USING THE VAR MODEL TO INVESTIGATE SOME OF THE ECONOMIC DRIVERS OF TOURISM IN MONGOLIA

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Abstract: This study uses VAR models to elucidate the ways in which economic factors from China, Russia, and South Korea impact Mongolia's tourism demand. The VAR model, which uses impulse response analysis and variance decomposition to capture the dynamic temporal implications of economic indicators like GDP and exchange rates on visitor flows. The demand for travel in the Russian, South Korean, and Chinese markets is significantly correlated, and China's significant contribution to Mongolia's tourism industry is highlighted. The findings of our study indicate that risk management and regional cooperation might be among the expected outcomes. Additionally, this study offers data-driven policy recommendations meant to boost Mongolia's tourist sector's competitiveness internationally.

Keywords: Mongolia, Tourism demand, GDP, Exchange rate, VAR model

VAR загварыг ашиглан Монголын аялал жуулчлалын эдийн засгийн зарим хүчин зүйлийг судлах нь

Хураангуй: Энэхүү судалгаа нь Монголын аялал жуулчлалын эрэлтэд Хятад, Орос, Өмнөд Солонгосын эдийн засгийн зарим хүчин зүйлс хэрхэн нөлөөлж байгааг илрүүлэхийн зорьсон бөгөөд VAR загварыг ашигласан болно. Жуулчдын урсгалд нөлөөлөх ДНБ, валютын ханшийн үзүүлэлтүүдийн түр зуурын цочролд динамик хариу үйлдэл үзүүлэх нөлөөллийг VAR загварын импульсийн хариу урвалын шинжилгээ болон вариацын задралын дүн шинжилгээг хийсэн. Монголын аялал жуулчлалын эрэлтэд Орос, Өмнөд Солонгос, Хятадын зах зээл өндөр хамааралтай бөгөөд Хятад улс Монголын аялал жуулчлалын салбарт нөлөөлж буй хувь нэмэр маш их байгаа нь судалгаагаар тогтоогдсон. Бидний судалгааны үр дүнгээс харахад эрсдэлийн удирдлага, бүс нутгийн хамтын ажиллагаа нь хүлээгдэж буй үр дүнгийн дунд байж болохыг харуулж байна. Мөн Монголын аялал жуулчлалын салбарын олон улсад өрсөлдөх чадварыг нэмэгдүүлэхэд мэдээлэлд суурилсан бодлогыг хэрэгжүүлэх нь зүйтэй.

Түлхүүр үгс: Монгол Улс, Аялал жуулчлалын эрэлт, ДНБ, Валютын ханш, VAR загвар

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Introduction

Mongolia enthrals tourists from all over the world with its expansive steppes, unique nomadic culture, and rich historical legacy. With its ability to stimulate the domestic economy, facilitate cultural interaction, and raise Mongolia's profile internationally, tourism has been a key factor in the country's economic development in recent years (UNWTO, 2020). As global tourism markets expand, Mongolia has leveraged its unparalleled natural and cultural resources to position itself as a burgeoning international travel destination (Zhang et al., 2021).

However, compared to established global tourism markets, Mongolia's tourism industry remains in a nascent stage, warranting in-depth analysis and strategic planning to unlock its full potential and broaden its impact. In 2023, Russia accounted for 35.7 percent of all tourists to Mongolia, followed by the Republic of Korea 23.5 percent, China 18.3 percent, Kazakhstan 3.5 percent, Japan 3.3 percent, the United States 2.3 percent, Germany 1.6 percent, and other nations 11.8 percent (National Statistics Office of Mongolia, 2023a). In the TOP 10 inbound flows of Mongolian tourism, travelers from South Asia, Euro-Asia, and Northeast Asia account for 83.5 percent in 2023 (National Statistics Office of Mongolia, 2023b), so experts in a) Border tourism (Northern China and Russia's Siberia) and b) Regional tourism (South Korea and Japan) have been receiving a lot of attention (Sukhragchaa et al., 2024).

The economic contributions of Mongolia's tourism sector are both direct and indirect. According to the World Bank (2019), it directly supports GDP growth and creates a significant number of job possibilities, including those in the tourism industry, hospitality, and as craftspeople producing traditional goods. Economic dynamism is amplified by tourism, which indirectly analyses growth throughout auxiliary businesses like dining, retail, and transportation (Dwyer et al., 2010). Furthermore, the foreign exchange earnings from international visitors significantly enhance Mongolia's economic stability and bolster its capacity to meet international payment obligations (Song & Li, 2008). These multifaceted benefits underscore the strategic importance of tourism within Mongolia's broader economic framework.

Despite its immense potential, Mongolia's tourism sector faces numerous challenges. Economic fluctuations exert a pronounced influence on travel demand (Goh & Law, 2002), while underdeveloped infrastructure constrains the nation's ability to accommodate an increasing influx of tourists (Prideaux, 2000). Additionally, fierce competition in the global tourism market challenges Mongolia's ability to sustain its appeal to international travellers (Buckley, 2012). The stability of the political and social environment also plays a crucial role in shaping tourist perceptions and decisions (Richards, 2018). Collectively, these challenges not only

impede the sustainable growth of Mongolia's tourism industry but also pose risks to the nation's economic resilience.

To address these challenges and foster the sustainable development of Mongolia's tourism sector, this study aims to analyze the specific impact of key economic indicators on tourism demand and forecast future market trends. Employing a Vector Autoregression (VAR) model, the research will examine the dynamic interactions between GDP growth, exchange rate fluctuations, and consumer confidence indices with tourism demand (Peng et al., 2015). The methodology encompasses data collection and preprocessing, model construction and validation, as well as empirical analysis and interpretation by country, which is China, Russia, and South Korea, ultimately providing robust support for strategic decision-making in Mongolia's tourism development.

Literature Review

The Influence of GDP on Tourism Demand

As GDP expands, household incomes typically rise in parallel, fuelling an increase in consumer spending capacity (World Bank, 2023). Tourism, as a discretionary expenditure, benefits significantly from higher income levels, as individuals are more inclined to allocate surplus income toward leisure activities, including domestic and international travel (Song et al., 2012). GDP growth not only invigorates domestic tourism markets but also enhances a destination's appeal to international visitors. For instance, over the past two decades, China's rapid economic expansion has led to a substantial increase in disposable income, catalysing an unprecedented surge in domestic tourism (China National Tourism Administration, 2019). As a macroeconomic indicator, GDP not only mirrors shift in consumer behavior but also provides a robust reference for forecasting tourism demand (Peng et al., 2015). Integrating GDP as a core variable in tourism demand prediction models is instrumental in capturing the intricate interplay between economic trends and tourism dynamics.

