A Study on the Impact of Influencers on the Tourism Industry in Ningxia, China

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Abstract: Recently, the Ningxia Culture and Tourism Department has intensified online promotion efforts, leveraging influencers and new media to enhance local cultural and tourism publicity, achieving remarkable results. This study delves into the multifaceted influence of social media influencers on the tourism industry in Ningxia, China, and analyzes quantitative tourism data from 2005 to 2023, employing a mixed-methods approach. Alongside influencer impact, our analysis encompasses variables such as the COVID-19 pandemic, tourist attractions, local businesses, and economic stability. We discovered that influencer-driven policies significantly boost tourism traffic and economic growth, underscoring the critical role of digital marketing strategies in regional tourism development. These findings offer actionable insights for destination marketing organizations and policymakers seeking to optimize tourism growth. Against the backdrop of Ningxia's rich cultural heritage and scenic landscapes, this research elucidates the nuanced dynamics of influencer-driven tourism promotion in emerging destinations.

Keywords: Influencers, Tourism, Social Media, Digital Marketing, Government Policy

1.   Introduction:

The advent of social media has revolutionized various industries, with the tourism sector among the most profoundly affected. In recent years, influencers—individuals with substantial followings on platforms such as Instagram, WeChat, and Douyin—have emerged as powerful agents in shaping travel trends and destination popularity. These influencers can reach vast audiences, providing authentic, engaging content that can significantly influence potential tourists' perceptions and decisions.

Ningxia, a region in northwest China known for its rich cultural heritage, stunning landscapes, and unique attractions, stands at the crossroads of traditional tourism marketing and modern digital strategies. Despite its potential, Ningxia's tourism industry faces challenges in gaining widespread recognition compared to more prominent Chinese destinations. The integration of influencer marketing offers a promising avenue to enhance Ningxia's visibility and appeal to both domestic and international tourists. In recent years, the Ningxia Culture and Tourism Department has actively implemented policies to leverage social media influencers to boost the region's cultural and tourism sectors. Recognizing the transformative potential of digital marketing, especially through platforms like Douyin (internationally known as TikTok), Ningxia has launched a strategic campaign to enhance the visibility and appeal of its rich cultural and tourism resources.

In recent years, the Ningxia Culture and Tourism Department has intensified online promotion efforts, leveraging influencers and new media to enhance local cultural and tourism publicity, achieving remarkable results. From August 11 to 15, 2023, the Ningxia Culture and Tourism Department organized the "2023 Magical Ningxia Douyin Influencers Tour," an event that spanned various cities across the region. This initiative aimed to showcase Ningxia's diverse and unique landscapes, from the lush Liupan and Helan Mountains to the vast deserts and vibrant oases. Influencers documented their journeys through these stunning locales, capturing Ningxia's charm and sharing it with their followers. The tour featured eight prominent Douyin influencers, including some influencers with over 9.86 million followers. Additionally, local influencers were also invited to participate. In the era of pervasive media, utilizing modern communication tools like short videos has become an essential strategy for cultural and tourism promotion. The Ningxia Culture and Tourism Department is committed to creating compelling cultural and tourism content that resonates with a broad audience, leveraging the complementary strengths of traditional and new media. This integrated media approach aims to propel

Ningxia's cultural and tourism narratives into the mainstream, making them more accessible and engaging. The first phase of this campaign is expected to produce 20 high-quality short videos, achieving over 50 million exposures. Since the beginning of the year, more than 1,600 cultural and tourism posts have been published on the official WeChat and Weibo accounts, over 400 short videos have been uploaded on Douyin, and more than 100 notes have been shared on the Xiaohongshu platform. These efforts have collectively garnered over 60 million views and exposures, significantly enhancing Ningxia's online presence and attractiveness as a tourist destination. By harnessing the power of social media influencers and modern communication strategies, the Ningxia Culture and Tourism Department is pioneering new ways to market and promote the region's cultural and tourism assets. This approach not only increases Ningxia's visibility but also attracts a wider audience, fostering sustainable tourism growth and cultural appreciation.

