Economic Surveys*, 31(4), 1095–1129. <https://doi.org/https://doi.org/10.1111/joes.12182>
- McCullough, C. D., Schultze, M., & Vandenberg, J. (2020). Realizing Beneficial End Uses from Abandoned Pit Lakes. In *Minerals* (Vol. 10, Issue 2, p. 133). <https://doi.org/10.3390/min10020133>
- Measham, T., Walker, J., Haslam McKenzie, F., Kirby, J., Williams, C., D’Urso, J., Littleboy, A., Samper, A., Rey, R., Maybee, B., Brereton, D., & Boggs, G. (2024). Beyond closure: A literature review and research agenda for post-mining transitions. *Resources Policy*, 90, 104859. <https://doi.org/10.1016/j.resourpol.2024.104859>
- Nguyen, P. C., Schinckus, C., Chong, F. H. L., Nguyen, B. Q., & Tran, D. L. T. (2025). Tourism and contribution to employment: global evidence. *Journal of Economics and Development*, 27(1), 22–37. <https://doi.org/10.1108/JED-07-2024-0269>
- Nicola, S., & Schmitz, S. (2024). From Mining to Tourism: Assessing the Destination’s Image, as Revealed by Travel-Oriented Social Networks. In *Tourism and Hospitality* (Vol. 5, Issue 2, pp. 395–415). <https://doi.org/10.3390/tourhosp5020025>
- Pagouni, C., Pavloudakis, F., Kapageridis, I., & Yiannakou, A. (2024). Transitional and Post-Mining Land Uses: A Global Review of Regulatory Frameworks, Decision-Making Criteria, and Methods. In *Land* (Vol. 13, Issue 7, p. 1051). <https://doi.org/10.3390/land13071051>
- Pratiwi, Narendra, B. H., Siregar, C. A., Iskandar, Mulyanto, B., Suwardi, Suryaningtyas, D. T., Dharmawan, I. W., Suharti, S., & Marsandi, F. (2025). Tin Mining and Post-Tin Mining Reclamation Initiatives in Indonesia: With Special Reference to Bangka Belitung Areas. *Land*, 14(10), 1947. <https://doi.org/10.3390/land14101947>
- Pukowiec-Kurda, K., & Apollo, M. (2024). From coal to tourism: a game-changer in the sustainable transition process. *Journal of Tourism Futures*, 10(3), 454–460. <https://doi.org/10.1108/JTF-05-2024-0086>
- Rodrik, D. (2016). Premature deindustrialization. *Journal of Economic Growth*, 21(1), 1–33. <https://doi.org/10.1007/s10887-015-9122-3>
- Rosa, J. C. S., Sánchez, L. E., & Morrison-Saunders, A. (2018). Getting to ‘agreed’ post-mining land

- use – an ecosystem services approach. *Impact Assessment and Project Appraisal*, 36(3), 220–229. <https://doi.org/10.1080/14615517.2018.1445175>
- Rosselló-Nadal, J., & Sard, M. (2026). Tourism Taxation: Balancing revenues, competitiveness and sustainability in destination management. *Tourism Management*, 113, 105326. <https://doi.org/10.1016/j.tourman.2025.105326>
- Saptono, P. B., Khozen, I., & Hodžić, S. (2023). Local Government Taxing Power for Digital Consumption: A Case Study of Hotel, Restaurant, and Entertainment Taxes in Indonesia. *Lex Localis - Journal of Local Self-Government*, 21(4), 1141–1165. [https://doi.org/10.4335/21.4.1141-1165\(2023\)](https://doi.org/10.4335/21.4.1141-1165(2023))
- Sulista, S., & Rosyid, F. A. (2022). The economic impact of tin mining in Indonesia during an era of decentralisation, 2001–2015: A case study of Kepulauan Bangka Belitung Province. *The Extractive Industries and Society*, 10, 101069. <https://doi.org/10.1016/j.exis.2022.101069>
- Sun, Z., Liu, L., Pan, R., Wang, Y., & Zhang, B. (2025). Tourism and economic growth: The role of institutional quality. *International Review of Economics & Finance*, 98, 103913. <https://doi.org/10.1016/j.iref.2025.103913>
- Tyagi, S. (2024). Impact of tourism sustainability on regional development: a systematic literature review. *Journal of Policy Research in Tourism, Leisure and Events*, 16(3), 290–309. <https://doi.org/10.1080/19407963.2024.2316733>
- Wooldridge, J. M. (2010). *Econometric Analysis of Cross Section and Panel Data* (2nd ed.). MIT Press.
- Zhang, J. (2021). The effects of tourism on income inequality: A meta-analysis of econometrics studies. *Journal of Hospitality and Tourism Management*, 48, 312–321. <https://doi.org/10.1016/j.jhtm.2021.07.009>
- Zhang, Y., Papp-Váry, Á., & Szabó, Z. (2025). Global influences of digital transformation on behavioral factors in tourism: a systematic literature review. *Cogent Business & Management*, 12(1), 2536101. <https://doi.org/10.1080/23311975.2025.2536101>