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Analysis on the Impact of the COVID-19 on China's Tourism Industry and Development Strategy Using TREND and SWOT-PEST Model

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ABSTRACT

After the outbreak of the COVID-19 in 2020, it will have a great impact on the booming tourism industry and become a global concern. This paper selects the data of domestic tourism income from 2014 to 2019, and assumes that under the condition of no epidemic situation, the TREND model is used to estimate the predicted value of domestic tourism income from 2020 to 2023, and evaluate the status and extent of the impact value by comparing the actual value. Meanwhile, the SWOT-PEST composite model is used to analyze the relevant causes and impact degree, build a SWOT-PEST matrix for the development of domestic tourism, and analyze the Strengths (S), Weaknesses (W), Opportunities (O) and Threats (T) of domestic tourism development in the context of the COVID-19 epidemic from the aspects of Politics (P), Economy (E), Society (S) and Technology (T). Then propose four strategies, namely Strength-Opportunity(SO), Weakness-Opportunity (WO), Strength-Threat (ST) and Weakness- Threat (WT), for making contributions to the recovery and development of tourism in the post epidemic era.

KEYWORDS: COVID-19; Tourism; TREND model; SWOT-PEST model, Strategy analysis

1. INTRODUCTION

At the beginning of 2020, the novel COVID-19 had a significant impact on all walks of life in the national economy, and the highly market-oriented tourism industry was one of the industries with the largest income reduction. The COVID-19 epidemic has been a public health emergency with the fastest spread, the widest scope of infection, and the greatest difficulty in prevention and control in China in recent years. In order to cope with the impact of domestic tourism and solve the problem for sustainable development, the relevant factors should not be neglected.

Relevant domestic studies, such as Tang et al. (2022) analyze the impact of the epidemic on China's tourism industry from the supply and demand relationship of residents' willingness to travel, space capacity of venues, market operators, tourism policies, etc. He and Yang (2020) explore the impact of tourism crisis management in major public health emergencies from the macro, meso, and micro levels. Xia and Feng (2020) compared the COVID-19 epidemic in 2020 with the SARS epidemic in 2003 and found that the COVID-19 in 2020 had a more serious impact on China's tourism industry, and it is necessary to objectively learn the lessons from the SARS epidemic. Yang and Liu (2020) conducted a combination of qualitative and quantitative research on the published articles by domestic and foreign scholars since the outbreak of the epidemic and summarized the impact of the COVID-19 epidemic on the upstream, middle, and downstream of the tourism industry. Peng (2020) analyzes the development of China's tourism industry in recent years based on indicators such as the number of inbound tourists from different countries and regions, international tourism revenue, and the number of domestic urban and rural residents over the past 40 years.

From the perspective of scholars' research content, in terms of quantitative analysis, most of them use time-series models such as ARMA, SARIMA, and ARIMA by tourist numbers to predict indicators under the assumption of no impact of the epidemic, and compared with the actual situation to reflect the impact of the COVID-19 on tourism industry (Feng and Song, 2020; He and Peng,2020; Liu and Yang, 2020; Chen, 2021; Xu et al.,2021; Wang et al., 2021). However, few studies have proposed accurate assessment of impact values, and there has been no further systematic analysis of the reasons for impact values. In addition, models such as ARMA, SARIMA, ARIMA, etc., although they can quantitatively measure the impact of emergencies on the economy, but these models are focused on time series containing trends and

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seasonal fluctuations, which are easily greatly limited by seasonal cycles.

The TREND model selected in this paper is suitable for time series with trend changes which especially based on small samples, excluding the influence of seasonal cycles, and the unit period of time series is not limited. Then, for the prediction results, the SWOT-PEST model is used to analyze the strategy of the internal and external environment, which is often used to systematically analyze the development environment of enterprises or industries. Among them, SWOT focuses on the internal micro environment analysis of the enterprise or industry, PEST focuses on the external macro environment analysis, when combined with the model analysis of the two, can fully consider the internal and external environmental factors, and achieving the effect of 1+1>2 (Yang, 2022). That is, while analyzing the Strengths (S), Weaknesses (W), Opportunities (O), and Threats (T) of the prediction results, it also conducts a comprehensive and in-depth analysis from the four aspects of politics (P), economy (E), society (S) and technology (T). Furthermore, use this method to figure out its existing problems, and then lay the foundation for the subsequent development countermeasures and suggestions.

2. MATERIALS AND METHODS

2.1. Data Sources

This study is mainly to collect the annual indicator data of domestic tourism revenue from 2014 to 2021, of which the national data comes from the National Bureau of Statistics (http://www.stats.gov.cn/tjsj/). In addition, the sources of 26 provinces, municipalities, and autonomous regions, including Chongqing, Zhejiang, Yunnan, Xinjiang, Tibet, Tianjin, Sichuan, Shanghai, Shaanxi, Shandong, Qinghai, Ningxia, Inner Mongolia, Jiangxi, Jiangsu, Jilin, Hubei, Heilongjiang, Hainan, Guizhou, Guangxi, Gansu, Fujian, Beijing, Anhui, and Guangdong, etc. are derived from the statistical bureaus of each province, municipality directly under the Central Government and autonomous region.