The Influence of Exchange rate on Tourism Demand

Exchange rate fluctuations are another decisive factor shaping international tourism flows, primarily by altering the cost competitiveness of destinations. When a country's currency depreciates, international visitors can access greater value for their money, making the destination more financially attractive (Dwyer et al., 2010). This enhanced affordability often strengthens the destination's appeal. Conversely, currency appreciation increases travel costs, potentially dampening demand. Such

dual impacts extend to both inbound and outbound tourism markets. For inbound tourism, currency depreciation typically boosts visitor numbers and tourism revenue (Ferhat, 2018). However, for outbound tourism, it may reduce domestic residents' propensity to travel abroad due to elevated costs, shifting preference toward domestic travel options (De Vita, 2014). These effects underscore the role of exchange rate fluctuations as a key determinant in balancing global tourism supply and demand. Although the magnitude of these impacts varies across countries and regions, exchange rate dynamics remain a fundamental economic variable in analyzing and forecasting tourism demand shifts. Their influence on international travel decisions highlights the complex interdependence between economic conditions and global tourism markets (Prideaux et al., 2003).

Research Methodology

VAR Model

The VAR model is particularly effective at explaining the dynamic links between tourism demand and economic indicators like GDP, exchange rates, and consumer confidence indices when it comes to projecting tourism demand (Song & Li, 2008). It measures the strength of inter-variable influences and successfully draws attention to time-lagged effects. Without requiring predetermined causal assumptions, the VAR framework may capture complex dynamic relationships because each variable is modeled as a function of both its own and other variables' lagged values (Enders, 2015; Lutkepohl, 2005). Because of its intrinsic adaptability, the VAR model excels at examining the intricate relationships that exist within economic systems. The model can be expressed as:

$$Y_t = \mu + \phi_1 Y_{t-1} + \phi_2 Y_{t-2} + \cdots + \phi_p Y_{t-p} + \varepsilon_t$$

Where:

$Y_t = [CPI_t, EXCH_t, TOURISTS_t, INFLATION_t, GDP_t, CCI_t]^T$ Is the endogenous variable vector at time t.

μ Is the vector of the constant terms of the model, representing the long-run average of each variable.

ϕ_1, ϕ_2,…, ϕ_p Is the 6x6 coefficient matrix, where the element, jk, represents the effect of variable k in the t-i period on variable j in the t period. ϕ_1 ϕ_1

ε_t Is the error term vector, assuming it is a multivariate normal distribution with zero mean and a constant covariance matrix.

A given vector of endogenous variables contains the following elements: Y_t

CPI_t: The Consumer Price index, which reflects the price level of each country.

$EXCH_t$:The exchange rate of the Mongolian currency against the currencies of the main tourist source countries.

$TOURISTS_t$: Number of Chinese, Russian and South Korean tourists visiting Mongolia.

$INFLATION_t$:Quarterly inflation rates by country.

GDP_t:The annual GDP growth rate that describes the level of economic growth in each country.

CCI_t:Consumer Confidence Index, which reflects consumers' confidence in the future of the economy

Data sources

The following categories of data were used in this study they were from official Mongolian databases and publicly accessible statistical reports. Each country's price level and the exchange rate of Mongolian currency are described by the CPI and exchange rate. Number of visitors: The number of foreign visitors that Mongolia got from China, Russia, and South Korea. Inflation rate: China, Russia, South Korea, and Mongolia's quarterly inflation rates. The annual GDP growth rate indicates each nation's rate of economic expansion. Consumer optimism in the economy's future is reflected in the Consumer Confidence Index (CCI). For the convenience of analysis, some annual or monthly data were converted to quarterly data, and the data above spans the period from 2010 to the most recent quarter.

Modeling tools:

The Python programming language and the Pandas and Statsmodels packages for data processing and model analysis were the study's tools. Vector autoregressive model (VAR): Used to analyze the dynamic relationship between multiple variables. Impulse Response Analysis (IRF) measures how shocks to one variable affect other variables dynamically. Variance decomposition (FEVD): Examines how interactions between factors affect changes in the variable of interest. Model prediction: The VAR model is used to forecast how the number of visitors to Mongolia will change over time.

VAR model construction

The VAR model stability check is stable. Based on the data series after smooth processing, the VAR model is constructed. The AIC criterion was used for testing, and finally 4 lag periods were selected as the optimal value. Considering the limit of

sample size, the maximum lag period was set to 8 to avoid excessive loss of freedom.

