

Article

Establishment and Practice of the Statistical Indicator System for All-Area-Advancing Tourism in China

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Abstract: As a new concept and mode in China to promote the coordinated development of the regional economy and society driven by the tourism industry, All-area-advancing tourism refers to the unified planning and layout, optimization of public services, comprehensive overall management, and marketing of a certain region as a complete destination with tourism as the dominant industry. This research established the All-area-advancing tourism statistical indicator system which is committed to calculate the contribution of All-area-advancing tourism to the national economy from both the supply and demand sides within the framework of the system of national account (SNA). Meanwhile, the established indicator system of All-area-advancing tourism has been applied to calculate the output of the tourism industry in Songjiang district, Shanghai, China. The results indicate that the All-area-advancing tourism indicator system can better fit the current system of national account and reflect the contribution of the tourism industry to the national economy in a more comprehensive way.

Keywords: all-area-advancing tourism; statistical indicator system; system of national account (SNA)

1. Introduction

According to the statistics of the China National Tourism Administration, trips per capita of Chinese citizens increased from 0.2 times in 1984 to 3 times in 2015, an increase of 14 times. The number of domestic tourists increased from 200 million in 1984 to 4 billion in 2015. Domestic tourism revenue increased from 8 billion yuan (CNY) in 1985 to 342 billion yuan in 2015, an increase of 427.5 times. All these numbers showed that China's tourism development has entered a new era.

As a reorientation of China's new stage tourism development strategy, All-area-advancing tourism is an important method of supply-side reform in China. The concept of All-area-advancing tourism was first introduced in 2016. In March 2018, the General Office of the State Council of China issued the Guidance on the Promotion of All-area-advancing Tourism Development, stating that "developing All-area-advancing tourism, taking a certain region as a tourist destination, taking tourism as an advantageous industry, unifying planning and layout, optimizing public services, promoting industrial integration, strengthening integrated management, and implementing system marketing are conducive to continuously improve the modernization, intensification, quality, and internationalization of tourism, and better meet the needs of tourism consumption" [1].

All-area-advancing tourism is different from the traditional tourism concept. It is based on tourism as a dominant industry in a certain region. All-area-advancing tourism is realized through the optimization and improvement of the economic and social resources in the region, the integration of regional resources, industrial integration and development, and social co-construction and

sharing. The sustainable development of All-area-advancing tourism requests the optimization and improvement of regional economic and social resources, especially tourism resources, relevant industries, ecological environment, public services, systems and mechanisms, policies and regulations, and civilized qualities. All-area-advancing tourism is a new regional coordinated development concept and model that promotes coordinated social development [2]. It breaks through traditional tourism elements and boundaries, in China, as a conventional saying, which often refers to F&B (food and beverage), i.e., accommodation, transportation, sightseeing, shopping and entertainment, and is a new notion of tourism development in the new era and new economic background. Obviously, the traditional tourism statistical instrument and indicator system can no longer fully reflect the contribution of All-area-advancing tourism to the national economy. As a result, examining the contribution of All-area-advancing tourism to the national economy should break through the existing statistical framework and establish a new indicator system that is suitable for the new concept and system of tourism development.

Based on the theory of national economic accounting, this study proposed an All-area-advancing tourism statistical indicator system. Specifically, this paper attempts to strip and summarize the output caused by tourism consumption hidden in all links of national economic operation from the perspective of supply. The proposed statistical instrument analyzes the economic contribution of All-area-advancing tourism from both the supply and demand sides within the framework of the system of the national account (SNA). Then, the new instrument was applied to run All-area-advancing tourism output analysis of Songjiang District, Shanghai, China. The research results revealed that the All-area-advancing tourism statistical indicator system can better adapt to the current national economic accounting system and more fully reflect the contribution of tourism to the national economy.

The rest of the paper is organized as follows: Section 2 reviews recent publications in All-area-advancing tourism and methods used for tourism economic contribution analysis. Section 3 discusses the construction of new statistical instrument of All-area-advancing tourism. Section 4 presents the empirical results of Songjiang All-area-advancing tourism. Section 5 discusses the results of this study, while the last section summarizes the conclusion, implications, and limitations.

2. Literature Review

2.1. All-Area-Advancing Tourism

All-area-advancing tourism is an academic concept developed in the controversy and debate of the theoretical circle, and also a useful exploration of Chinese tourism theoretical research [3]. In fact, the theoretical concept of tourism in China is divided into “narrow sense” and “broad sense”. In practice, there are two dimensions of tourism: “big tourism” and “small tourism” [4]. The origin of All-area-advancing tourism can be traced back to the relative research of “big tourism”. For example, Li [5] stated that the tourism industry can serve as the driving force of urbanization development. Furthermore, the work of Sheng [6] proposed tourism-oriented land development (TOLD). In 2015, after the National Tourism Administration of China adopted and emphasized the importance of All-area-advancing tourism and put it into practice, All-area-advancing tourism became more popular in Chinese local theoretical research.

Regarding the definition of “All-area-advancing tourism”, some scholars or government officials call it panoramic tourism, while others call it all-scenic tourism [7]. In other words, under the concept of All-area-advancing tourism, an administrative region is regarded as a tourist scenic area, while the whole society and the whole employees take an active part in the tourism development [8]. In essence, All-area-advancing tourism is the transformation of China’s tourism industry from scenic spot development mode to region-wide tourism development mode, which is a new concept and mode of regional coordinated development with tourism driving and promoting coordinated economic development [9].