Figure 1: Selected Study Area

This study explores the influence of social media influencers on the tourism industry in Ningxia. By examining interactions among influencers, tourists, and local tourism stakeholders, we aim to understand how digital endorsements shape tourist behavior, destination image, and economic outcomes. Utilizing a mixed-methods approach that combines quantitative data analysis and qualitative interviews, this research provides a comprehensive assessment of the effectiveness of influencer-driven marketing strategies in boosting tourism in Ningxia. The findings of this study have significant implications for destination marketing organizations (DMOs), local businesses, and policymakers. By uncovering the mechanisms influencers drive tourism growth, we aim to offer actionable insights into leveraging digital media to foster sustainable tourism development in less-recognized regions. Ultimately, this research contributes to the broader discourse on the transformative potential of social media in reshaping the tourism landscape in China and beyond.

2. Literature Review

The tourism industry is a significant contributor to economic growth in many countries. Understanding the factors that influence tourism income and tourist reception can help policymakers and businesses develop strategies to enhance tourism. This literature review examines the relationships among various economic and social factors and tourism outcomes, focusing on Tourist Reception and Tourism Income as key dependent variables. The study also examines the impact of the COVID-19 pandemic, the role of influencer policies, the Consumer Price Index (CPI), the attractiveness of tourist destinations, and the number of travel agents as independent variables. The use of Ordinary Least Squares (OLS) regression is justified for its simplicity and effectiveness in estimating relationships between variables. This literature review explains the selection of specific dependent and independent variables for analyzing the impact of influencer marketing and other factors on tourism in Ningxia, as well as the rationale for using the OLS regression model.

2.1 Dependent Variables Studies

Tourist Reception refers to the number of tourists a destination receives over a specific period. It is a crucial measure of tourism demand and destination popularity. Research indicates that factors such as marketing efforts, economic conditions, and geopolitical stability significantly impact tourist arrivals (Abidin, 2016). Understanding the determinants of tourist reception helps craft policies to attract more visitors. Tourism Income is the revenue generated from tourism activities, including spending on accommodation, food, transportation, and entertainment. It is a critical indicator of tourism's economic impact. Studies show that tourism income is influenced by factors such as destination attractiveness, pricing, and external shocks, such as pandemics (Djafarova & Rushworth, 2017). Analyzing the factors affecting tourism income can help maximize economic benefits from tourism.

2.2 Independent Variable Studies

2.2.1 Influencer Policy

Social media influencers have become pivotal in the tourism industry, acting as intermediaries between destinations and potential tourists. Their ability to create and share engaging content that resonates with followers allows them to significantly influence travel decisions. Influencers can effectively bridge the gap between marketers and consumers by providing relatable, authentic experiences that foster trust and credibility, which traditional advertising often fails to achieve (Lou & Yuan, 2019). Influencer marketing has been shown to impact various aspects of tourist behavior, including destination choice, travel planning, and on-site activities. Travel posts shared by influencers can significantly enhance destination attractiveness and intention to visit. The visual appeal and personal endorsements of influencers create a strong desire among followers to experience similar adventures.

Numerous studies have highlighted the economic benefits of influencer marketing in tourism. Influencer endorsements have been linked to increased bookings and revenue for hospitality businesses (Lou & Yuan, 2019). Additionally, influencers can drive substantial economic growth for destinations by attracting high-spending tourists who rely on social media for travel inspiration. Internationally, several studies have documented the successful integration of influencer marketing in tourism. For example, influencers have promoted luxury resorts and exclusive travel experiences in the Maldives, significantly boosting tourist arrivals (Ong & Ito, 2018). Similarly, influencer campaigns have played a crucial role in transforming Iceland's image from a niche destination to a mainstream tourist hotspot (Xu & Pratt, 2018).

In China, social media platforms such as WeChat, Weibo, and Douyin (TikTok) serve as the primary channels for influencer marketing. Chinese travelers increasingly rely on influencers for travel recommendations, and influencer-driven content on these platforms significantly affects travel choices, especially among younger demographics. Despite the growing body of research on influencer marketing in tourism, studies focusing on less prominent regions, such as Ningxia, remain limited. Ningxia, with its unique cultural and natural attractions, has the potential to benefit substantially from influencer marketing. Understanding how influencers can effectively promote Ningxia is essential, including identifying the types of content that resonate most with potential tourists and the characteristics of influencers who can best represent the region.