Results

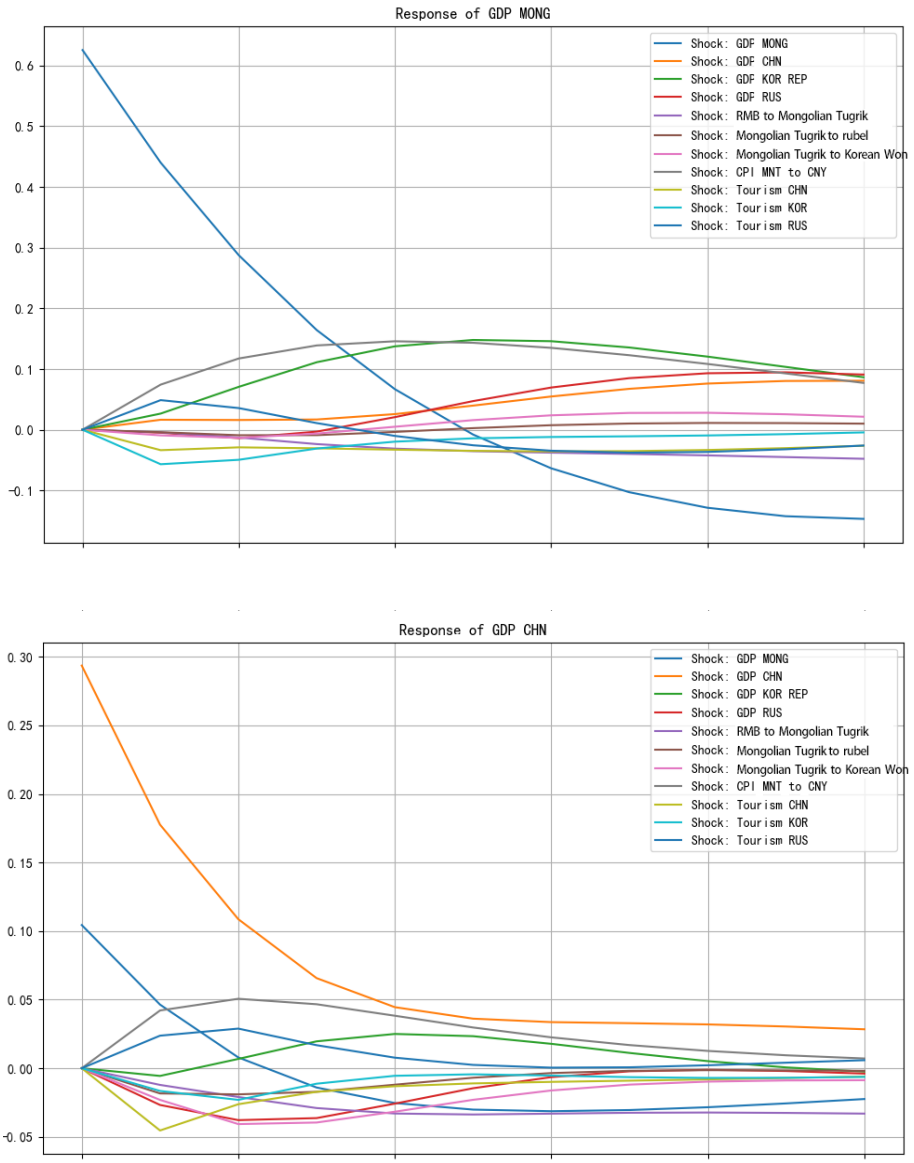
Model Prediction

According to the VAR model's characteristic root test, every root has a modulus less than 1 and the maximum feature root is 0.92. The residual sequence exhibits white noise features, and the Ljung-Box test's p-value is higher than 0.05. Consequently, this model satisfies the stability criteria and is appropriate for further examination. A good fitting effect was shown by the sample's goodness of fit R^2, which was greater than 0.85. The RMSE number is low, and the prediction error falls within an acceptable range. Features of the forecasted outcomes: Prediction accuracy for the short term (one to two periods) is high; the average error is less than 5%. Even though there was more uncertainty in the medium and long run (periods 3–8), the general trend was correctly identified.

Dynamic Analysis

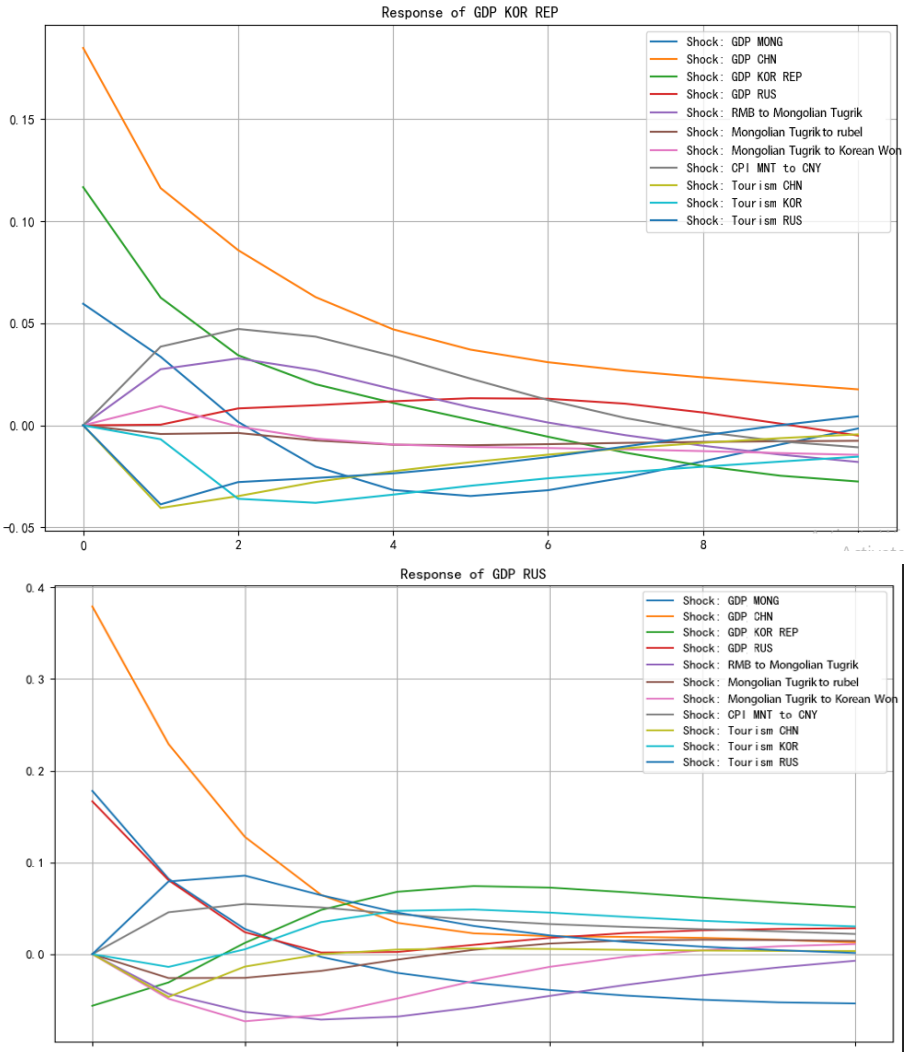
The data resulted in a GDP response relationship analysis summarized in Figures 1 and 2. The most notable reaction to its own shock was displayed by Mongolia's GDP, which peaked in the first phase before progressively declining. In the first two to three periods, the effect of China's GDP shock on Mongolia's GDP is more noticeable, after which it tends to level out. Although relatively small, the effects on Russia's and South Korea's GDP are more enduring.

Figure 1. Dynamic Analysis of GDP response relationship in Mongolia and China



Source: Authors' own elaboration

Figure 2. Dynamic Analysis of GDP response relationship in South Korea and Russia



Source: Authors' own elaboration

The result of the dynamic analysis of the exchange rate response relationship is displayed in Figures 3 and 4. The most vulnerable currency to the GDP shock is the Chinese yuan (also RMB)/Mongolian tugrik, which fluctuates widely. Although it exhibits a clear negative correlation, the Russian ruble exchange rate's response to the GDP shock is rather flat. Also, the Korean exchange rate fluctuates a lot in the short term but tends to stabilize in the long run.