Li, Zhang, and Cui [8] first coined the definition of All-area-advancing tourism, that is, referring to the unified planning and layout, optimization of public services, and comprehensive overall management and marketing of a certain region as a complete destination with tourism as the dominant industry. That is, an administrative area is regarded as a tourist scenic spot. Lv [10] stated that All-area-advancing tourism is a modern global development mode. The development of all aspects of a region should conform to the development of tourism and form an overall destination image. The study of Lv (2013) also proposed three basic conditions for the All-area-advancing tourism development: social conditions, population conditions, and resource conditions. Meng and Deng [2] indicated that All-area-advancing tourism treats tourism as the dominant industry and realizing the in-depth and effective integration of regional resources (tourism resources, cultural resources, administrative resources, social resources, etc.). In addition to the integration of tourism industry and other regional social and economic development, All-area-advancing tourism involves the participation of the whole society. In essence, All-area-advancing tourism is the transformation of China's tourism industry from a scenic spot development model to a global tourism development model. It is a new regional coordinated development concept that promotes tourism and promotes coordinated economic development [9].

To sum up, All-area-advancing tourism treats an administrative area as a whole tourist scenic spot, which is a panoramic and full coverage of the tourism industry and related sections. From a practical point of view, the spatial scale of the city (town) as an All-area-advancing tourist destination is most suitable.

2.2. The Methods of Tourism Economy Measurement

Tourism is a phenomenon of people moving between the place of residence and tourist destinations. It is a new type of consumption of time and space in modern society. At any geographic location, tourism is an economic activity that deserves special research [11]. The most direct impact of tourism on the national economy occurs in accommodation, catering, transportation, entertainment, and retail. The economic impact analysis of tourism activities generally focuses on analyzing the changes in sales revenue and employment generated by tourism activities in a specific region. The basic questions that are usually emphasized include the cost of tourists in this area, the percentage of the sales of local companies caused by tourism, the revenue generated by tourism to families and businesses in the destination, and the amount of tax revenues tourism support in this region [12].

Existing research on the tourism impact analysis mainly includes input-output method (I-O), computable general equilibrium (CGE) analysis, and tourism satellite accounts (TSA) [13]. The application of the input-output method (I-O) to measure the contribution of tourism activities to the regional economy is a traditional and relatively mature research method. Regarding tourism consumption as a final demand, the I-O method analyzes the situation in which final demand drives total output and value added. Tourism activities are usually considered as a consumption phenomenon. Tourism consumption can stimulate the output growth of the corresponding industrial sectors. There are a large number of previous studies that performed the I-O method to study the economic impact of tourism activities [14–17]. It was found that the I-O method can effectively analyze the economic relationships between different industrial sectors and evaluate the direct, indirect, and induced effects of tourism activities.

However, the limitations of the I-O table model are further exacerbated by the fact that they are not sufficiently disaggregated at the region or province level [18]. The I-O model has a high requirement for data [14,19]. The precondition is to use the I-O table of the country or region, while China only publishes the national input-output table every five years. Some regions even do not compile an I-O table, including the research area of this paper, Songjiang District, Shanghai. Therefore, the I-O model cannot reflect the constraints of consumption functions and production functions of different households [20]. This makes the I-O model more applicable to the static and short-term analysis of regional tourism economic impacts. For example, some scholars do not fully understand the I-O table

and calculate the travel agency industry as the tourism industry, leading to the underestimation of the contribution of the tourism industry.

Compared with traditional I-O model, CGE has an advantage in studying the impact of product's relative price changes on the entire economic system and is therefore applied to the economic impact assessment of tourism activities. For example, Zhou and Yanagrid [21] analyzed the tourism industry in Hawaii by using CGE model and Narayan [22] also used the CGE model to assess the long-term impact of a 10% increase in tourist expenditure on Fiji's national economy. However, the establishment of the CGE model requires a large number of parameter settings. Besides, the data collection of CGE model often uses the substitution method, which possibly makes the research conclusions have certain errors.

Tourism Satellite Account (TSA) is a virtual account used to assess the consumption and output generated by tourism activities [13]. TSA integrates tourism into the national or regional economic accounting, and it is a method for measuring the contribution of tourism activities to the regional economy, which is widely recognized and applied worldwide. TSA examines the impact and contribution of tourism to the national economy via a systematic and unified approach. For example, several countries including Canada, the United States, Australia, New Zealand, and Austria have completed the National TSAs in accordance with the characteristics of their tourism activities and the national economic accounting framework [23,24].

The purpose of the TSA is to provide a framework for analyzing tourism consumption, linking tourism demand consumption with the service industry that produces tourism products. However, in practical applications, the input-output table is the key to the preparation of TSA. Different from some developed countries which compile the input-output table every year, the time interval between the national and provincial input-output tables is five years in China, which results in a certain lag in the preparation of TSA.

In summary, the current tourism statistics method cannot meet the measurement needs of tourism industry development. This means they cannot accurately measure the contribution of tourism to the national economy. As Zhou and Hu [25] argued, the establishment of National All-area-advancing-tourism Model Area is being carried out in a hurry, but the regional tourism statistics still use the traditional methods and approaches, which cannot truly and comprehensively reflect the driving role of the tourism industry on the national economy, so it is urgent to promote the statistical innovation. As a result, it is necessary to construct an All-area-advancing tourism statistical indicator system that is in line with the current statistical investigation system and fully reflects the contribution of the All-area-advancing tourism to the national economy. The introduction of a new All-area-advancing tourism statistical indicator system should conform to the framework and practice of current tourism and national economic accounting.