2.2. Study Method

2.2.1. TREND Model

Forecasting is the speculations of the future development trend of things, which can help managers to realize the situation and make decisions choose. The statistical function TREND belongs to the linear regression fitting model, which can predict the future value according to the existing data, build a linear regression equation according to the value of the known x series, and then calculate the corresponding y value series. The TREND function returns the value of a linear fit by the least squares method. The syntax expression is as follows: TREND (known_y's, known_x's, new_x's, const)

known_y's: Represents a known y value. When using a function, which can either be an array or a specified range of cells.

known_x's: Represents a known x-value. When using a function, which can either be an array or a specified range of cells. That is, construct exponential curve equations with parameters known_y's and known_xs.

new_x,s: indicates that a new x value is given, which is the variable x that needs to be calculated for the predicted value. If the parameter is omitted, the function defaults to its value equal to known_xs.

const: Represents a logical value that determines whether the constant b in the exponential curve equation is set to 0. When the parameter value is TRUE or omitted, b is calculated as the actual value; When the parameter value is FALSE, the value of b is 0, and the exponential curve equation becomes y=mx.

2.2.2. SWOT-PEST Model

The SWOT analysis model was proposed by Heinz Weihrich, a professor of management at the University of San Francisco in the early 1980s, and is also known as the situation analysis method, which is a method used by companies to formulate their own development strategies and analyze competitors. Through the survey, comprehensive analysis and summary of the strengths, weaknesses, opportunities, and threats related to the research object, and then conducting the matrix arrangement, in which all internal factors (advantages and weaknesses) are concentrated together, and evaluated by external factors (opportunities and threats), thereby to organically combine the strategy of the research object with internal and external resources to obtain a specific decision-making policy. In addition, the PEST analysis method is a model to analyze the macroscopic environment of the research object. The meaning in PEST model, P is Politics, E is Economy, S is Society, and T is Technology (Gu, 2017).

The SWOT-PEST model is an analytical model that combines SWOT and PEST. The internal environment and external environment of the research object can be analyzed, mainly analyzing its Strengths (S), Weaknesses (W), Opportunities (O), and Threats (T), and then conducting cross-cutting in-depth analysis from the four aspects of Politics (P), Economy (E), Society (S) and Technology (T), and then formulating strategic objectives, the model matrix is shown as Table 1:

Table 1 SWOT-PEST model matrix

SWOT-PEST model		Politics（P）	Economy（E）	Society（S）	Technology（T）
Internal factors	Strengths（S）	SP	SE	SS	ST
	Weaknesses（W）	WP	WE	WS	WT
External factors	Opportunities（O）	OP	OE	OS	OT
	Threats（T）	TP	TE	TS	TT

Tourism as a meso industry, macro and micro factors play a crucial role in its development. Therefore, this paper using the SWOT-PEST model can analyze the current situation of domestic tourism

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development from the internal environment and external environment and macro aspects, to find the existing problems in the development process, and proposed targeted and feasible countermeasures and suggestions.

2.3. Trend Model Establishment and Impact Value Estimation

2.3.1. Indicator Selection

Both tourist arrivals and revenue are common indicators for measuring tourism (Wu, 2020; Zhang, 2020; Chen, 2021; Feng and Wei, 2021; Li et al., 2021; Yang, 2020; Zhou and Liu, 2021), this paper preliminarily evaluates the total number of tourists received, the number of domestic tourists received tourism revenue, domestic tourism revenue, and other annual data to measure the impact of the epidemic on the tourism industry. Finally, domestic tourism revenue was selected as the measure of tourism, mainly considering that since March 28, 2020, affected by many factors that suspended the entry of foreigners, in order to avoid affecting the scientificity and accuracy of the data, domestic tourists were selected as the measure of tourism. It was found that domestic tourism revenue was more accurate than the analysis of tourist numbers, and data acquisition was easier.

Domestic tourism revenue (total expenditure) refers to all expenses spent by domestic tourists on transportation, visits, accommodation, catering, shopping, entertainment, etc. during domestic travel and tours.

2.3.2. Data Selection and Processing

Based on the analysis of the maximum and minimum value span errors of domestic tourism revenue and national domestic tourism revenue in 26 provinces, municipalities directly under the central government, and autonomous regions, it is found that the reference value of the data before 2014 year is poor, and in order to ensure the accuracy of the prediction results, 2014 year is the starting point.