Figure 3. Dynamic Analysis of Exchange rate: Mongolian Tugrik and Russian rubel

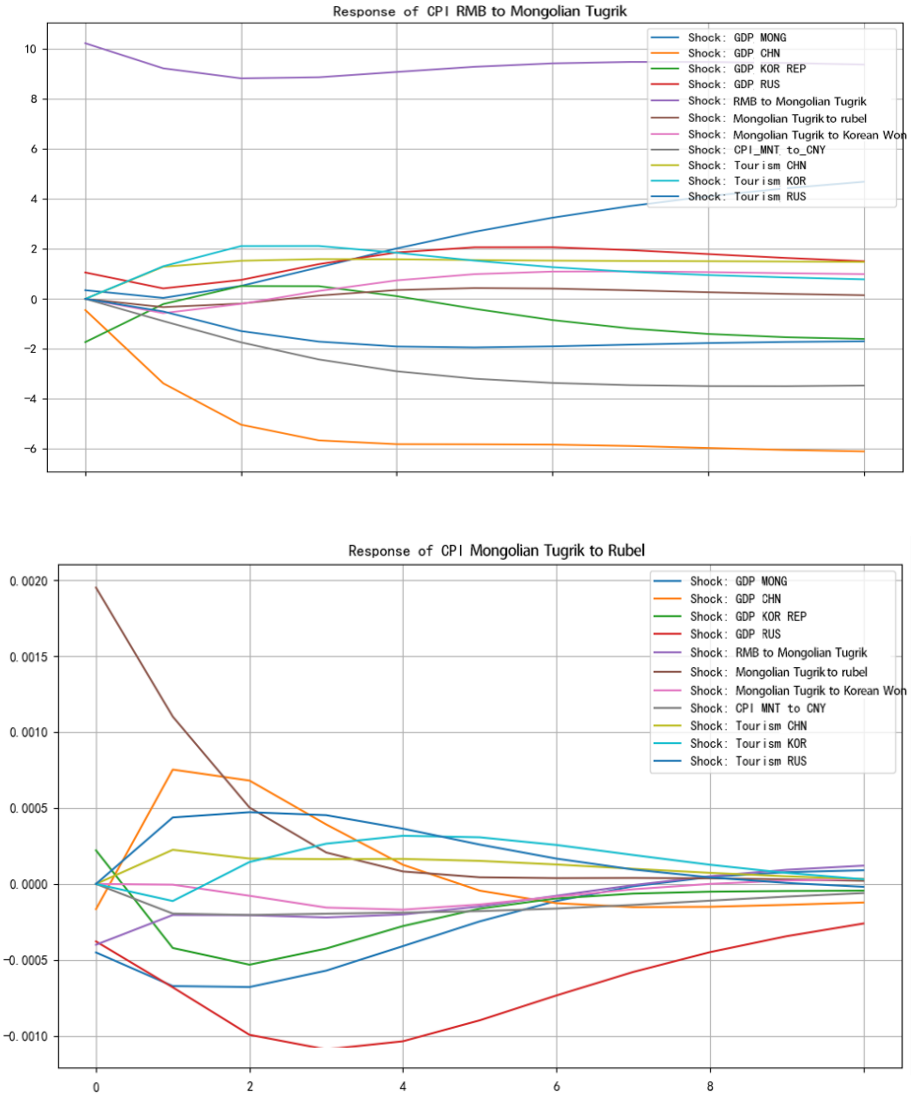


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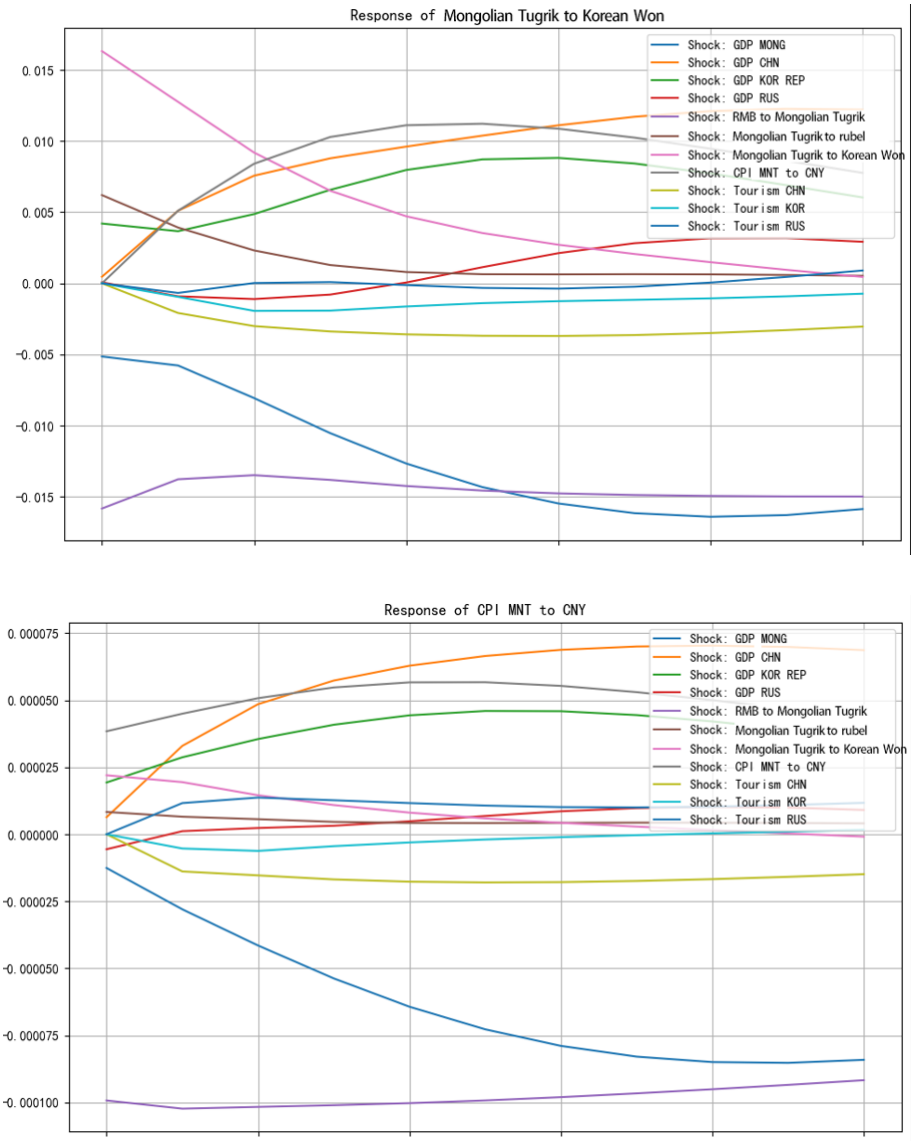
Figure 4. Dynamic Analysis of Exchange rate: South Korea won and China yuan