3. Methodology

In order to meet the needs of both tourists and residents, All-area-advancing tourism aims to fully explore the attraction of the destination and creates a comprehensive tourism experience. Therefore, All-area-advancing tourism involves various industries, and it is administrated by different governmental departments. As mentioned above, both the scope and content of All-area-advancing tourism is different from those of traditional tourism. It is hard to use current methodologies to comprehensively and completely describe the development of All-area-advancing tourism and reflect the contribution of All-area-advancing tourism. Therefore, it is necessary to establish an innovative statistical indicator system to calculate the contribution of All-area-advancing tourism.

3.1. The Design of All-Area-Advancing Tourism Statistical Indicator System

All-area-advancing tourism statistics indicator uses "All-area-advancing tourism total output" as the core aggregate indicator, which represents the total output of the production sector caused by the All-area-advancing tourism demand in the national economic industry classification.

There are seven Level 2 indicators under the “All-area-advancing tourism total output” (See Figure 1), namely “All-area-advancing tourism transportation output”, “All-area-advancing tourism accommodation output”, “All-area-advancing tourism catering output”, “All-area-advancing tourism sightseeing output”, “All-area-advancing tourism shopping output”, “All-area-advancing tourism entertainment output”, and “All-area-advancing tourism comprehensive service output”. These seven secondary indicators represent the output of direct production sectors of All-area-advancing tourism, portraying the relationship between All-area-advancing tourism and the national economic production sector, and reflecting the direct contribution of All-area-advancing tourism to the national economy.

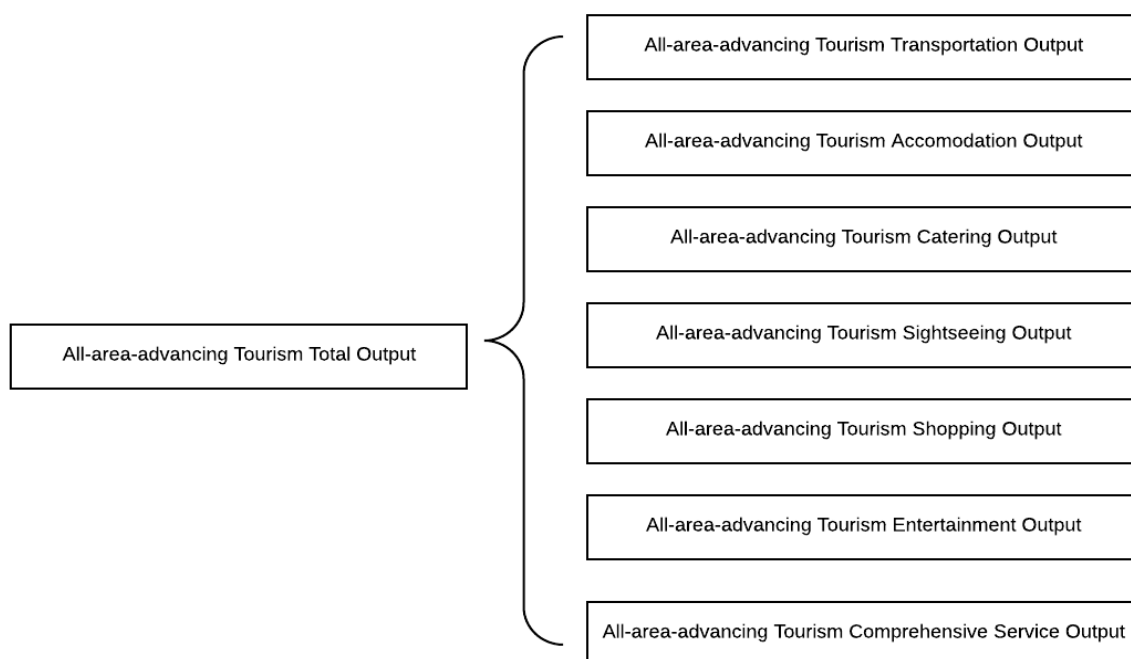


Figure 1. All-area-advancing tourism statistical indicator system.

In the process of developing the All-area-advancing tourism indicator system, the All-area-advancing tourism statistical indicators were linked with the current China National Economic Industry Classification (GB/T 4754-2011). There were three levels of classification (Level 1, Level 2, and Level 3). Therefore, the three-level classification of All-area-advancing tourism statistical indicators under the framework of the national economic accounting system was formed, as shown in Table 1.

Table 1. All-area-advancing tourism statistical indicators.

Code			Indicator	Industry Classification Code	China National Economic Industry Classification (GB/T4754-2011)
Level 1	Level 2	Level 3			
10			All-area-advancing Tourism		
11			Transportation		
	111		Tourism railway transportation		
		1111	Railway transportation	5310	Railway transportation
		1112	Train station	5331	Train station
	112		Tourism road transportation		
		1121	Urban tourism public transportation	541	Urban public transportation
		1122	Road tourism transportation	5420	Road transportation
	113		Tourism water transportation		
		1131	Water transportation	551	Water transportation
		1132	Ferry terminal	5531	Ferry terminal
	114		Air transportation		
		1141	Air passenger transportation	5611	Air passenger transportation
		1142	General air travel service	5620	General air travel service
		1143	Airport	5631	Airport
		1144	Air traffic management	5632	Air traffic management
	115		Other tourism transportation service		
		1151	Passenger booking agent	5822	Passenger booking agent
		1152	Tourism transportation equipment rental	7111	Transportation equipment rental

Table 1. Cont.

