

Problems of regional tourism satellite accounts in China

于 丽茜¹

YU, Liqian

Abstract

オーストラリアなど、多くの先進国では地域/準地域の旅行・観光サテライト勘定(RTSA)を作成している。中国においてもこれまでいくつかの地域でRTSAを作成してきている。本稿では、近年観光産業に力を入れている山東省のTSA(SDTSA)を中国のRTSAのモデルとして先進的なRTSAとされるオーストラリアのクイーンズランド州TSA(QDTSA)との比較考察から問題点を検証する。結果として、山東省など中国のRTSA(CRTSA)においては、観光データの作成と統計化において各種の問題があること、また中国の統計システム全体にも問題があることから今後それらの改善が必要であることが見出された。

キーワード: 地域/サブナショナル TSA、山東 TSA、問題の検証

Many developed countries have developed the regional/sub-national tourism satellite account (RTSA), for example, Australia. Moreover, China has got some results on RTSA. After comparing Shandong TSA (SDTSA) with Queensland TSA (QDTSA) in Australia, this paper examines that China's RTSA (CRTSA) has issues in data, compilation method, and statistical method. During the process of developing CRTSA could also improve China's statistical system.

Keywords: regional/subnational TSA, Shandong TSA, Examination of Problems

1. Introduction

Tourism satellite account (TSA) is an approach to estimate the direct economic contributions of tourism. It is consistent with the System National Accounts (SNA93) in concepts, definitions, and compilation rules that enable tourism to compare with other industries. Therefore, tourism could have a proper place in the national economy. Comparing with other methods, TSA could integrate the data from both the demand and supply side (Smith, Li, and Zhao, 2004), which could assist the governments and entrepreneurs in designing the public policies and business plan related to tourism and in evaluating their performance. Besides, the process of establishing the TSA is also an opportunity to perfect the statistical tourism system (Kang, 2001). Because of its unified standard, the international comparison among countries could be realized (UNWTO, 2008).

However, owing to unevenly distributed tourism activities within a nation, the national TSA could not provide enough information to help regional development (Jones, 2005). Therefore, the development of TSA has begun from the national level to the subnational/regional² level. Moreover, Dwyer and et al. (2007) also explained that regional areas such as state, provincial, or local governments have a strong demand for information in areas such as planning, infrastructure provision, and marketing, which provided in the TSA. The first reason that we need Regional/Sub-national Tourism Satellite Account (RTSA) is that according to the Tourism Satellite Account: Recommended Methodological Framework 2008 (TSA: RMF 2008), the RTSA provides

¹ Hokkai School of Commerce

² Each country has a different government structure. The regional/sub-national tourism satellite in Australia includes state and territory, small tourism spots area, while in China, that focuses on the province level.

more detailed information on tourism economic activities within the region, that the local government could monitor the resource adequately. Secondly, because the nature of tourism activities is multifaceted, the tourism resources are diversified, some places are good at developing natural tourism, some destinations are looking forward to developing industrial tourism. Especially in rural areas, good tourism resources are waiting for exploited to stimulate the local economy. RTSA has benefits for rural areas seeking diversification by analyzing the data. Thirdly, the geographical distribution and characteristics of tourism activity are different within a nation. Thus, it needs additional requirements for tourism statistics at the sub-national, which could improve the allocation of resources. RTSA also provides a reference for tourism-related policies and economic activities in the region. Many developed countries, such as Canada, Australia, and some European countries, have already developed the Regional tourism satellite account (UNWTO, 2013). Dwyer and et al. (2007) indicated that Australia is the first country that RTSA could be reconciled with the national TSA, Australia bureau of Statistics (ABS) ensure consistency across the national and regional TSA. Although China has got some results about RTSA, for instance, Jiangsu is the first province-level TSA with meaningful significance, which strictly following TSA: RMF2008 (Li, Li and Chen 2004). Moreover, Zhejiang, Shandong, and some other provinces continually attempt to make RTSA. Unfortunately, they are all not entirely enough³. Yang (2015) took advantage of Hainan province as an example to illustrate that China's regional TSA has problems in some conceptions, statistics, and data resources. For example, it lacks the conception about the tourism supply, the statistics about the tourism accommodations and restaurants, and the data resources are deficient. There are still many other problems to obstruct the development of China's RTSA. Many researchers have done some independent study about the RTSA in Australia and China. However, there is no paper to make a comparison between these two countries.