Import all data into Excel including the annual index data of national domestic tourism revenue in years of 2014 to 2021, as well as the annual index data of tourism revenue of each province (such as Chongqing, Zhejiang, Yunnan, Xinjiang, Tibet, Tianjin, Sichuan, Shanghai, Shaanxi, Shandong, Qinghai, Ningxia, Inner Mongolia, Jiangxi, Jiangsu, Jilin, Hubei, Heilongjiang, Hainan, Guizhou, Guangxi, Gansu, Fujian, Beijing, Anhui, and Guangdong, etc.), the specific data are show as Table 2 and Table 3:

Table 2 Domestic tourism revenue from 2014 to 2021 (Unit: 100 million yuan)

Year	Domestic tourism revenue
2021	29191
2020	22286
2019	57251
2018	51278
2017	45661
2016	39390
2015	34195
2014	30312

Table 3 Each province of domestic tourism revenue from 2014 to 2021 (Unit: 100 million yuan)

	2021	2020	2019	2018	2017	2016	2015	2014
Chongqing City	5656	4578	5565	4199	3177	2533	2160	1913
Zhejiang Province	6171	8264	10727	9834	8764	7600	6720	5947
Yunnan Province	7677	6449	10680	8699	6683	4537	3104	2517
Xinjiang Uygur Autonomous Region	1416	992	3594	2497	1751	1340	985	620
Tibet Autonomous Region	442	366	540	474	366	318	271	195
Tianjin City	1969	1331	4235	3841	3283	2919	1478	1470
Sichuan Province	7353	7170	11454	10013	8825	7601	6138	4838
Shanghai City	3537	2810	4789	4477	4025	3444	3005	2950
Shaanxi Province	3434	2762	6979	5789	4603	5936	2904	2435
Shandong Province	8279	6005	10851	9662	8492	7400	6505	5711
Qinghai Province	350	290	559	464	379	307	246	200
Ningxia Hui Autonomous Region	286	199	336	292	275	207	160	142
Inner Mongolia Autonomous Region	1461	2404	4559	3924	3359	2636	2194	1745
Jiangxi Province	6769	5420	9597	8096	6393	4954	3600	2615
Jiangsu Province	11594	8136	13902	12851	11308	9952	8769	7864

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Jilin Province	3275	2528	4878	4166	3457	2846	2221	1767
Hubei Province	6028	4366	6744	6021	5373	4764	4206	3676
Heilongjiang Province	1345	1629	2640	2208	1877	1573	1337	1031
Hainan Province	1379	865	992	898	767	610	528	490
Guizhou Province	6641	5784	12296	9450	7098	5012	3500	2883
Guangxi Zhuang Autonomous Region	9063	7262	9999	7436	5419	4048	3136	2495
Gansu Province	1842	1454	2676	2058	1579	1219	975	780
Fujian Province	4862	4928	7393	6033	4571	3495	2798	2406
Beijing City	4139	2881	5866	5556	5122	4683	4320	3997
Anhui Province	5578	4222	8292	7030	6002	4764	3981	3310
Guangdong Province	5289	4528	13740	12253	10667	9200	7977	6801

2.3.3 Predictive Analytics

Assume that under the condition of no epidemic, the TREND function linear regression is used to predict domestic tourism revenue from 2020 to 2023 by Excel, calculating as follows: Syntax: TREND (known_y's, known_x's, new_x's, const)
Take domestic tourism revenue predict as an example:

known_y's: Indicates that the known y value is {57251, 51278, 45661, 39390, 34195, 30312}

known_x's: Indicates that the known x value is {2019, 2018, 2017, 2016, 2015, 2014}

new_x,s: indicates that the new x value is given {2020,2021}
const: represents a logical value that determines whether the constant b in the exponential curve equation is set to 0. The value of the analysis parameter is FALSE, so the value of b is 0.

The predicted value is calculated after inputting the data through the formula, show as Table 4

Table 4 Predicted value of national domestic tourism revenue (Unit: 100 million yuan)

Year	Actual value	Predicted value
2020	22286	62236
2021	29191	67728
2022	--	73220
2023	--	78712

In the same way, the predicted value of domestic tourism revenue from 2020 to 2023 for 26 provinces, municipalities directly under the central government, and autonomous regions is calculated (show as Table 5):

Table 5 Predicted value of each province of domestic tourism revenue (Unit: 100 million yuan)

	2020	2021	2022	2023
Chongqing City	5760	6475	7190	7905
Zhejiang Province	11706	12689	13672	14655
Yunnan Province	12011	13718	15425	17132
Xinjiang Uygur Autonomous Region	3780	4346	4912	5478
Tibet Autonomous Region	599	667	735	803
Tianjin City	4999	5607	6215	6823
Sichuan Province	12738	14050	15362	16675
Shanghai City	5201	5606	6012	6417
Shaanxi Province	7779	8637	9495	10354
Shandong Province	11730	12766	13802	14838
Qinghai Province	611	683	755	827
Ningxia Hui Autonomous Region	379	420	461	502
Inner Mongolia Autonomous Region	5068	5639	6210	6781
Jiangxi Province	10860	12283	13707	15131
Jiangsu Province	15154	16405	17656	18907
Jilin Province	5423	6051	6680	7308
Hubei Province	7270	7881	8493	9104
Heilongjiang	2874	3187	3500	3813

