WEP Warwick Evans Publishing

International Journal of Global Economics and Management

ISSN: 3005-9690 (Print), ISSN: 3005-8090 (Online) | Volume 4, Number 2, Year 2024
DOI: https://doi.org/10.62051/ijgem.v4n2.19
Journal homepage: https://wepub.org/index.php/IJGEM/index

# Spatio-Temporal Dynamics and Social-Economic Determinants of Chinese Tourist Demand for South Korea

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## ABSTRACT

This study, based on panel data from 2009 to 2021, employs a random effects model to analyze the impact of several key economic and social factors on Chinese tourist demand for South Korea. The results reveal that disposable income per capita is significantly negatively correlated with demand for travel to South Korea, indicating that as income increases, tourists tend to opt for higher-end or more distant travel destinations. Additionally, the Baidu Index, geographic distance, and seasonality did not have statistically significant effects on tourism demand, suggesting that these factors do not play a decisive role in the decision-making process of Chinese tourists. The significance of the constant term indicates that, regardless of the changes in other variables, there remains a baseline level of demand for tourism to South Korea. Overall, beyond economic factors, South Korea must focus on enhancing the quality of its tourism products, strengthening cultural appeal, and improving the tourist experience to maintain its attractiveness to Chinese tourists and respond to competitive pressures.

## KEYWORDS

Tourism demand; Spatio-temporal dynamics; Socio-economic determinants

## 1. INTRODUCTION

Tourism has become a vital component of global economic exchange, fostering cultural integration and driving economic growth. In the context of China and South Korea, tourism plays a significant role in strengthening bilateral relations, particularly with the increasing demand for outbound tourism from China in recent years. As South Korea remains one of the top travel destinations for Chinese tourists, understanding the factors driving tourism demand is crucial for both policymakers and stakeholders in the tourism industry.

Previous research has highlighted the importance of economic factors, such as income levels and exchange rates, in shaping international tourism demand. However, beyond economic indicators, social and spatial dimensions also play pivotal roles. Studies have shown that online word-of-mouth, including reviews and digital engagement, increasingly influences travel decisions in the digital age. Furthermore, geographical distance between origin and destination countries, along with seasonal variations, are also significant factors in determining tourism patterns. These spatial and temporal dynamics, when analyzed comprehensively, can offer valuable insights into the underlying determinants of tourist behavior.

This study aims to investigate the spatio-temporal dynamics and socio-economic determinants of Chinese tourist demand for South Korea, using a random effects model to account for variations across provinces over time. By focusing on key variables such as per capita disposable income, online

word-of-mouth represented by the Baidu Index, geographical distance, and seasonal factors, the study seeks to uncover the patterns and drivers of tourism demand. The research covers the period from 2009 to 2021, a span marked by rapid growth in Chinese outbound tourism and significant fluctuations due to economic and geopolitical events. By employing a random effects model, this study not only examines the temporal fluctuations in tourism demand but also captures the spatial heterogeneity across Chinese provinces, providing a more comprehensive understanding of the factors influencing tourism demand.

## 2. LITERATURE REVIEW

In the contemporary tourism industry, the growing importance of online reviews and word-of-mouth in shaping tourist behavior has become increasingly evident. Liu's study emphasizes that consumers now rely heavily on internet reviews to mitigate travel-related risks, a trend particularly crucial to the tourism sector [1]. Similarly, Yang's research shows that personal experiences and emotions significantly influence tourists' willingness to recommend destinations, thereby affecting future tourism demand [2]. These studies align with our investigation into online word-of-mouth, particularly using the Baidu Index as a determinant of tourism demand, especially when analyzing Chinese tourists' demand for South Korea.

Moreover, the impact of seasonal patterns is critical in shaping tourism demand. Wang et al.'s study on the high seasonality of tourism flows highlights the challenges this poses for destination infrastructure management [3]. Wu et al., through their application of the Baidu Index to model and predict tourism demand in Lhasa, demonstrate how online search behaviors serve as reliable indicators of tourist interest and can predict demand with high accuracy [4]. These findings provide a solid theoretical basis for the analysis of online platforms in predicting Chinese tourist demand for South Korea.