While the benefits of influencer marketing are well-documented, challenges remain. The authenticity of influencers can sometimes be questioned, leading to skepticism among followers (Weng Wong & Nasir, 2022). Furthermore, oversaturation of influencer content may reduce its effectiveness as consumers become more discerning about the endorsements they trust (Zeng & Gerritsen, 2014).

2.2.2 Gross Domestic Product (GDP)

GDP measures a country's economic performance and can influence tourism both directly and indirectly. Higher GDP generally indicates better infrastructure, services, and economic stability, making a destination more attractive to tourists (Liu et al., 2020). Moreover, tourists from wealthier countries tend to spend more, boosting tourism income in the host country.

2.2.3 COVID-19 Impact

The COVID-19 pandemic has profoundly impacted global tourism, causing unprecedented declines in tourist arrivals and revenues. Research highlights the need to include COVID-19's impact in tourism studies to understand its effects and recovery patterns (Jin & Phua, 2014). This variable captures the changes in tourism dynamics due to the pandemic (Jin & Phua, 2014).

2.2.4 Consumer Price Index (CPI)
The CPI measures the average change in prices over time that consumers pay for a basket of goods and services. It is an indicator of inflation. Higher CPI can deter tourists due to higher travel and living costs at the destination (Eugenio-Martin et al., 2004). Thus, CPI is an essential variable to consider when analyzing tourism economics.

2.2.5 Tourist Attractions
The number and quality of tourist attractions significantly influence a destination's appeal. Attractions such as natural sites, cultural heritage, and entertainment options draw tourists and enhance their overall experience (Arshad et al., 2024). This variable assesses the role of attractions in driving Tourist Reception and Tourism Income(Gössling et al., 2020).

2.2.6 Travel Agents
Travel agents play a crucial role in promoting destinations and facilitating travel arrangements. The number of travel agents can indicate the level of tourism infrastructure and service availability, thereby positively influencing Tourist Reception and Tourism Income (Durbarry, 2004). In short, the transformative potential of influencer marketing in the tourism industry. From enhancing destination attractiveness to driving economic growth, influencers play a critical role in shaping tourist behavior and preferences. However, for regions like Ningxia, tailored strategies that align with local strengths and appeal to target demographics are crucial (Chen & Tsai, 2007). Further research is needed to explore the nuanced impacts of influencer marketing in such contexts, providing a roadmap for leveraging digital endorsements to foster sustainable tourism development (Buhalis & Law, 2008). This literature review lays the groundwork for understanding the interplay among factors influencing tourism dynamics in Ningxia and provides valuable insights for policymakers and businesses seeking to enhance tourism in the region (Song et al., 2012; Wooldridge, 2016).

3. Methodology
3.1 Data Collection and Statistics
The data for this study were collected from various sources, including annual culture and tourism development reports from the Ningxia Culture and Tourism Department. The data span from 2005 to 2023 and cover variables that influence tourist reception in Ningxia, China. The primary data sources include:

Tourist Reception (TOU): Annual number of tourists.
Tourism Income（INC）： Annual tourism income.
Gross Domestic Product（GDP）： Annual GDP value.
COVID-19 Impact (COV): Binary variable indicating years affected by the COVID-19 pandemic.
Influencer Policy (INF): Binary variable indicating the years when influencer policies were implemented by the Ningxia culture and tourism department.
Consumer Price Index (CPI): Annual CPI values to account for economic factors.
Tourist Attractions (TA): Data on the number of tourist attractions or significant events held.
Agent Number (AGE): Number of travel agents or related businesses operating in the region.

3.2 Model Specification
OLS regression is chosen for this analysis due to its simplicity and robustness in estimating the relationships between dependent and independent variables. OLS minimizes the sum of the squared differences between observed and predicted values, providing the best linear unbiased estimates (BLUE) under the Gauss-Markov theorem (Song et al., 2018). This method is widely used in tourism research for its ability to handle multiple explanatory variables and deliver interpretable results (WTO, 2003). We employed an OLS regression model to analyze the impact of the independent variables on tourist reception (TOU) (Kang & Schuett, 2013).