Level 1	Code		Indicator	Industry Classification Code	China National Economic Industry Classification (GB/T4754-2011)
	Level 2	Level 3			
12			Accommodation		
	121		All-area-advancing tourism accommodation service		
		1211	Tourist hotel	6110	Tourist hotel
		1212	General hotel	6120	General hotel
		1213	Other tourism accommodation service	6190	Other tourism accommodation service
	122	1220	Recreational travel accommodation service	8411	Recreational travel accommodation service
13			Catering		
	131	1310	Tourism full dining service	6210	Full dining service
	132	1320	Tourism fast dining service	6220	Fast dining service
	133	1330	Tourism beverage service	623	Beverage service
	134	1340	Tourism snack service	6291	Snack service
	135	1350	Tourism food delivery service	6292	Food delivery service
14			Sightseeing		
	141		Park and scenic area management		
		1411	Park management	7851	Park management
		1412	Tourism scenic area management	7852	Tourism scenic area management
		1413	Eco-tourism sightseeing	771	Eco-sightseeing
		1414	Theme park	8920	Theme park

Table 1. Cont.

Level 1	Code		Indicator	Industry Classification Code	China National Economic Industry Classification (GB/T4754-2011)
	Level 2	Level 3			
	142		Other sightseeing service		
		1421	Cultural relics and intangible cultural heritage protection	8740	Cultural relics and intangible cultural heritage protection
		1422	Museum	8750	Museum
		1423	Religious tourism	9440	Religious tourism
		1424	Martyrs Cemetery, Memorial Hall	8760	Martyrs Cemetery, Memorial Hall
		1425	Tourism events service	7292	Tourism events service
		1426	Agricultural sightseeing and leisure tourism	0141	Agricultural sightseeing and leisure
15			Shopping		
	151	1510	Tourism vehicle and Fuel	526	Vehicle and Fuel
				521	Integrated retail
				522	Specialized retail of food, beverage and tobacco products
	152	1520	Tourist commodities	523	Specialized retail of textiles, clothing and daily necessities
				524	Cultural, sporting goods and equipment specialized retail
16			Entertainment		
	161		Tourism culture and entertainment		
		1611	Tourism performance service	8710	Performance service
		1612	Tourism venue service	8720	Art Performance Venue
				8911	Song and dance hall entertainment
		1613	Tourism indoor leisure service	8912	Electronic arcade entertainment activities
				8919	Other indoor entertainment
		1614	Tourism photography and printing service	7492	Photography and printing service

Table 1. Cont.

Level 1	Code		Indicator	Industry Classification Code	China National Economic Industry Classification (GB/T4754-2011)
	Level 2	Level 3			
	162		Travel fitness entertainment		
		1621	Tourism sporting facility service	8820	Sporting facility
		1622	Tourism fitness service	8830	Fitness Service
	163		Tourism leisure and recreation		
		1631	Spa tourism service	7950	Spa service
				7960	Health service
				8312	Chinese Medicine Hospital
		1632	Wellness tourism service	8313	Asia and Europe combined hospital
				8314	National Hospital
				8315	Specialist hospital
				8316	Nursing home
		1633	Other tourism leisure and recreation	8990	Other leisure and recreation
17			Comprehensive Service		
	171		Travel agency and related service		
		1711	Travel agency service	7271	Travel agency service
		1712	Tourism management service	7272	Tourism management service
		1713	Other travel agency related service	7279	Other travel agency related service
	172		Other tourism comprehensive services		
		1721	Tourism planning service	7299	Other unspecified business services
		1722	OTA service	6540	Data processing and storage services
				7219	Other business management services
		1723	Tourism business management service	9422	Industry groups

As shown in Table 1, the four columns on the left are the three-level statistical indicator system for All-area-advancing tourism statistical indicators, and the two columns on the right are the corresponding industries in China's Industrial Classification for National Economic Activities (GB/T 4754-2011). There are two advantages to such an indicator design: (1) matching the regional tourism statistics with the national economic accounting helps to calculate the contribution of the tourism industry to the national economy from the perspective of production; (2) the basic data of the region-wide tourism statistical indicator system can be directly used from the data of China's economic census, which solves the constraint that tourism statistical data is not comprehensive and not easy to obtain in China.

3.2. All-Area-Advancing Tourism Statistical Process Design

Under the framework of the system of national account (SNA), the measurement process of All-area-advancing tourism reflects both supply and demand sides, including five steps:

- Step 1 Collecting the data of the output of each All-area-advancing tourism sector;
- Step 2 Calculating the economic growth coefficient of each All-area-advancing tourism output;
- Step 3 Calculating the output of each All-area-advancing tourism sector;
- Step 4 Calculating the All-area-advancing tourism stripping coefficient;
- Step 5 Calculating the total output of the All-area-advancing tourism.

The first step in All-area-advancing tourism measurement is to collect data from all All-area-advancing tourism output sectors. This is also one of the difficulties in All-area-advancing tourism statistics. The reason is that China's current statistical system is not perfect, and it is impossible to provide complete data under the three-level classification in Table 1 every year. In this case, data selection and data processing are necessary. At present, the "National Economic Census Data" published by the National Bureau of Statistics can systematically and completely reflect the output scale of various industries. However, China's "Economic Census Data" is published every five years, and the recently released "Third National Economic Census Data", that is, the economic census data as of 31 December 2013. Therefore, the calculation of All-area-advancing tourism output for a given year requires that these data be reprocessed.