Ma's development of a multi-modal model, which integrates online reviews with structured and unstructured data such as historical and meteorological data, further underscores the predictive power of digital engagement. The model validates the role of online sentiment in forecasting fluctuations in tourism demand during holiday periods [5], which resonates with our analysis of the Baidu Index as an online word-of-mouth variable.

In addition to technological and social factors, geographical and infrastructural contexts are also key determinants of tourism. Pei's study on film tourism highlights how film-related tourism can influence local economies [6], while Lai et al.'s exploration of multidimensional distance—incorporating not only geographical but also cultural and institutional factors—reveals how various factors shape outbound tourism demand [7]. These insights are crucial to our spatial analysis of Chinese tourist demand, especially concerning geographical proximity.

Regarding rural tourism, Liu et al. used Baidu search data to analyze the spatial and temporal distribution of rural tourism demand across Chinese provinces, revealing distinct spatial and temporal patterns in tourist behaviors [8]. This complements our focus on spatial variability in tourism demand across different provinces in China.

Finally, Xu and Lu's studies on urban tourism data systems emphasize the importance of comprehensive data management [9-10]. Their research underlines the necessity of integrating various tourism data sources, which is vital for understanding the complex interaction between socio-economic and spatio-temporal factors in the China-South Korea tourism market. This body of literature supports our investigation, demonstrating the importance of considering a wide range of factors—spanning online engagement, geographical distance, and seasonality—in shaping tourism demand.

# 3. EMPIRICAL RESEARCH

## 3.1. Data and Variables

This study utilizes monthly data on Chinese tourists visiting South Korea from 2009 to 2021 to investigate the spatio-temporal dynamics and determinants of tourism demand. The dependent variable, tourism demand, is measured by the total number of Chinese tourists traveling to South Korea, with data sourced from the Korea Statistical Information Service (KOSIS). The explanatory variables encompass economic, social, spatial, and temporal dimensions. The economic variable, per capita disposable income by province, is sourced from the National Bureau of Statistics of China and reflects tourists' financial capacity. The social variable is represented by the Baidu Index search volume for "South Korea tourism," serving as a proxy for online word-of-mouth to assess its impact on tourism demand. In terms of spatial factors, the geographical distance between major provincial capitals in China and Seoul is included, assuming that provinces closer to South Korea exhibit higher tourism demand. For the temporal dimension, the seasonal variable is assigned based on the ratio of public holidays to total days in each month, capturing the effect of holidays on tourism demand.

## 3.2. Regression

The mathematical form of the model is as follows:

$$Yt=\alpha+\beta1\times Incomet+\beta2\times BaiduIndext+\beta3\times Distancei+\beta4\times Seasonalityt+\epsilon t \quad (1)$$

Where Yt represents the total number of Chinese tourists visiting South Korea at time t, $\epsilon t$ is the error term. Variables that required logarithmic transformation have been appropriately adjusted.

## 3.3. Results

In the random effects model, several key variables reveal important economic implications for Chinese tourist demand for travel to South Korea. First, disposable income per capita is significantly negatively correlated with Chinese tourist demand for travel to South Korea, with a coefficient of -0.24934 and a P-value of 0.040. This suggests that as income levels rise, demand for travel to South Korea decreases, likely due to the "substitution effect." As consumer income increases, tourists tend to choose more luxurious or distant travel destinations. Being a mid-range destination, South Korea may become less attractive to higher-income tourists, who might prefer more expensive and appealing regions such as Europe or North America. This result implies that as the consumption levels of Chinese tourists increase, South Korea needs to offer more premium tourism products or experiences to maintain its competitive edge.