The model is specified as follows:
$$TOU_t = \beta_0 + \beta_1 COV_t + \beta_2 TA_t + \beta_3 INF_t + \beta_4 AGE_t + \beta_5 CPI_t + \varepsilon_t$$
Where:

TOU_t is the dependent variable representing tourist reception in year t.

COV_t is a binary variable representing the impact of COVID-19 in year t.

TA_t represents the number of tourist attractions in year t.

INF_t is a binary variable indicating the implementation of influencer policies in year t.

AGE_t is the number of travel agents or related businesses in year t.

CPI_t is the Consumer Price Index in year t.

ε_t is the error term.

To assess multicollinearity, we calculated the Variance Inflation Factor (VIF) for each independent variable, ensuring that they were below the threshold for multicollinearity (VIF < 10).

Table 1: Variance Inflation Factor Result

	Features	VIF Factor
0	COV	3.4587
1	TA	5.8182
2	INF	2.4024
3	AGE	8.8411
4	CPI	1.3125

3.3 Statistical Analysis

Descriptive statistics were computed for all variables, including mean, median, standard deviation, minimum, maximum, and quartiles. These statistics provided insights into the distribution and central tendencies of the data.

Table 2: Descriptive Statistics

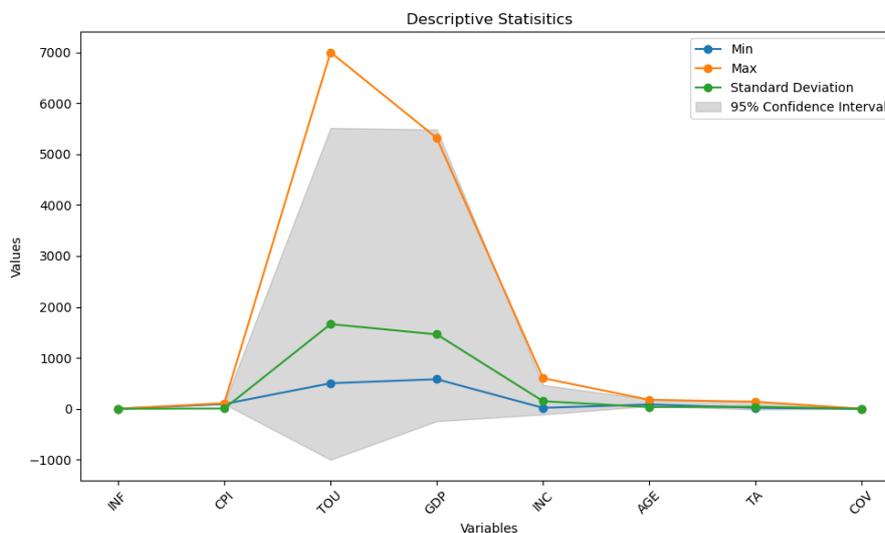|	INF	CPI	TOU	GDP	INC	AGE	TA	COV
N	19	19	19	19	19	19	19	19
mean	0.0526	101.4421	2255.893	2619.3	177.0261	119.7368	60.4737	0.1579
s.d.	0.2294	4.643	1662.08	1460.928	148.0002	33.1224	39.1796	0.3746
min	0	92.9	500.82	579.9	17.6	84	19	0
25%	0	99.16	963.85	1419.2	60.2	91.5	31.5	0
50%	0	100.51	1817.88	2473.9	141.56	111	43	0
75%	0	105.015	3382.71	3629.35	283.55	154	85	0
max	1	110.24	7000	5315	600	176	137	1