The so-called reprocessing is the calculation of the economic growth coefficient of each All-area-advancing tourism output. Based on 2013, the annual growth rate is used to calculate the economic growth coefficient of the various tourism sectors in the required years.

To generate the output of each All-area-advancing tourism sector in the given year, the "economic growth coefficient of each All-area-advancing tourism output" obtained is multiplied by the third national economic census data of each All-area-advancing tourism sector in the third step. However, the output of the various sectors of the All-area-advancing tourism at this time includes the output caused by tourism consumption and the output caused by non-tourism consumption. Under such circumstances, it is necessary to separate the output of the All-area-advancing tourism sector caused by non-tourism consumption, that is, to calculate the "All-area advancing tourism consumption stripping coefficient".

After completing the calculation of "All-area-advancing tourism stripping coefficient", multiplying the All-area-advancing tourism stripping coefficient by the output data of each All-area-advancing tourism output sector in the given year, and then summarize and obtain the total regional tourism output in a certain region in a certain year.

4. Case Study and Research Results

The Songjiang District of Shanghai, China is rich in tourism resources, and the national economic and regional statistics are relatively complete. In 2013, the third national economic census was carried out in the whole district. The third national economic census data of Songjiang District laid a solid data foundation for this research and provided data sources. This study takes 2016 as the base year

and applies the All-area-advancing tourism statistical methods to the practice of tourism statistics in Songjiang.

4.1. The Output Calculation of Songjiang All-Area-Advancing Tourism Sector

The first step in the calculation is collecting the output data of various sectors related to Songjiang All-area-advancing tourism in 2016. As mentioned above, the 2013 third national economic census data of Songjiang District was used as the base data. The second step is to calculate the growth coefficient of each output sector of Songjiang's All-area-advancing tourism in 2016. The calculation of the 2016/2013 growth coefficient consists of two parts: the first part is calculated by using the data from the Songjiang Tourism Bureau and the Songjiang Statistics Bureau; the second part is calculated by using the relevant data of the Shanghai Statistics Bureau when the data of the Songjiang District is incomplete (See Table 2).

Next, the third national economic census data of the various All-area-advancing tourism sectors are multiplied by the 2016/2013 growth coefficient to obtain the output data of these sectors in 2016 (See Table 3).

4.2. The Stripping Coefficient Calculation of Songjiang All-Area-Advancing Tourism

Several experts, including experts from the Shanghai Statistics Bureau, Shanghai Tourism Bureau, Songjiang District Statistics Bureau, Songjiang District Tourism Bureau, and scholars from the university, were interviewed for processing the All-area-advancing tourism stripping coefficient.

According to experts' opinions, the calculation of Songjiang All-area-advancing tourism stripping coefficient involves two parts. The first part includes the outputs that all belong to the All-area-advancing tourism output, that is, the total output of these sectors is used for All-area-advancing tourism. Thus, the stripping factor is set to "1". These departments are: "12 tourism accommodation", "14 tourism sightseeing", "16 tourism entertainment", and "17 tourism comprehensive services".

The second part contains outputs that are caused by not only the All-area-advancing tourism demand but also non-tourism demand. Therefore, the output needs to be segmented. These sectors are: "11 tourism transportation", "13 tourism catering" "15 tourism shopping." In addition to meeting the needs of All-area-advancing tourism, the production supply in these sectors also includes the demand for non-All-area-advancing tourism. For example, the "11 Tourism transportation" contains outputs caused by the All-area-advancing tourism destination and outputs caused by the normal commute transportation; in addition to the catering needs caused by the All-area-advancing tourism, "13 tourism catering" also includes the consumption for the physiological needs. In addition to the tourism shopping consumption caused by the All-area-advancing tourism, "15 tourism shopping" also includes local residents' need for normal household supply. These are not the outputs caused by the All-area-advancing tourism demand and should be excluded from the existing data.

After interviewing the aforementioned experts and scholars, this study uses field survey to investigate these three sectors, which are "11 tourism transportation" and "13 tourism and catering" and "15 Tourism Shopping". The results of questionnaires were utilized to calculate the stripping coefficient.

Table 2. The growth coefficient calculation of each Songjiang All-area-advancing tourism sector in 2016.

Data Source	Indicator	2013 (Ten Thousand Yuan)	2016 (Ten Thousand Yuan)	2016/2013 Coefficient
Songjiang Statistical Bureau (according to National Tourism Statistics Standard)	Revenue of social services above designated size	1,649,552	2,631,175	1.595
	Revenue of business services above designated size	5,774,327	8,410,307	1.456
	Retail revenue	1,060,816	1,316,699	1.241
	Tourism attraction revenue	73,243	82,900	1.132
	Tourism catering revenue	165,000	193,500	1.173
	Tourism accommodation revenue	98,500	118,000	1.198
Shanghai Statistical Bureau (according to Industrial Classification for National Economic Activities)	Car rental	652,668	987,811	1.513
	Recreation and sports equipment rental	3981	6125	1.538
	Travel agency service	4,202,218	5,548,455	1.32
	Tourism management service	1,388,423	4,622,802	3.33
	Other travel agency related service	187,936	753,776	4.011
	Meeting and exhibition service	1,786,689	2,558,312	1.432
	Photography and printing service	85,835	126,752	1.477
	Spa service	103,360	124,049	1.2
	Wellness service	74,020	102,442	1.384
	Literary and artistic creation and performance	133,091	142,362	1.07
	Art venue	59,156	74,756	1.264
	Tourism sporting facility service	158,557	132,341	0.835
	Recreation and fitness	240,796	377,696	1.569
	Club entertainment	149,305	482,361	3.231
	Arcade entertainment	14,972	59,492	3.973
Internet bar entertainment	33,574	120,466	3.588	
Other indoor entertainment activity	18,051	59,930	3.32	

Note. "above designated size" is a statistical term. Normally taking the standard of enterprises' annual output, the state has set a scale requirement for enterprises in different industries, the enterprise that achieves relevant requirement is called enterprise above designated size.