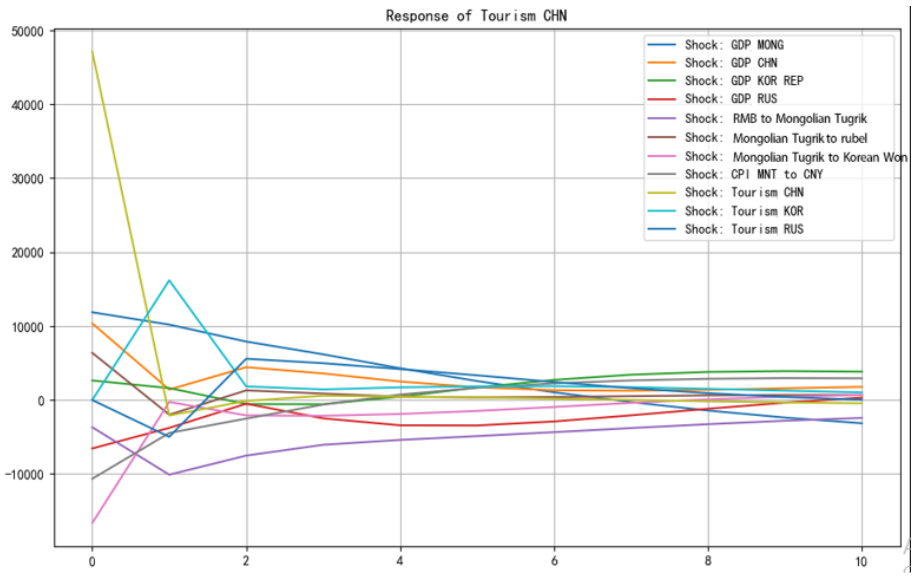


Source: Authors' own elaboration

The result of the dynamic analysis of the tourist number response relationship is displayed in Figures 5, 6, and 7. The most significant reaction to the influence of economic factors, particularly shifts in GDP and currency rates, is shown in the

number of Chinese outbound tourists. Although it is less responsive to other factors, the number of South Korean outbound tourists responds significantly to the impact of their own GDP. It is clear how the number of Russian outbound tourists reacts to fluctuations in exchange rates, particularly when the value of the ruble fluctuates.

Figure 5. Dynamic Analysis of Tourist number: China outbound tourists



Source: Authors' own elaboration

Figure 6. Dynamic Analysis of Tourist number: South Korea outbound tourists

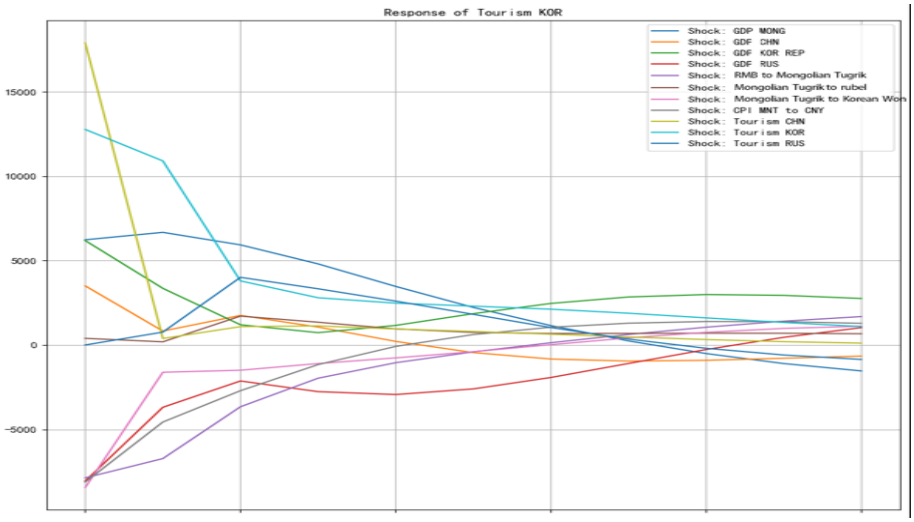


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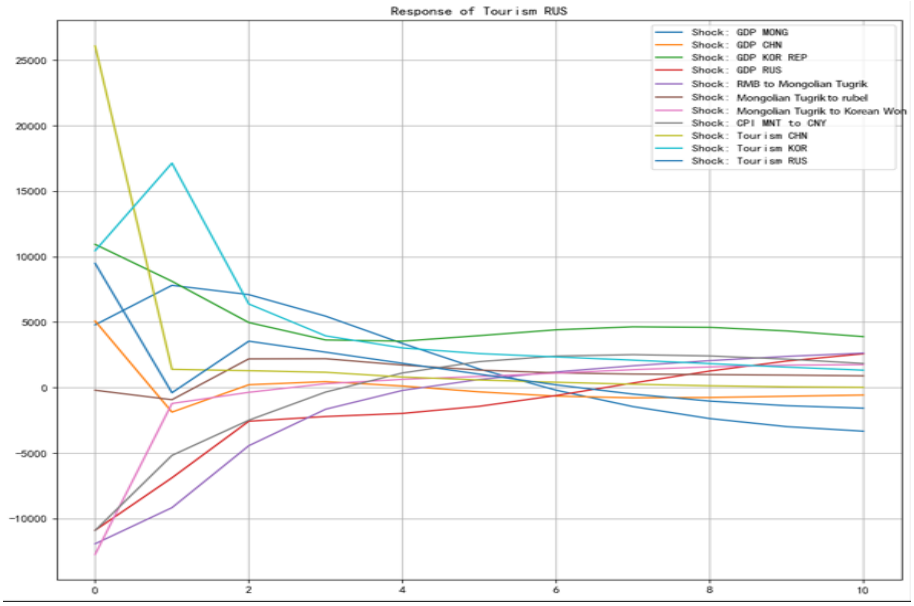
Figure 7. Dynamic Analysis of Tourist number: Russian outbound tourists