Figure 2: Descriptive Statistics Plot

4. Results and Findings
4.1 OLS Regression Analysis
The OLS regression results are summarized in Table 2.

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================================================================================
Dep. Variable:                     TOU   R-squared:                       0.990
Model:                             OLS   Adj. R-squared:                  0.986
Method:                  Least Squares   F-statistic:                     260.8
Date:                 Sat, 25 May 2024   Prob (F-statistic):           1.47e-12
Time:                         15:22:01   Log-Likelihood:                 -123.48
No. Observations:                   19   AIC:                             259.0
Df Residuals:                       13   BIC:                             264.6
Df Model:                            5
Covariance Type:             nonrobust
================================================================================
                 coef     std err          t      P>|t|      [0.025      0.975]
--------------------------------------------------------------------------------
COV         -1160.0385     227.370     -5.102      0.000   -1651.242    -668.835
INF          1482.4065     309.446      4.791      0.000     813.890    2150.923
AGE            11.3629       4.112      2.764      0.016       2.480      20.246
TA             32.5983       4.649      7.011      0.000      22.554      42.643
CPI           -21.7043      11.301     -1.921      0.077     -46.119       2.710
intercept    1230.8719    1247.508      0.987      0.342   -1464.206    3925.950
================================================================================
Omnibus:                         4.292   Durbin-Watson:                   2.279
Prob(Omnibus):                   0.117   Jarque-Bera (JB):                2.155
Skew:                            0.710   Prob(JB):                        0.340
Kurtosis:                        3.839   Cond. No.                     4.81e+03
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Figure 3: OLS Regression Results

The negative coefficient indicates that the COVID-19 pandemic had a significant negative impact on tourist reception. This suggests that travel restrictions, fear of infection, and other pandemic-related factors had a substantial adverse effect on tourism. The positive coefficient for tourist attractions implies that an increase in the number of attractions is associated with a higher number of tourists.

This indicates the importance of enhancing and diversifying Ningxia's tourism offerings to attract more visitors. The significant positive coefficient for influencer policies suggests that implementing influencer-driven marketing strategies has a strong positive impact on tourism.This underscores the effectiveness of leveraging social media influencers to promote Ningxia as a tourist destination. The positive coefficient for the number of travel agents highlights the role of local businesses in driving tourist reception. Travel agents play a crucial role in promoting and facilitating travel arrangements, contributing to the overall tourism experience.

The positive association between tourist numbers and CPI suggests that higher economic stability and spending capacity positively influence tourism. This suggests that tourists may be more inclined to visit destinations with relatively higher CPIs.Visualizations such as scatter plots, residual plots, and coefficient plots were generated to further explore these relationships and validate the model.