Table 3. The output analysis of Songjiang All-area-advancing tourism sectors in 2016.

Code			Sector	2013 Revenue (Ten Thousand yuan)	2016/2013 Growth Rate	2016 Revenue (Ten Thousand yuan)
Level 1	Level 2	Level 3				
10			Tourism industry	1,160,225		1,461,934
11			Tourism transportation	42,049		55,715
	111		Tourism railway transportation	–		
		1111	Railway transportation	–		–
		1112	Train station	–		–
	112		Tourism road transportation			
		1121	Urban tourism public transportation	28,616	1.248	35,713
		1122	Road tourism transportation	1034	1.248	1290
	113		Tourism water transportation	0		0
		1131	Water transportation	0		0
		1132	Ferry terminal	0		0
	114		Air transportation	0		0
		1141	Air passenger transportation	0		0
		1142	General air travel service	0		0
		1143	Airport	0		0
		1144	Air traffic management	0		0
	115		Other tourism transportation service			
		1151	Passenger booking agent	182	1.248	227
		1152	Tourism transportation equipment rental	12,217	1.513	18,484

Table 3. Cont.

Level 1	Code		Sector	2013 Revenue (Ten Thousand yuan)	2016/2013 Growth Rate	2016 Revenue (Ten Thousand yuan)
	Level 2	Level 3				
12			Tourism accommodation	76,710		91,899
	121		Tourism accommodation service			
		1211	Tourist hotel	43,279	1.198	51,848
		1212	General hotel	20,897	1.198	25,035
		1213	Other tourism accommodation service	12,534	1.198	15,016
	122	1220	Recreational travel accommodation service	0		0
13			Tourism catering	186,808		219,126
	131	1310	Tourism full dining service	112,635	1.173	132,121
	132	1320	Tourism fast dining service	46,105	1.173	54,081
	133	1330	Tourism beverage service	3941	1.173	4623
	134	1340	Tourism snack service	1573	1.173	1845
	135	1350	Tourism food delivery service	22,554	1.173	26,456
14			Tourism sightseeing	69,694		87,023
	141		Park and scenic area management			
		1411	Park management	3994	1.132	4521
		1412	Tourism scenic area management	0		0
		1413	Eco-tourism sightseeing	0		0
		1414	Theme park	38,601	1.132	43,696

Table 3. Cont.

Level 1	Code		Sector	2013 Revenue (Ten Thousand yuan)	2016/2013 Growth Rate	2016 Revenue (Ten Thousand yuan)
	Level 2	Level 3				
	142		Other sightseeing service			
		1421	Cultural relics and intangible cultural heritage protection	0		0
		1422	Museum	1	1.132	1
		1423	Religious tourism	0		0
		1424	Martyrs Cemetery, Memorial Hall	0		0
		1425	Tourism events service	27,098	1.432	38,804
		1426	Agricultural sightseeing and leisure tourism	0		0
15			Tourism shopping	688,645		854,608
	151	1510	Tourism vehicle and Fuel	119,969	1.241	148,882
	152	1520	Tourist commodities	568,676	1.241	705,727
16			Tourism entertainment	42,336		86,394
	161		Tourism culture and entertainment			
		1611	Tourism performance service	105	1.070	112
		1612	Tourism venue service	1	1.264	1,264
		1613	Tourism indoor leisure service	14,135	3.345	47,282
		1614	Tourism photography and printing service	6276	1.477	9270
	162		Travel fitness entertainment			
		1621	Tourism sporting facility service	2981	0.835	2489
		1622	Tourism fitness service	11,254	1.569	17,658

Table 3. Cont.

Level 1	Code		Sector	2013 Revenue (Ten Thousand yuan)	2016/2013 Growth Rate	2016 Revenue (Ten Thousand yuan)
	Level 2	Level 3				
	163		Tourism leisure and recreation			
		1631	Spa tourism service	4964	1.200	5957
		1632	Wellness tourism service	2620	1.384	3636
		1633	Other tourism leisure and recreation			
			Tourism comprehensive service	30,861		67,169
	171		Travel agency and related service			
		1711	Travel agency service	17,719	1.320	23,389
		1712	Tourism management service	13,117	3.330	43,680
		1713	Other travel agency related service	25	4.011	100
17	172		Other tourism comprehensive services			
		1721	Tourism planning service	0		0
		1722	OTA service	0		0
		1723	Tourism business management service	0		0

4.2.1. Calculation of the Stripping Coefficient of Tourism Travel in Songjiang

The Songjiang All-area-advancing tourism transportation survey was conducted to investigate the transportation sector. A total of 2200 questionnaires were collected, and 2001 questionnaires were valid, with an effective rate of 91%. The results of the survey showed that the 19.8% of respondents reporting the purpose of taking transportation is “normal commute”, which means 90.1% of respondents are either for “business trips”, “leisure travel”, “visiting relatives and friends”, or other purposes; 40.8% of the participants take the subway.