Source: Authors' own elaboration

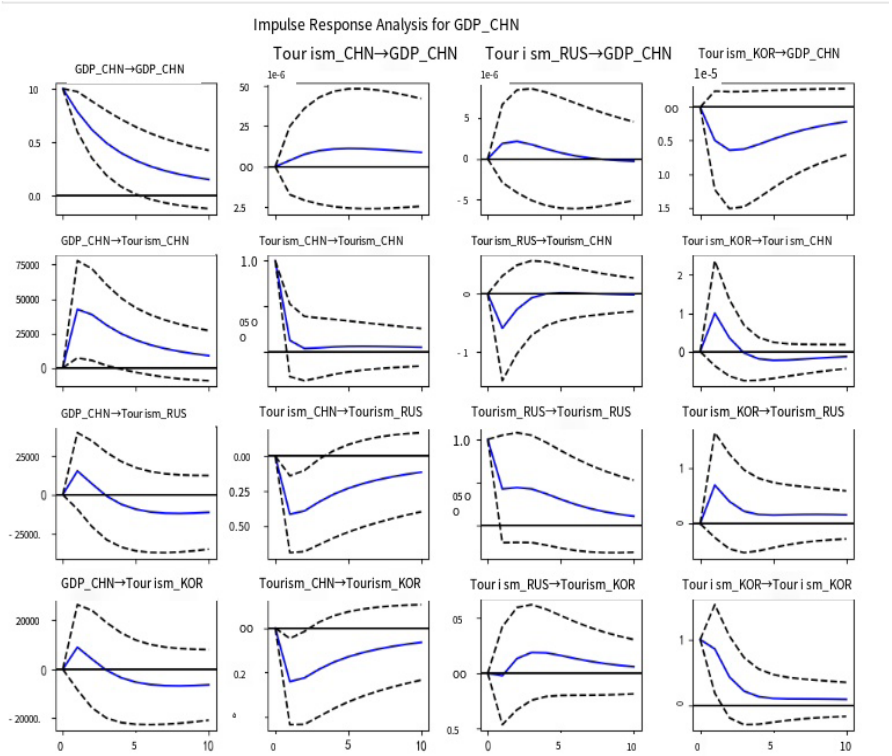
The variance decomposition provides information about the relative importance of each random innovation in affecting the variables in the VAR. China's GDP has the biggest variance contribution to Mongolia's tourism business, reaching 28.7% in the 8th phase, according to the variation regarding GDP contribution. The Chinese yuan exchange rate, on the other hand, contributes roughly 15.3% of the variance, which is substantially more than that of other currencies. Additionally, about 70% of the change in the number of tourists comes from itself.

Impulse Response Analysis (IRF)

Through the IRF, this study described the dynamic impact trajectory and the long-term dynamic interrelationship among GDP and tourist numbers. The impact response period was set to 8 in this paper. Figures 8, 9, and 10 present the findings of the analysis. The IRF level is shown in the figure by the blue line, while the two standard deviation bands are shown by the black lines.

The estimated results on the effect of China's GDP on the number of tourists are statistically significant, according to the confidence interval. Impact in the short term: Immediately following the shock, there is a notable positive response, reaching a peak of roughly 75,000 individuals in phase 1. Medium-term impact: Maintained at the 25,000–30,000 population level but gradually weakened throughout periods 2–5. Long-term impacts: Following phase 6, it stabilizes and stays around 20,000.

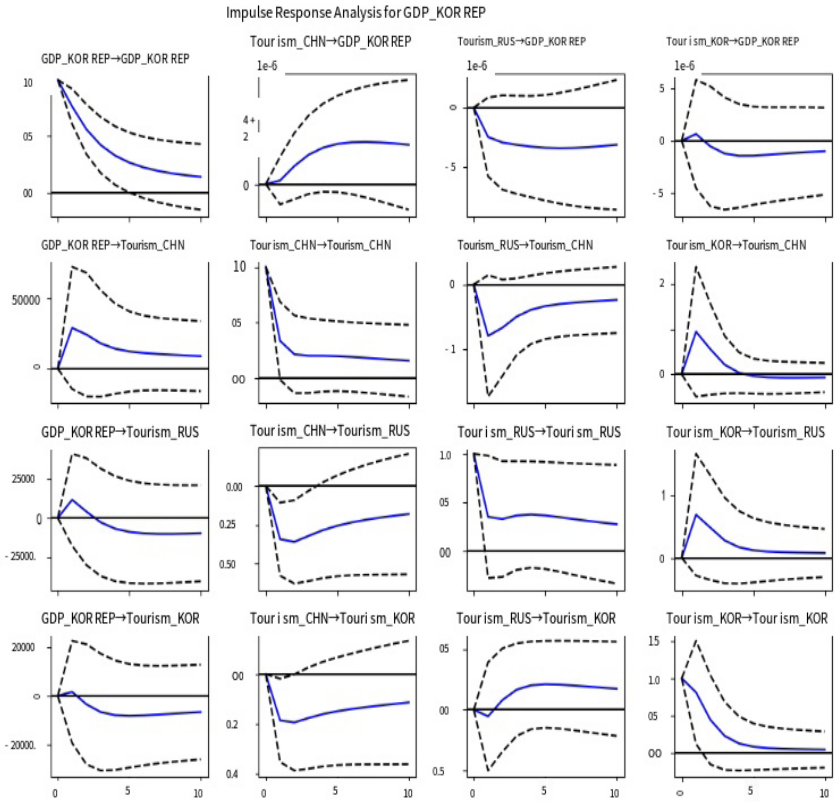
Figure 8. Result of Impulse Response Analysis: China



Source: Authors' own elaboration

The estimated results on the effect of South Korea's GDP on the number of tourists are statistically significant, according to the confidence interval. Impact in the short term: The initial shock produces a positive response of about 20,000 people. Medium-term impact: Significant decline begins after phase 3. Long-term impacts: Approaches zero.