The purpose of this paper is to consider the Shandong tourism satellite account (SDTSA) as an example to make a comparison with the Queensland Tourism satellite account (QDTSA) in Australia. After comparing, the paper pointed out the problems and shortage of China's RTSA, and the problems of China's tourism statistical system. The comparative methodology will be applied in this paper to elucidate the similarities and differences between these two RTSA.

This paper will firstly introduce the situation of QDTSA and SDTSA. Furthermore, the second section of the paper will make a comparison between the SDTSA and QDTSA to point out the similarities and differences of them to demonstrate where shortcomings of China's RTSA and China's tourism statistical system. In this part, the paper will also discuss and consider the key issues that need to consider in improving China's RTSA. The concluding section considers the critical point to further study of the establishment of the RTSA.

2. Outline of RTSA in Australia (QDTSA) and China (SDTSA)

2.1 The outline of Queensland Tourism Satellite Account (QDTSA)

Australia has abundant tourism resources, especially natural resources, which attract millions of tourists from the world. According to 《The Travel & Tourism Competitiveness Report, 2019》, Australia has powerful competitively related to tourism in the world, which is the seventh. The tourism GDP for the year 2017-2018 is about 57.3 billion Australian dollars, which increased by 5.0%, compared with the national GDP growth of 3.1%. Moreover, tourism employment is 646,000 persons, which occupied a 5.2% Australian workforce

³ Regional Tourism Satellite Account in China including Xiamen, Fujian province (1998), Yunnan (2000), Jiangsu (2000), Guangxi (2001), Beijing (2002), Zhejiang (2004), Sichuan (2006), Shandong (2008), Guangdong (2012), Sanya, Hainan Province (2018).

(Tourism Research Australia 2019). Australia is consisted of six States and two territories.⁴ Tourism is an essential pillar of Australia's economy. It especially has great significance in Queensland and Tasmania. Ho et al. (2009) describe the first Australia national tourism satellite account was published in October 2000, which based on the data of the year 1997-1998, by the federal government's central statistical office and the Australia Bureau of Statistics (ABS). After that, it updated each year and did a comprehensive review every three years. In 2013, Australia's federal green paper indicated that regional TSA would provide "valuable input to industry and government in terms of tourism's impacts and help inform investment and policy decisions by industry and government respectively" (Tourism Australia, 2003, P.41). Hence, in Australia, each state, territory, and even the small region is encouraged to establish TSA. The State and Territory Tourism Satellite Accounts (STSA) in Australia are produced by the Sustainable Tourism Cooperative Research Center (STCRC). Furthermore, this academic institute also continually estimates tourism economic contribution to the sub-state level using the same methods and definitions as the national TSA. According to Tourism Research Australia (TRA), the STSA includes data about consumption, employment, and economic activity. It could estimate the tourism economic effect from both the direct and indirect side (TRA, 2019). Australia's STSA keeps the consistency with the national TSA in the area, such as basic conception, definition, classification, and compilation method and tourism data resource.

Queensland is located in the East-north of Australia, which is the second state in Australia with an area of 1,852,642 square kilometers. It is made up of 14 unique⁵ and fabulous destinations. It does have not only the beautiful coastlines but also has the vast expanses of the outback. The most famous tourism spot —— Great Barrier Reef, attracts thousands of tourists from all over the world. Table 1 below would present some critical figures of QDTSA.