The Songjiang All-area-advancing tourism transportation stripping coefficient = (total transportation costs-normal commuting costs)/total transportation costs.

The Songjiang All-area-advancing tourism transportation stripping coefficient = $(20,313 - 2871)/20,313 = 0.859$.

According to the calculation results, the “Songjiang All-area-advancing tourism transportation stripping coefficient” is 0.859.

4.2.2. Calculation of the Stripping Coefficient of Tourism and Catering in Songjiang

The Songjiang All-area-advancing tourism catering survey was conducted to investigate the catering sector. A total of 2200 questionnaires were distributed in Songjiang district. A total of 1994 questionnaires were valid, with an effective rate of 90.6%. According to the survey results, local consumers accounted for 86.0% of the respondents, and 14.0% of respondents were consumers who come from outside Songjiang. A total of 45.9% of the diners aim to solve “normal physiological needs”. People with the purpose of “meeting with friends” and “communicating friends and family”, “family leisure” and other dining purposes accounted for 54.1% of the respondents.

The Songjiang All-area-advancing tourism catering stripping coefficient = (total catering costs – normal physiological demand costs)/total catering costs.

The Songjiang All-area-advancing tourism catering stripping coefficient = $(144,150 - 43,325)/144,150 = 0.699$.

According to the calculation results, the “Songjiang All-area-advancing tourism catering stripping coefficient” was 0.699.

4.2.3. Calculation of the Stripping Coefficient of Tourism Shopping in Songjiang

The Songjiang All-area-advancing tourism Shopping Survey was conducted to investigate the shopping sector. A total of 2200 questionnaires were distributed in the Songjiang district. A total of 2003 out of 2200 questionnaires are valid, with an effective rate of 91%. According to the survey results, local consumers in Songjiang accounted for 84.9%, and consumers outside Songjiang accounted for 15.1%; 42.2% of respondents go shopping for “normal household supply” and the rest of respondents with an “irregular household supply” accounted for 57.8%.

The Songjiang All-area-advancing tourism shopping stripping coefficient = (total shopping costs – normal household supply costs)/total shopping costs.

The Songjiang All-area-advancing tourism shopping stripping coefficient = $503,825/852,450 = 0.591$.

According to the formula, the “Songjiang All-area-advancing tourism shopping stripping Coefficient” is calculated as 0.591.

4.3. Songjiang All-Area-Advancing Tourism Output Estimation

The output of each All-area-advancing tourism sector was obtained by multiplying the output of each All-area-advancing tourism sector (before stripping) and the corresponding tourism stripping coefficient of each tourism department. Therefore, the total All-area-advancing tourism output of Songjiang in 2016 is 10.387 billion yuan. Out of that, the Songjiang all-area-tourism transportation output was 479 million yuan, accommodation output was 919 million yuan, catering output was 1.532 billion yuan, sightseeing output was 870 million yuan, shopping output was 5.051 billion yuan,

the entertainment industry was 865 million yuan, and comprehensive tourism service output was 672 million yuan, as shown in Table 4.

Table 4. Output analysis of Songjiang All-area-advancing tourism.

Code	Sector	2016 Total Output (Ten Thousand Yuan)	All-Area-Advancing Tourism Stripping Coefficient	2016 Total Output of Songjiang All-Area-Advancing Tourism (Ten Thousand Yuan)
10	Tourism industry	1,461,934		1,038,686
11	Tourism transportation	55,715	0.859	47,859
12	Tourism accommodation	91,899	1	91,899
13	Tourism catering	219,126	0.699	153,169
14	Tourism sightseeing	87,023	1	87,023
15	Tourism shopping	854,608	0.591	505,073
16	Tourism entertainment	86,394	1	86,494
17	Tourism comprehensive service	67,169	1	67,169

5. Discussion

Measured by the proposed All-area-advancing tourism statistical indicator system, the empirical results showed that the total output of Songjiang All-area-advancing tourism in 2016 is 10.387 billion yuan. In comparison, the total tourism revenue of Songjiang District is 8.465 billion yuan that is calculated by the traditional tourism consumption statistics. There was a difference of 1.922 billion yuan. Regardless of the composition of indicators or the method of measurement, it is clear that the All-area-advancing tourism statistical indicator system more comprehensively reflects the contribution of All-area-advancing tourism to the regional national economy.

The research found that when calculating the contribution of All-area-advancing tourism, only using “visitors” as a statistical object is too narrow. Visitors are “not seeking careers and obtaining remuneration. They leave their habitual residences and engage in tourism activities such as sightseeing, vacation, leisure, shopping, etc., including visiting relatives and friends, convalesces, meetings and events, science and technology, culture, education, religion, and other activities” [26]. Undoubtedly, there is no sustainable tourism if it is not planned and taken seriously by all stakeholders and all people concerned. Therefore, it is advocated that the measurement of All-area-advancing tourism should also include residents’ tourism-related activities.

In other words, distinguishing what is caused by the demand of tourism activities and what is caused by daily consumption becomes a boundary for All-area-advancing tourism statistics. In practice, through establishing the All-area-advancing tourism indicator system which can reflect both of the characteristics of tourism consumption and meeting the standard of industrial classification for national economic sectors, this research proposed the measurement to calculate the contribution of All-area-advancing tourism to the national economy from both the supply and demand sides within the framework of the system of national account (SNA). Meanwhile, the established indicator system of All-area-advancing tourism has been applied to calculate the output of the tourism industry in Songjiang district, Shanghai, China. The results also showed that the All-area-advancing tourism indicator system can better fit the current system of national account and reflect the contribution of the tourism industry to the national economy in a more comprehensive way.