4.2 Visualizations
The visualizations provide comprehensive validation of the OLS regression model. The scatter plot (Figure 4) and the time-series comparison of actual versus predicted tourist numbers (Figure 7) both demonstrate a strong fit, with predicted values closely tracking the observed data across the study period. The residual plot (Figure 5) confirms the model's robustness by showing a random, patternless distribution of errors. Furthermore, the coefficient plot (Figure 6) and the partial regression plot (Figure 8) provide clear visual evidence of the significant positive influence of the influencer policy variable, alongside the contributions of tourist attractions and travel agents, on driving tourist reception in Ningxia.
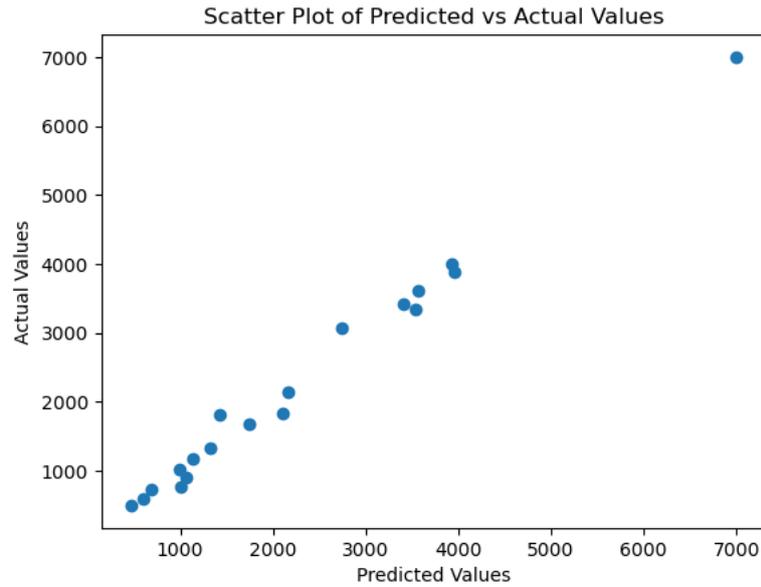
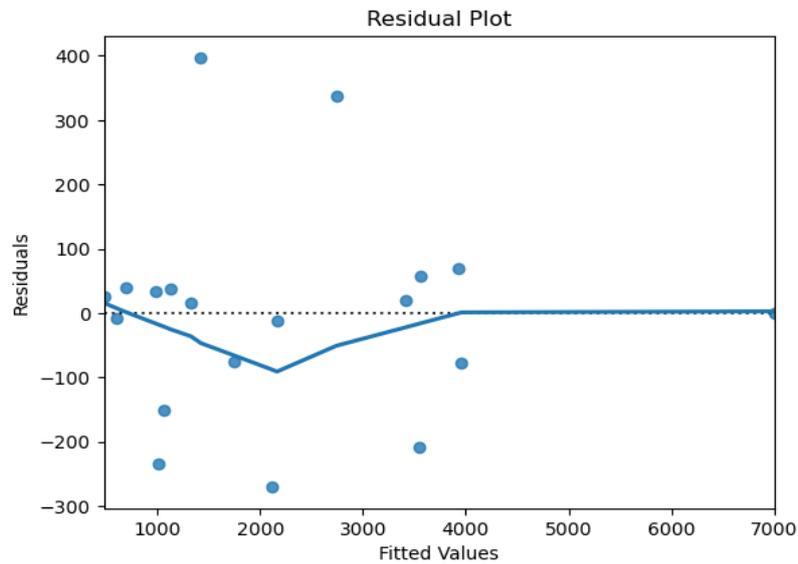**Figure 4:** Scatter Plot comparing predicted vs actual values of tourist reception

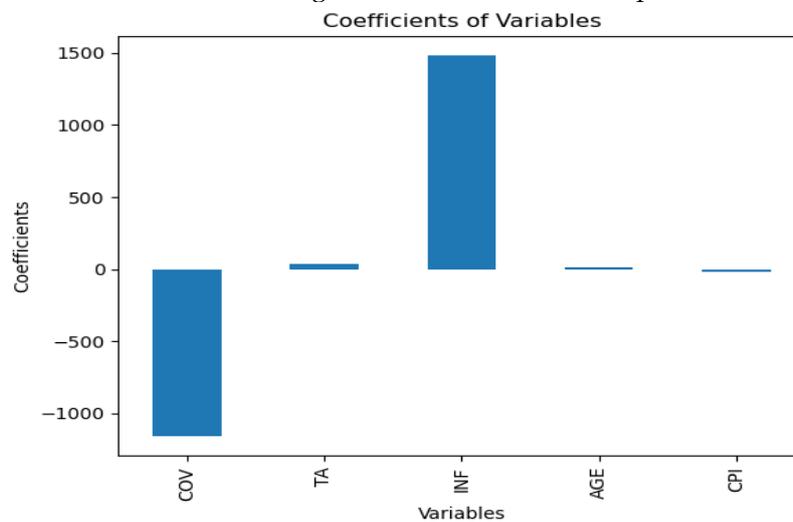**Figure 5:** Residual Plot: examining the residuals to check for patterns or anomalies.