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Province				
Hainan Province	1092	1200	1308	1416
Guizhou Province	13407	15321	17235	19150
Guangxi Zhuang Autonomous Region	10601	12081	13561	15040
Gansu Province	2857	3231	3605	3979
Fujian Province	8021	9041	10062	11082
Beijing City	6273	6659	7044	7430
Anhui Province	9093	10101	11110	12118
Guangdong Province	15005	16405	17805	19204

2.3.4 Impact Value Statistics

According to the predicted value of domestic tourism revenue from 2020 to 2023 extrapolated by the TREND model, the difference between the predicted value and the actual value can be regarded as the impact degree of the reduction of expenditure affected by the epidemic, which indicating the impact of the COVID-19 on domestic tourism revenue, the specific results are show as Table 6 and Table 7. Due to the actual data published in 2022 and 2023 however, are still lacking, so the impact degree remains to be observed (show as Table 6).

Table 6: The impact of the epidemic on the national domestic tourism income (Unit: 100 million yuan)

Year	Actual value	Predicted value	Impact value	Impact rate
2020	22286	62236	39950	179%
2021	29191	67728	38537	132%
2022	--	73220	--	--
2023	--	78712	--	--

Affected by the epidemic, the total domestic tourism revenue in 2020 was 2,228.6 billion yuan, a decrease of 3,995 billion yuan from the 6,223.6 billion yuan predicted by the TREND model, while the total revenue in 2021 was 2,919.1 billion yuan, a decrease of 3,853.7 billion yuan from the forecast of 6,772.8 billion yuan. It shows that the impact of the COVID-19 epidemic on domestic tourism revenue is greater in 2020 than in 2021. Through analysis, it can be seen that domestic tourism revenue presented a decline off a cliff in 2020, and the year-on-year growth rate of total revenue will be -61 %. In 2021, there was a recovery phenomenon, and the total revenue growth rate was 31 % year-on-year. Assuming that domestic tourism revenue will show a continuous growth trend from 2014 to 2023 under the condition of no epidemic, it is predicted that domestic tourism revenue will be close to 8 trillion yuan in 2023 (shown as Table 6 and Figure 1)

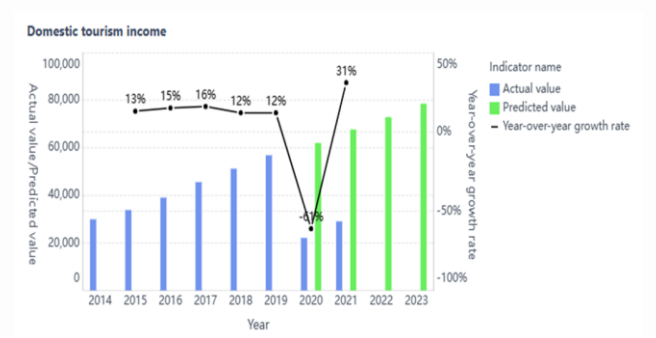

Figure 1: Visualization analysis chart of domestic tourism revenue from 2014 to 2023 (Unit: 100 million yuan)

According to the analysis of domestic provinces, the top five domestic tourism revenue impact values in 2020 are Guangdong (1,047.7 billion yuan), Guizhou (762.3 billion yuan), Jiangsu (701.8 billion yuan), Shandong (572.5 billion yuan), and Sichuan (556.8 billion yuan). The top five in 2021 are Guangdong (1,111.6 billion yuan), Guizhou (868 billion yuan), Sichuan (669.7 billion yuan), Zhejiang (651.8 billion yuan), and Yunnan (604.1 billion yuan). It shows that in 2020 and 2021, the tourism industry of Guangdong, Guizhou, and Sichuan provinces was seriously affected by the epidemic. It is worth noting that the impact value of Hainan in 2021 is negative, indicating that it is slightly affected by the epidemic, and the tourism industry in 2020 and 2021 is relatively less affected by the epidemic, mainly in Tibet, Qinghai, Ningxia, and Hainan (show as Table 7 and Figure 2).

Table 7 Impact value list of each province of domestic tourism revenue (Unit: 100 million yuan)

	2021	2020
Chongqing City	819	1182
Zhejiang Province	6518	3442
Yunnan Province	6041	5562
Xinjiang Uygur Autonomous Region	2930	2788
Tibet Autonomous Region	**225**	**233**
Tianjin City	3638	3668
Sichuan Province	6697	5568
Shanghai City	2069	2391
Shaanxi Province	5203	5017
Shandong Province	4487	5725
Qinghai Province	**333**	**321**
Ningxia Hui Autonomous Region	**134**	**180**
Inner Mongolia Autonomous Region	4178	2664

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Jiangxi Province	5514	5440
Jiangsu Province	4811	7018
Jilin Province	2776	2895
Hubei Province	1853	2904
Heilongjiang Province	1842	1245
Hainan Province	**-179**	**227**
Guizhou Province	8680	7623
Guangxi Zhuang Autonomous Region	3018	3339
Gansu Province	1389	1403
Fujian Province	4179	3093
Beijing City	2520	3392
Anhui Province	4523	4871
Guangdong Province	11116	10477