Furthermore, realizing the shortcomings of traditional tourism economic measurement methods, the National Bureau of Statistics (NBS) of China formulated the 2018 National Tourism and Related Industries Statistical Classification based on the 2015 edition in 2018, attempting to include indicators under the framework of national economic accounts. This classification is divided into two parts: tourism and tourism-related industries, among which tourism refers to a collection of

services and activities that directly provide tourists with transportation, accommodation, catering, sightseeing, shopping, and entertainment. Tourism-related industries refer to the collection of activities including providing tourist auxiliary services and government public services for tourists' travel. After the revision, a total of 9 categories and 65 subcategories of 27 categories are included in the statistical classification of tourism and related industries. This shows that the established All-area-advancing tourism statistical indicator system can better echo the above classification criteria and is forward-looking to some extent.

6. Conclusions and Future Study

6.1. Conclusions

All-area-advancing tourism is a new concept that reflects the latest development trend of China's tourism industry. The definition of All-area-advancing tourism expands the scope of traditional tourism. This new notion covers both visitors' and residents' tourism-related consumption. In a statistical sense, it means the calculation includes not only tourism, but also tourism-related industries. As mentioned before, existing tourism impact analysis tools cannot accurately measure the contribution of All-area-advancing tourism. It requests a new statistical indicator system that could fully reflect the contribution of All-area-advancing tourism. Therefore, this study developed and empirically tested a novel statistical indicator system used to assess the contribution of All-area-advancing tourism to the national economy from both the supply and demand sides within the framework of the system of national account (SNA).

To our best knowledge, All-area-advancing tourism statistical indicator system constructed in this study is the first statistical indicator system specially designed for All-area-advancing tourism. Results from the Songjiang case study demonstrates the effectiveness and practicality of statistical indicator system. The current study contributes to the literature and tourism industry in several ways.

6.2. Theoretical Implications

There are two main theoretical innovations in this study. The first theoretical innovation is statistical perspectives. Existing tourism statistics are based on the perspective of tourism demand, using tourist expenditure to calculate tourism revenue. Since All-area-advancing tourism focuses on the perspective of the supply side, the new method is innovated based on the National Economic Industry Classification (GB/T 4754-2011). The new method comprehensively summarizes and segments the supply generated by the direct demand of All-area-advancing tourism in various production sectors of the national economy, and then performs the analysis.

The second theoretical innovation is statistical object. It expands the accounting scope of traditional tourism output, that is, it includes all tourism production caused by tourism motivation into the accounting scope. The All-area-advancing tourism statistics are no longer limited to tourists in the traditional sense. All supplies that are generated by tourism demand are included in the scope of All-area-advancing tourism statistics. For example, those people who are interested in sightseeing, recreation, visiting relatives, cultural sports, health care, short-term education (training), religious worship, or official business, etc. The new established statistical method measures the contribution of All-area-advancing tourism to economy in a more comprehensive way.

6.3. Practical Implications

For a long time, the tourism statistical indicator system of many countries and regions has been faced with the dilemma that the data is difficult to obtain or not comprehensive enough in practice. The practical value of this study is mainly manifested in two aspects:

- (1) Different from the previous tourism statistical indicator system, the design of All-area-advancing tourism statistical indicator in this study corresponds well to the indicators of the Chinese National Economic Classification (GB/T 4754-2011). Therefore, when collecting the output data of

the All-area-advancing tourism relevant sectors, the output data of the statistical bureau can be directly used. This not only eases the burden of data collection but guarantees the data reliability and validity.

- (2) Taking Songjiang District of Shanghai as the practice object of the All-area-advancing tourism statistical indicator system, the design of the whole calculation process and the conclusion have verified the scientific nature and rationality of the whole regional tourism statistical indicator system to some extent. The whole process can be replicated and promoted, providing a valuable reference for other regions of China and even the whole country to calculate tourism statistics.

6.4. Limitations and Future Studies

It should be noted that the current study was not without limitations. The purpose of this paper was to establish a new statistical indicator system to calculate the contribution of All-area-advancing tourism. Within the confines of a journal paper, it has been necessary to focus on a particular district, Songjiang, to apply the statistical indicator system of All-area-advancing tourism. For future studies, conducting longitudinal and comparative research in Songjiang and other areas will help to provide a stronger understanding of the established statistical indicator system. It should be noted that the quality of measurement results also depends on the timeliness of the data.

Furthermore, due to the data availability at the time of data analysis, indicators used in this study correspond to the indicators of China's Industrial Classification for National Economic Activities (GB/T 4754-2011), and data were collected from China's Third National Economic Census, published in 2013. Therefore, in future research, more recent indicators classification standard and economic census data will be utilized to perform the analysis. As a comprehensive reflection of the development and competitiveness of regional tourism, the persistence, openness, and theorization of All-area-advancing tourism statistical indicator system could be fruitful directions for further research. For example, the added value and employment indicator of All-area-advancing tourism might be an interesting topic for future research. However, it is worthwhile to note that this statistical indicator system should closely follow the continuous innovation of China's statistical system reform. Lastly, future studies that compare the results calculated by the proposed indicator system with those calculated by other methodologies (e.g., I-O, CGE, and TSA) could deepen our understanding of methodologies for estimating the contributions of the tourism industry.

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