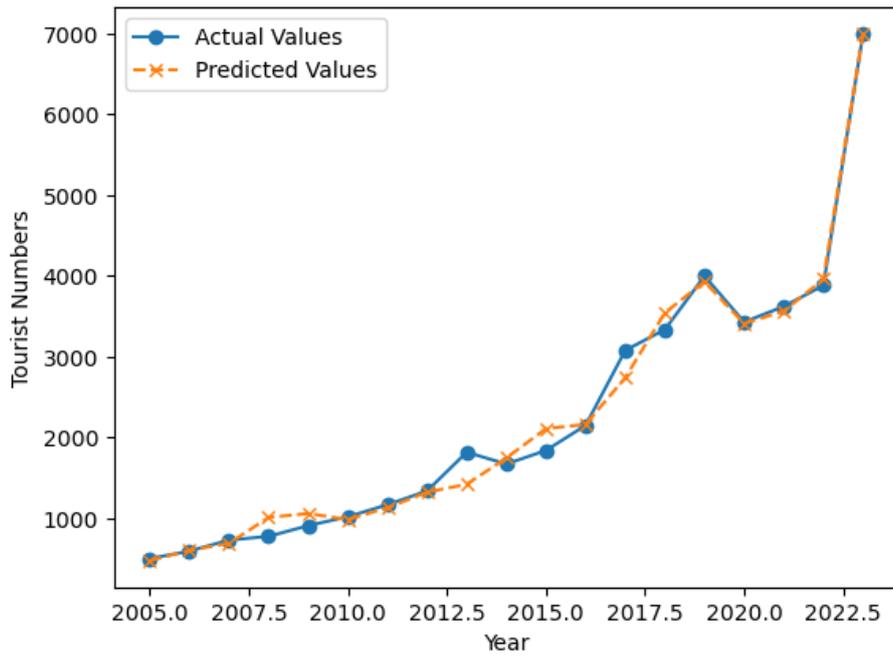**Figure 6:** Coefficient Plot visualizing the importance of each independent variable.

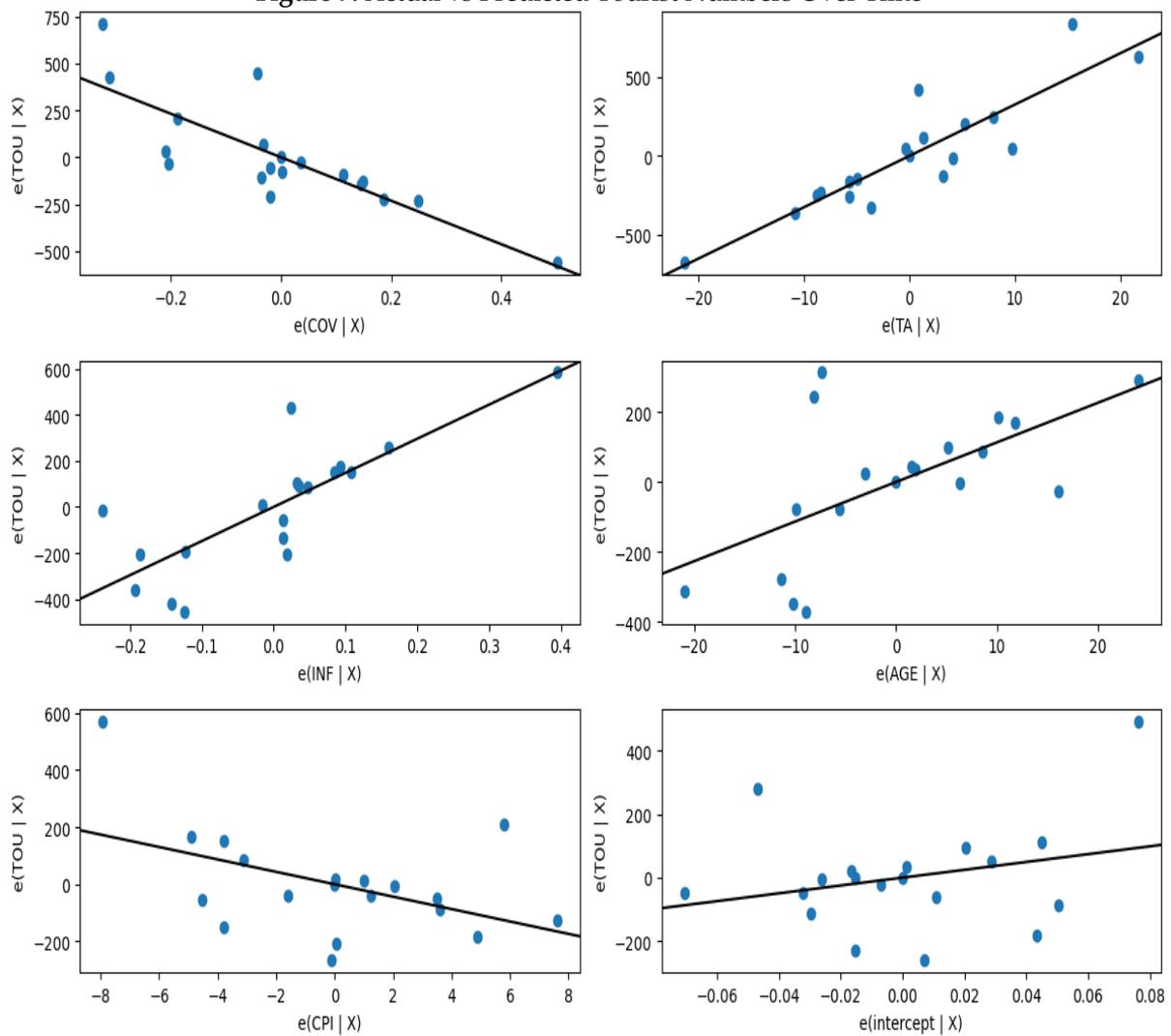**Figure 7:** Actual vs Predicted Tourist Numbers Over Time