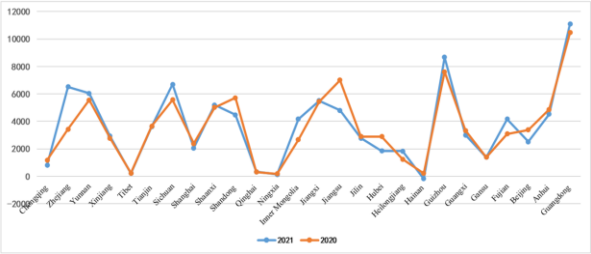

Figure 2 the impact value chart of each province of domestic tourism revenue (Unit: 100 million yuan)

3. SWOT-PEST MODEL ANALYSIS

The COVID-19 epidemic affected domestic tourism revenue in 2020 and 2021, but the degree of impact was different, especially in 2020, domestic tourism revenue fell off a cliff, while 2021 had a smaller impact than 2020, and there was a recovery phenomenon. In this section, hereby try to construct a clear outline through SWOT-PEST model analysis.

3.1. Strengths and PEST Crossing Analysis

■ ***Strengths of Political (SP)***

The national government has vigorously proposed policies to help enterprises bailout. In February and April 2021, the Ministry of Culture and Tourism issued relevant policies, proposing to continue to promote the development of financial services for small and micro enterprises. Meanwhile, proposing other measures to alleviate the difficulties faced by enterprises, travel agencies, and other markets, and promotes the recovery of the tourism industry.

During 2020 and 2021, the provinces of Tibet, Qinghai, Ningxia, and Hainan vigorously implemented a series of tax and fee reductions and other policies to tide over difficulties and resume tourism development. Among them, Hainan's tourism industry in 2021 was less affected by the epidemic than other regions, mainly due to the relaxation of the tax exemption policy for outlying islands, which further promoted the recovery of its tourism industry.

■***Strengths of Economic (SE)***

In 2021, the per capita disposable income of national residents reached 35,128 yuan, a nominal increase of 9.1% over 2020, and an actual increase of 8.1% after deducting price factors, which presents a resurrection development trend. Which means can provide new economic advantages for the development of tourism by the new developing pattern of tourism built from 2021 to 2025 (14th Five-Year Plan).

Tibet, provinces of Qinghai, Ningxia, and Hainan have invested heavily in tourism during 2020 and 2021 to boost the recovery of the tourism industry. For example, in 2020, Tibet faced the impact of the epidemic on the tourism industry, invested 778 million yuan through multiple channels. In addition, in 2021, Tibet implemented a total of 506.5 million yuan in project funds to support the construction of 39 tourism infrastructure and public service facilities in the region.

■***Strengths of Social (SS)***

In 2021, under the situation of good control on epidemics, the deep integration of culture and tourism has warmed up. The tourism market has recovered in an orderly manner, holiday tourism has driven the annual tourism consumption, and the popularity of tourism in local areas has also continued to rise. Among which northwest tourism has become a bright spot in the regional tourism economy, with per capita travel expenditure increasing and urban residents' tourism consumption growing rapidly.

The common denominator of tourism themes in the provinces of Tibet, Qinghai, Ningxia, and Hainan is ecotourism and rural tourism, and each region formulates product routes that meet market needs according to local characteristics. During the epidemic, tourists' consumption psychology and preferences have changed, and they are pursuing more the safety, health, and environmental friendliness of tourism, and eco-tourism and rural tourism are precisely in line with consumers' needs for environmentally friendly, healthy, and green tourism. These four regions effectively enhance and expand the influence of tourism brands, meanwhile promoting stability and improving the tourism market.

■***Strengths of Technical (ST)***

In 2021, the new tourism format represented by "Internet + tourism" will develop rapidly, create new advantages in the digital economy, promote the innovation of production methods, service modes, and management models, enrich product formats, and expand tourism consumption space.

The provinces of Tibet, Qinghai, Ningxia, and Hainan will accelerate the digital transformation of tourism during 2020 and 2021. With the strategic layout of new infrastructure and the development of digital economy, 5G, artificial intelligence, drones,

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Internet of Things (IOT) and other technologies become a wide range of commercial applications. Digital development will greatly promote the diversification of tourism product formats, the facilitation of tourism services, and the wisdom of tourism management.

3.2. Weaknesses and PEST Crossing Analysis

■*Weaknesses of Political (WP)*

On January 24, 2020, the Ministry of Culture and Tourism requested travel agencies and online travel enterprises across the country to suspend the operation of group travel and "air ticket + hotel" tourism products. All localities have increased prevention and control measures in the tourism industry and accelerated the closure of business areas of tourist attractions, so the impact of the epidemic on the tourism industry in 2020 is deeper.

The provinces of Guangdong, Guizhou, and Sichuan have supported tourism policies during the epidemic under the prevention and control policies, but these three regions lack scientific and reasonable planning, insufficient resource integration, and lack of large-scale tourist attractions with strong attraction and sensational effect in the process of scenic spot development.