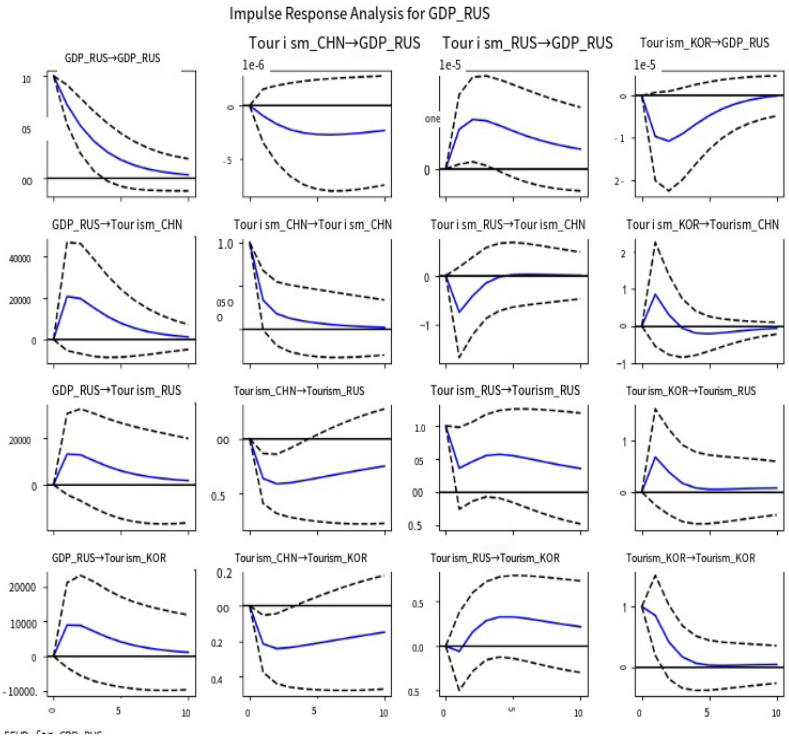
Figure 9. Result of Impulse Response Analysis: South Korea



Source: Authors' own elaboration

The estimated results on the effect of Russian GDP on the number of tourists are statistically significant, according to the confidence interval. Impact in the short term: Positive response of about 20,000 people after the shock. Medium-term impact: Start to decline during periods 3-4. Long-term impacts: Maintained at a low level, about 5,000-10,000 people.

Figure 10. Result of Impulse Response Analysis: Russia



Source: Authors' own elaboration

Evaluate the forecast error variance decomposition (FEVD)

The FEVD procedure was performed by measuring the percentage of surprises for each variable. Conciseness evaluates the relative significance and contribution of each variable to the forecast uncertainty; this paper developed FEVD and specifically examined Phase 8 data (see Table 1).

Table 1. Results of the FEVD data analysis (Phase 8 data)

Country	Self-explanatory power:	Contribution of GDP	Contribution of tourism to China	Contribution of tourism to South Korea	Contribution of tourism to Russia
China	72.27%	23.03%	4.70%	3.27%	0.96%
South Korea	77.87%	16.43%	35.69%	3.56%	44.33%
Russia	64.29%	32.49%	32.50%	2.41%	0.80%

Source: Authors' own elaboration

The findings of this analysis indicate that China's economy and Mongolia's tourism sector are most closely related, and policymakers should focus especially on shifts in the Chinese market. A thorough analysis shows there is a significant linkage effect between the markets of different countries, which requires a comprehensive tourism development strategy. There are significant spillover effects between the three countries' tourism markets, which can be seen from the cross-impact of FEVD.

(1) Order of influence size: The smoothest response curve in the IRF chart and the strongest explanation in the FEVD show that China's GDP has the biggest and most consistent impact on the number of tourists. Russia has the least influence and the most uncertainty, whereas South Korea is in second place but is more volatile.

(2) Time characteristics: Short-term (Phase 1-2): In all nations, GDP shocks can result in notable changes in the number of visitors. China has the most enduring influence over the medium term (Phase 3—5), but South Korea and Russia have fast-diminishing effects. Long-term (beyond phase 6): The influence of other nations is almost minimal, with only China continuing to have a steady beneficial impact.

(3) Interdependence: The most autonomous travel market is China's, which has a 72.27% self-explanatory power. Other nations, particularly the Chinese market, have a significant impact on the travel markets in Korea and Russia.

The results of the FEVD data analysis indicate that the three markets have notable differentiation features, and to support the growth of tourism, appropriate differentiation strategies ought to be implemented. Tourist arrivals are most affected by GDP shocks, while GDP has the biggest response to its own influence (see Table 2).

Table 2. Results of the FEVD data analysis (tourism markets, Phase 8 data)

Country	GDP Self-explanatory power:	Contribution of tourism to China	Contribution of tourism to South Korea	Contribution of tourism to Russia
China	85.66%	1.053%	8.028%	5.259%
South Korea	54.07%	4.28%	0.78%	40.86%
Russia	74.97%	0.61%	9.76%	14.66%

Source: Authors' own elaboration

Economic dependence comparison: China's GDP has the highest self-explanatory power (85.66 percent), suggesting the most economic independence when compared to other countries. The economy of South Korea was most dependent on its external environment, as evidenced by its lowest GDP self-explanatory power (54.077%). Russia accounted for 74.968 percent of the total.

Tourism market characteristics: China's tourism market has the highest level of market autonomy, with an explanatory power of 72.277%. Dependency on external markets is highest in South Korea (16.427%). The market performance of Russia is mediocre at 64.295%.

Market linkage: Other markets are most impacted by the Chinese market. The market that has been most impacted by outside factors is Korea. Strong regional ties can be seen in the Russian market.

Comprehensive model prediction

A comprehensive analysis of model-predicted GDP forecast trends, based on forecast results data and charts. Additionally, the suggested model predicts the outcome of this GDP analysis in a timely and somewhat accurate manner.

Forecast trends of GDP

According to historical data, Mongolia's GDP is clearly on the decline, with significant volatility and negative growth in 2020 (2024Q1 starting value: 1.48%, 2025Q4 final value: 0.57%). Over the course of the predicted period, China's GDP is declining gradually but modestly, retaining growth. Data from the past indicates a distinct decrease that was followed by a recovery in 2020 (2024Q1 beginning value: 1.17%, 2025Q4 ending value: 0.96%). During the forecast period, Korea's GDP is expected to enter negative growth territory, with a minor rebound in the second half of 2025. Historical data shows very minimal fluctuation (2024Q1 starting value: 0.07%, 2025Q4 final value: -0.96%). Despite being the only economy to exhibit both significant volatility and a rising trend, Russian GDP is expected to level off in 2025 (2024Q1 starting value: 1.01%, 2025Q4 final value: 1.22%).

Forecast trends of Exchange rate

Historical data on the Chinese yuan's value compared to the Mongolian tugrik indicates a consistent upward trend and a rather stable pattern (2024Q1: 481.76, 2025Q4: 498.49, and appreciation rate: 3.46%). The Russian ruble is weak overall, with slight fluctuations versus the Mongolian tugrik (2024Q1: 0.027897,

2025Q4: 0.027091, and appreciation rate: 2.89%).