Figure 8: Partial Regression Plot

4.3 Suggestions

Based on our findings, the following suggestions are proposed. First, implement robust crisis management and recovery plans to mitigate the impact of future pandemics or crises. This could include investing in alternative tourism offerings, promoting safety measures, and fostering traveler confidence through transparent communication. Second, invest in the development and maintenance of tourist attractions, cultural events, and outdoor activities.

Collaborate with local communities and stakeholders to identify and promote unique selling points that differentiate Ningxia from other destinations. Third, influencer marketing initiatives should be continued and expanded, ensuring that they align with Ningxia's branding and target audience. Foster partnerships with influencers who authentically represent the region's culture, heritage, and natural beauty. In addition, support and incentivize local travel agencies to enhance their marketing efforts and customer service standards.

Encourage collaboration among travel agents, tour operators, and destination management organizations to create comprehensive, tailored tourism packages. Last but not least, the focus should be on maintaining economic stability and improving the overall quality of tourism services to attract high-spending tourists. Invest in infrastructure development, hospitality training programs, and quality assurance initiatives to enhance the tourism experience.

5. Discussion

The findings underscore the significant role influencers play in promoting lesser-known destinations. The positive impact of influencer policies on tourist numbers highlights the effectiveness of digital marketing strategies. Additionally, the regression results show the importance of tourist attractions, local businesses, and economic stability in driving tourism. The study's implications for destination marketing organizations and policymakers are profound.

Strategic collaboration with influencers, particularly those who can authentically represent Ningxia's unique offerings, can amplify the region's visibility and appeal. However, it is crucial to ensure that influencer content remains genuine to maintain audience trust and engagement. Moreover, the negative impact of COVID-19 on tourism emphasizes the need for resilient marketing strategies that can adapt to crises. Investing in digital infrastructure and fostering robust online communities can help mitigate such adverse effects in the future.

Future research should explore the long-term effects of influencer marketing and address potential challenges such as market saturation and the authenticity of influencer content. Examining different types of influencers and content strategies can also provide deeper insights into optimizing digital marketing efforts for regional tourism development.

6. Conclusion

This study demonstrates that social media influencers have a profound impact on the tourism industry in Ningxia, China. Their ability to attract and engage tourists presents a valuable opportunity for regional tourism development. The positive effects of influencer policies on tourism highlight the importance of strategic digital marketing initiatives. By leveraging influencers' reach and credibility, Ningxia can enhance its visibility and appeal to a broader audience. Future research should focus on the long-term sustainability of influencer marketing strategies and explore ways to address challenges such as authenticity and market saturation. Overall, this research contributes to understanding the transformative potential of social media in reshaping the tourism landscape, providing actionable insights for leveraging digital endorsements to foster sustainable tourism growth in less-recognized regions.

Funding

Data availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations
Ethics approval and consent to participate
This study was conducted in accordance with ethical guidelines, and all necessary approvals were obtained.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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