■*Weaknesses of Economic (WE)*

The adoption of "dynamic zero" epidemic prevention measures during 2020 and 2021 led to the stagnation of most industries, which had a greater impact on the overall economy. By comparing the pre-pandemic state, industrial production has basically returned to pre-epidemic conditions, but accommodation, catering, and rental business services in the service sector continue to be at a low level. When the protracted epidemic leads to the normalization of prevention and control, long-term investment in the service sector has been greatly reduced, and production in the service sector has been suppressed, so the development of tourism has also been limited by the economy (Sun, 2021; Wang and Li, 2021; Wang, 2021)。

During the epidemic, the provinces of Guangdong, Guizhou, Sichuan have invested insufficient funds in infrastructure and service facilities in tourist attractions, especially during the period, tourists pay more attention to health and health, while infrastructure is not perfect, hygiene and safety issues are not guaranteed, making tourists feel insecure (Chen et al., 2020; Yu, 2020; Li, 2022)。 It has caused tourists reduction and economic losing.

■*Weaknesses of Social (WS)*

During the pandemic, tourist confidence needs to be restored, and travel safety standards need to be harmonized. The sudden, uncontrollable, and destructive nature of the COVID-19 epidemic aggravates the continuity and uncertainty of the event, and it is difficult to eliminate people's panic about going out in the short term, affecting people's confidence in tourism consumption and tourism willingness.

In Guangdong, Guizhou, and Sichuan, during the epidemic, tourism remained stuck in the traditional concept of development, and it was difficult to adjust the product structure dominated by tourism (Cai and He, 2020; Chen, 2020; Wang, 2021). During the epidemic, people will change their choice of cultural tourism products and will choose experiential, healthy, and participatory vacations instead of sightseeing tourism. That's why the epidemic has a serious impact on the tourism industry in Guangdong, Guizhou, and Sichuan.

■*Weaknesses of Technical (WT)*

The tourism industry is not digital enough, and its capabilities need to be improved. Although the digital construction of tourist attractions has made certain progress, most scenic spots have been affected by the epidemic, resulting in a shortage of funds, lack of intelligent construction support, and problems such as slow network construction, lag, and insufficient application of digital management methods, resulting in insufficient digital applications.

Similar situation in the local area, thus Guangdong, Guizhou, and Sichuan have problems such as slow digital transformation, insufficient digital cultural tourism products, imperfect data security management, high cost of intelligent transformation, and weak willingness of enterprises to upgrade and transform. This situation will also reduce market competitiveness.

3.3. Opportunities and PEST Crossing Analysis

■*Opportunities of Political (OP)*

On December 7, 2022, the State Council issued the "New Ten Rules" for epidemic prevention and control, and the restrictions restricting the movement of domestic personnel were officially lifted. The spark of tourism recovery has been ignited, forming a nationwide fire. Under the new opening-up policy, the Ministry of Culture and Tourism has rapidly optimized and improved epidemic prevention and control measures, proposed a new version of epidemic prevention and control guidelines. Meanwhile, various localities have successively supporting many optimized epidemic prevention and control measures, launched a series of tourism activities and preferential measures. That is no doubt that will create new opportunities for the development of tourism.

■*Opportunities of Economic (OE)*

The 14th Five-Year Plan provides a new economic growth policy for the tourism industry and comprehensively promotes consumption as well as the experienced economy represented by the tourism and hotel industry is the mainstream of future consumption with unlimited potential. The rebound in post-pandemic consumption is mainly concentrated on online consumption and local consumption. Especially under the new development pattern of domestic circulation, the resurrection of tourism consumption will bring golden opportunities for domestic tourism.

■*Opportunities of Social (OS)*

Leisure vacation is an important part of people's better life, and it is becoming the norm and mainstream of life from an accessory of the people. As a high-frequency and low-density consumption mode, leisure vacation is becoming the focus of tourism development under the normalization of epidemic prevention and control, and will also become a pioneer in the transformation of tourism in the future. It will play a greater role in the new

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development pattern with domestic circulation as the main body as well as combined with domestic and international dual circulation for promoting each other (Yang, 2022).

■***Opportunities of Technology (OT)***

With the vigorous development of digital industrialization and industrial digitalization, smart tourism has become a new engine for the development of China's tourism industry. During the fight against the COVID-19 epidemic, reservation travel has become the norm, the construction process of the modern tourism system with smart tourism as the core has been further accelerated, and tourists' sense of security and gain has been further improved. The rise of online travel agency (OTA), the application of new media, the cross-border entry of technology companies, etc., all interpret the truth that "science and technology are the primary productive forces", thereby the digitalization process of the cultural and tourism industry will be upgraded and accelerated again in the future.