Forecast trends of Individual countries' tourism markets

Significant seasonal changes and a definite downward trend are the outcome of the prediction performance regarding the China tourism market; historical data indicates strong cyclical characteristics (2024Q1: 117,635 people, 2024Q4: 95,956 people, and 2025Q4: 79,245 people, total decline: 32.6%). The South Korean tourism market's forecast performance indicates that seasonal influence is large, and volatility is higher than in the Chinese market. Historical data have been more volatile (2024Q1: 125,833 people, 2024Q4: 105,412 people, and 2025Q4: 90,641 people, total decline: 28.0%). Additionally, there is comparatively minimal seasonal volatility in the Russian tourism market, which has a maximum starting base and a definite downward tendency (2024Q1: 196,542 people, 2024Q4: 153,024 people, and 2025Q4: 133,590 people, total decline: 32.0%). The conclusion drawn from the forecast performance of the tourism markets in each of the individual countries is that, during the forecast period, all markets exhibit a downward trend; comparable declines (between 28% and 32.6%) are noticeable; seasonality is still present; the Chinese market is anticipated to maintain the most stable seasonal pattern; South Korea is the most volatile market; and Russia has the largest market base but is declining the fastest.

Discussion

The VAR model's practical application value is useful in illuminating the connection between demand for tourism and economic indicators. The VAR model offers crucial support for exposing the influence of economic variables (such as GDP and exchange rate) on Mongolia's tourism demand by capturing the dynamic interaction between multivariate time series. GDP growth not only bolstered domestic residents' capacity for tourism consumption but also enhanced the destination's appeal to international visitors by improving its overall image (Dritsakis, 2004). Another study employed Impulse Response Functions to delineate the short- and long-term impacts of economic shocks, such as abrupt exchange rate changes, on tourism demand (Chen et al., 2017). The VAR model identifies the following important values when examining how China, South Korea, and Russia affect Mongolia's desire for tourism.

Impulse Response Analysis (IRF): According to the study, China's GDP has a major positive short-term influence on Mongolia's tourism industry, peaking at roughly 75,000 visitors before progressively leveling down following phases two

and three. The GDPs of South Korea and Russia, on the other hand, have less of an impact on the number of tourists; nevertheless, the former's effect is more temporary, while the latter's is more permanent. These findings demonstrate that the timing and strength of the influence of economic indicators on travel demand vary significantly between nations.

Variance decomposition (FEVD): According to the variance decomposition study, China's GDP contributed 23.04% of Mongolia's tourism demand in the eighth phase, which is much greater than South Korea's (3.56%) and Russia's (14.66%) rates. This demonstrates that China's economic swings have the most influence on Mongolia's travel industry and are a major point of reference when developing Mongolian tourism strategies. The impact of exchange rate fluctuations: The study discovered that the Chinese yuan's change in value relative to the Mongolian Tugrik has a notable effect on the number of Mongolian tourists, with a 15.3% contribution rate—much greater than the influence of the ruble and won. This suggests that the exchange rate plays a significant role in drawing Chinese visitors to Mongolia, particularly during periods of appreciation of the Chinese yuan, which could limit the number of visitors.

The predicted outcomes could include risk management and regional cooperation. There is a notable correlation between the demand for tourism in the Chinese, South Korean, and Russian markets. For instance, the Chinese market had a 35.69 percent spillover effect on South Korean tourism and a 32.49 percent spillover effect on Russian tourism. Utilizing this connection effect, Mongolia can create regional tourism promotion plans for international collaboration. To lessen the impact of economic shocks on tourism, an early warning system for exchange rate risks can be set up, and pricing strategies for tourism products can be modified in response to external risks like exchange rate variations.

Conclusions and Suggestions

Using a VAR model, this study examines how South Korea, China, and Russia's economies affect Mongolia's tourism sector and comes to the following key findings. Overall, the VAR model's dynamic analysis makes it evident how intricately economic indicators and traveler demand interact, and it offers a quantitative foundation for Mongolia's tourist sector to adapt to outside economic shocks.

The Chinese market, which accounts for 72.27% of its tourism market and 85.66% of its GDP, exhibits the most independence and influence. It is Mongolia's most significant source of tourists. With a GDP self-explanatory

power of only 54.08%, the South Korean market displayed the highest level of external dependence. China and Russia had a major impact on the tourism industry, accounting for around 80% of the total. With a self-explanatory power of 64.29% for the tourism market and 74.97% for the GDP, the Russian market demonstrated a medium degree of market linkage. China's GDP accounts for 23.04 percent of Mongolian tourism, with Russia coming in second at 14.66% and South Korea last at 3.56%. Changes in the Chinese yuan exchange rate account for roughly 15.3% of variations in tourism, which is far greater than the impact of the ruble and the Korean won. The three markets have a substantial spillover effect; in particular, the Chinese market has a 35.69% and 32.49% influence on South Korea and Russia, respectively. The three markets fell 32.6 percent in China, 28.0 percent in South Korea, and 32.0 percent in Russia, according to the overall forecast, which indicates a declining trend. The primary impact will be a slowdown in GDP growth, with South Korea probably going negative, Russia sustaining modest growth, and China's GDP predicted to drop from 1.17 percent to 0.96 percent. Changes in exchange rates increase uncertainty; the China yuan is predicted to gain 3.46 percent, which might further reduce demand for travel.

We provide a differentiated market strategy. Concerning the Chinese market: To counteract the effects of exchange rate appreciation, it is bolstering the development of seasonal products, concentrating on the effects of slowing GDP growth, and creating high-quality tourism products. To improve market competitiveness, the Korean market must fortify the development of market stability, lessen the effects of outside shocks, and create unique tourism initiatives. However, it is utilizing its GDP growth forecast, concentrating on creating regionally connected travel solutions, and increasing its market share for the Russian market.

Measures to prevent risk include diversifying the tourism product line, lessening the effects of economic cycles, establishing a mechanism to prevent exchange rate risk, promptly adjusting the pricing strategy of tourism products, and strengthening the industry's resilience to risks and reducing its reliance on a single market.

This study still has several limitations. First, the data's short time range could influence the assessment of long-term trends; second, the model does not adequately take into consideration the effects of unforeseen circumstances. Lastly, it can be challenging to quantify some significant factors into the model, such as changes in tourism legislation. For a more thorough policy reference, future research might think about including other explanatory variables.

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