Second, the Baidu Index, with a coefficient of -0.0033957 and a P-value of 0.955, is not statistically significant. This indicates that online search behavior does not play a decisive role in Chinese tourists' actual travel decisions. Although online reputation and search behavior are theoretically considered potential indicators of travel intentions, the findings suggest that in the case of travel to South Korea, tourists may prioritize other factors, such as travel policies, visa convenience, and actual travel costs, over information obtained through online searches. Therefore, relying solely on the Baidu Index is insufficient for predicting Chinese tourists' travel behavior.

Additionally, the coefficient for distance is -0.1105211, with a P-value of 0.412, showing no significant impact on travel demand. This suggests that geographical distance between different regions in China and South Korea does not substantially affect travel decisions. A plausible explanation is that South Korea's proximity to China makes it relatively accessible to Chinese tourists, thus reducing the importance of distance as a deciding factor. Furthermore, the seasonality variable, with a coefficient of 0.0046947 and a P-value of 0.966, also fails to show significant influence on

travel demand. This indicates that travel demand is not concentrated in specific seasons but rather spread relatively evenly throughout the year, or that seasonality is highly correlated with other factors, reducing its independent explanatory power.

Finally, the constant term, with a coefficient of 18.09032 and a P-value of 0.000, suggests the presence of a baseline level of demand for travel to South Korea, even in the absence of other influencing factors. This indicates that South Korea retains a fundamental level of attractiveness to Chinese tourists, regardless of economic or seasonal changes.

In summary, the random effects model demonstrates that income level is the primary economic variable affecting Chinese tourist demand for South Korea, with a negative correlation between income and demand. Other factors, such as the Baidu Index, geographical distance, and seasonality, did not show significant effects in this analysis. These results suggest that beyond economic considerations, South Korea must focus on enhancing the quality of its tourism services, enriching its cultural appeal, and improving the overall tourist experience to remain competitive and attractive to Chinese tourists.

## 4. CONCLUSION

Based on panel data from 2009 to 2021, this study highlights the significant impact of spatial and temporal dynamics, along with economic factors, on Chinese tourist demand for South Korea. The findings reveal that disposable income per capita has a significant negative correlation with demand for South Korea, suggesting that as income levels rise, Chinese tourists increasingly prefer more distant or higher-end destinations. This reflects the shifting travel preferences of higher-income travelers and emphasizes the need for South Korea to adapt its tourism offerings accordingly.

However, other factors, such as the Baidu Index, geographical distance, and seasonality, did not show statistically significant effects in this analysis. The lack of significance in the spatial factor—geographical distance—indicates that proximity alone may not be a decisive factor for Chinese tourists when choosing South Korea as a destination. This suggests that accessibility is less of a barrier given the well-developed transportation links between China and South Korea, and that future research could explore more nuanced spatial factors such as cultural proximity or regional promotional efforts.

Similarly, the absence of a significant temporal effect from seasonality suggests that Chinese tourists' demand for South Korea is relatively stable throughout the year, rather than concentrated in specific holiday periods or seasons. This may be due to a diverse range of travel motivations—spanning leisure, business, and cultural exchange—distributing demand more evenly across time. Future studies could delve deeper into the temporal dynamics by exploring potential interaction effects between seasonality and other variables, such as economic cycles or regional events, to better capture temporal variability in tourism demand.

In summary, while economic factors, particularly disposable income, play a central role in shaping tourism demand, the spatial and temporal dimensions require further exploration. South Korea must focus on offering premium tourism products, enhancing cultural experiences, and improving service quality to cater to the evolving preferences of Chinese tourists. Additionally, future research should integrate more detailed spatial and temporal analyses across Chinese provinces to offer deeper insights into the regional and time-sensitive factors influencing tourism demand. This will not only provide more targeted policy recommendations but also help better understand the complex interplay between socio-economic and spatio-temporal determinants of tourism behavior.

## ACKNOWLEDGMENT

We extend our gratitude to Jianing Huo,Weiran Zhang and Jinrui Liu, who have contributed equally to this work.

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