3.4. Threats and PEST Crossing Analysis

■***Threats of Political (TP)***

Regulators are not strong enough to rectify illegal activities, and "retaliatory slaughter" threatens the recovery of the tourism industry. During the Spring Festival in 2023, the tourism industry ushered in an explosive recovery, but the "retaliatory consumption" of tourism also made some people return to the old road, and the phenomenon of slaughtering customers on consumption in some places once again. In the post-pandemic era, the tourism economy has ushered in a new stage of development, tourists are paying more and more attention to the consumption experience, and the unscrupulous behavior of merchants is destroying the sense of experience of tourists. If not effectively curbed and rectified the tourism environment, it may have a fatal impact on the tourism economy.

■***Threats of Economic (TE)***

The external environment is complex and changeable, and the pressure on economic growth is increasing. At present, international trade friction is constant, and debt risks continue to increase. Due to the impact of the epidemic, the overall international economic growth trend has declined. In this environment, due to the long duration of the epidemic and the long isolation period of residents, the middle and lower classes have zero income and a large amount of debt, coupled with soaring prices, thus the national burden is getting bigger and bigger. It is manifested in poor business operations, declining personal income, strengthened willingness of residents to save and weakened willingness to consume travel, etc., which have brought many threats to the development of tourism and other industries.

■***Threats of Social (TS)***

Residents' demand for travel is increasing, and the tourism industry is in urgent need of innovation. In 2023, the number of tourists from various scenic spots in various places increased significantly compared with previous years, and tourism projects were innovated, thus the tourism market showed a strong recovery trend. However, at present, the overall supply of domestic quality vacation products is still insufficient, the richness, diversity, and quality of vacation-supporting products still need to be improved, so the soft service quality improvement has a long way to go.

■***Threats of Technical (TT)***

The application of data technology in tourism scenarios is not sufficient. How to effectively use the opportunity of digital transformation, organically combine technology with tourism application scenarios, and avoid falling into the misunderstanding of only paying attention to technological input while ignoring the core competitiveness of tourism products is a major challenge in the process of digitalization of the tourism industry. There is a large digital talent gap in the tourism industry. In practice, there is a serious shortage of talents who are proficient in digital technology and also familiar with the tourism industry, resulting in business and technology differentiation, and digital transformation is difficult to implement.

4. CONSTRUCTION OF SWOT-PEST MODEL MATRIX

Based on the above analysis, this study constructs a SWOT-PEST matrix for realizing the specific outline of the domestic tourism development (Cao and Chen, 2022), as shown in Table 8:

Table 8 SWOT-PEST matrix for domestic tourism development

		Politics（P）	**Economy（E）**	**Society（S）**	**Technology（T）**
Internal factors	**Strengths（S）**	The national government has vigorously proposed policies to help enterprises bailout. Local governments actively act and multi-party linkage to create a good policy environment for	The 14th Five-Year Plan provides a new economic advantages policy for the development of tourism. Local governments have increased capital investment in tourism.	The process of cultural and tourism integration has accelerated, and the domestic tourism market has recovered in an orderly manner. Localities have been devoted to the development of characteristic tourism products.	The new tourism format of "Internet + tourism" has developed rapidly. Localities will accelerate digital transformation.

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		tourism development and resurrection.			
	Weaknesses（W）	The state has issued a policy of suspending the operation of tourism enterprises, localities tourism development lacks reasonable planning, tourism resource development is not scientific, and it is at a low level of development.	Long-term investment in services has fallen sharply. The investment in basic supporting facilities and service facilities of local tourist attractions is insufficient.	Tourists have insufficient consumer confidence, and it is difficult to eliminate the panic of going out in a short period. It is difficult to adjust the localities product structure dominated by tourism.	The degree of digitalization of domestic tourism is insufficient, and the transformation of localities data is relatively slow.
External factors	**Opportunities（O）**	The "New Ten Rules" for epidemic prevention and control were released, and a series of tourism activities and preferential measures were launched in various places to create new opportunities for tourism development.	The 14th Five-Year Plan proposes to comprehensively promote consumption, and under the development of the domestic cycle, the return of tourism consumption will bring golden opportunities for domestic tourism.	New tourism formats and new products focusing on leisure and vacation have leapfrogged development and innovation and change, providing rare opportunities.	Smart tourism has become a new engine for tourism development. In the future, the digitalization process of the cultural and tourism industry will usher in upgrading and "acceleration".
	Threats（T）	The regulatory authorities have not made sufficient efforts to rectify illegal activities, and poor business methods have threatened the recovery of the tourism industry.	The external environment is complex and changeable, and the pressure on economic growth is increasing. Residents' willingness to save has strengthened and their willingness to consume and travel has weakened.	With the increasing demand for residents' travel and diversified demand, the tourism industry needs to innovate urgently.	The application of data technology in tourism scenarios is insufficient. There is a large digital talent gap in the tourism industry.

By analyzing the internal and external factors of domestic tourism development, this paper also conducts cross-analysis from four aspects, including politics, economy, society, and technology, and proposed countermeasures and suggestions to promote the recovery and development of domestic tourism. That mainly includes the following four aspects: using internal strengths to seize developing opportunities (SO); compensate for internal weaknesses (WO) by leveraging external opportunities; develop their own strengths, meet external threats (ST) and avoid internal weaknesses, reduce external threats (WT).

4.1. SO Strategy

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■***Strengthen government guidance to establish and improve the tourism technology innovation ecosystem.***

Industry authorities should promptly summarize the problems and experiences of tourism enterprises' digital transformation, providing targeted guidance, study and establish implementation standards for tourism enterprises' digitalization, and provide support for enterprises' digital transformation. At the same time, by building a platform for tourism enterprises and technology enterprises, focusing on market development and project development, promoting exchanges and cooperation between the two sides, and promoting the integration of tourism with new infrastructure and digital technology.

■***Develop high-end tourism and leisure vacations to achieve high-quality development of domestic tourism***

All parts of the country should promote leisure tourism, vacation tourism, health tourism, and various forms of innovative tourism, meanwhile organically combine them with health care, pension, parent-child, and other industries, for accelerating the birth of new products, new formats, new services, new models and new roads. The development of leisure and vacation industry is conducive to enriching the types of China's tourism industry and is a necessary way to achieve high-quality development on China's tourism industry.

4.2. WO Strategy

■***Rationally use the efforts of smart tourism to accelerate the construction of tourism public service facilities***

Guide the government and private parties to carry out the construction of smart tourism cities and public service platforms. Through "smart tourism", it effectively integrates tourism, transportation, meteorology, surveying, and mapping, comprehensively applies 5G systems, big data, cloud computing, and other technologies, and timely releases real-time information such as meteorological warnings, road traffic, and tourist reception, so that the construction of public services will become a new landscape on domestic tourism development for increasing various added value.

■***With the new format leisure and vacation tourism, promoting the transformation of tourism-led products***

The transformation from sightseeing tourism to leisure vacation should focus on finding the right direction, adjusting development ideas, improving development levels, innovating product development, docking market demand, and guiding market trends. On the basis of consolidating the tourism market, which should actively explore the leisure and vacation market, promote leisure development with tourism, improve the quality of tourism with leisure vacation, and create the ultimate tourist destination.

4.3. ST Strategy

■***Strengthen local characteristic themes for creating a unique development brand***

To shape the unique local development brand, it is necessary to do a good job in local tourism positioning and planning, tourism should highlight its uniqueness, do a good job in pre-development positioning. In addition, the cities or attractions should be based on their own resource characteristics, explore highlights, identify pain points, form selling points, on this basis, strengthen marketing capabilities, and effectively meet tourism consumption demand. After accurate positioning, it is also necessary to do a good job in planning, tourism project construction, and scenic spot development to avoid low-level and homogeneous and realize the development of characteristics led by planning.

■ ***Make full use of policy dividends to boost confidence and promote consumption***

On the enterprise side, it is necessary to continue optimizing the business environment, do a good job in reducing taxes and fees for enterprises, ensure the continuity, stability, and consistency of policies, and enhance investment vitality. For household consumers, it is necessary to focus on helping small and medium-sized private enterprises that create most jobs, and strengthen job market protection measures, stabilize the job market, increase residents' disposable income, and boost household consumer confidence.

4.4. WT Strategy

■***Rationally develop tourism resources and achieve sustainable development***

In dealing with the development of scenic spots, it is necessary to establish the highest principle of "protection first", implement the protection of the environment and sustainable development, truly improve the overall quality of the tourism environment, combine man and nature with a high degree. In that way, that can achieve the goal of common growth of human beings and nature, so that tourism resources can be used by people for a long time and develop sustainably.

■***Accelerate the cultivation of digital talents in the tourism industry and improve the talent cultivation mechanism***

Explore the establishment of a multi-level talent training plan for the tourism industry, recruit high-end talents from all over the world, attract cross-border talents with technical backgrounds, and realize the construction of talent diversification. Further optimize the training mechanism for tourism talents, introduce digital transformation content into the traditional curriculum system, and cultivate compound talents.

■***Carry out digital transformation demonstration projects for tourism enterprises***

It is recommended to take key enterprises as the support objects, establish a model for the digital transformation of tourism enterprises, summarize how to balance benefits and how to form a landable plan, and explore models that can be promoted. Actively encourage large-scale technology enterprises to develop universal digital and intelligent services suitable for tourism enterprises, and provide models and technical samples for tourism enterprises to transform.

5. CONCLUSION

The COVID-19 fully shows the vulnerability and sensitivity of the tourism industry. Once it is impacted by external shocks, the tourism industry will be greatly affected. Based on the TREND model, this paper quantitatively analyzes the impact of the COVID-19 epidemic on domestic tourism. Meanwhile, the SWOT-

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PEST model analysis method is used to analyze the impact value results of the domestic tourism industry from the internal and external factors, respectively from the political, economic, social, and technical levels, and to construct the SWOT-PEST matrix for the development of tourism industry in the region. Thus, put forward relevant countermeasures and suggestions for the development of domestic tourism, hoping that these targeted development strategies will have reference value for the recovery of China's tourism industry in the post-epidemic era.

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