Table 1. The key figures of QDTSA

	Queensland	Australia	The percentage
Total tourism GSP/GDP (billion)	27.3	60.8	44.9%
Total tourism GVA (billion)	24.4	55.9	43.65%
Total tourism employment (person)	235,900	666,000	35.42%

Source: Australia national tourism satellite account 2017-2018, Australia State tourism satellite account 2017-2018.

Note : Key results about tourism contribution in Shandong 2008 (Unit: Billion Yuan)

	Whole Province	Total tourism GSP/GDP	The percentage
GDP	30933.27	1377.97	4.45%
Operating Surplus	8261.4	348.16	4.21%
Remuneration for workers	13764.53	664.40	4.83%

Source: The compilation and research of SDTSA.

2.2 The outline of Shandong Tourism Satellite Account (SDTSA)

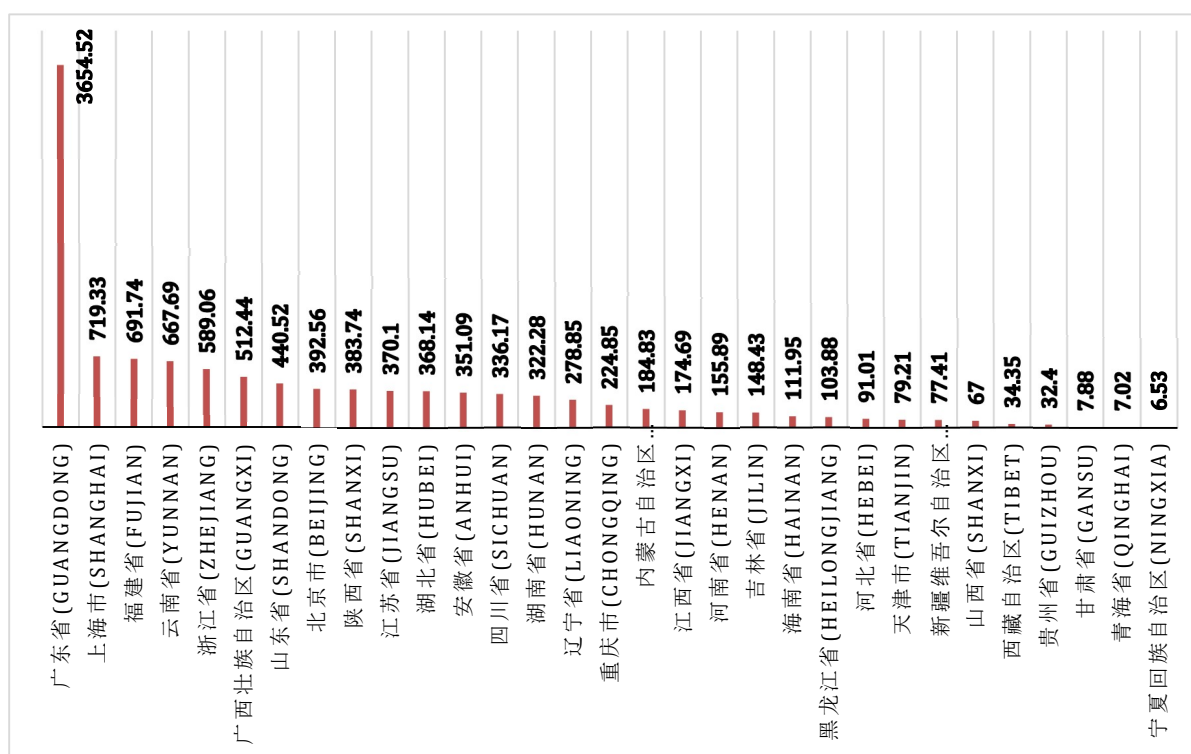
Shandong is located in the East China region, with 157,100 square kilometers. According to the yearbook of China tourism 2016, the domestic tourism consumption of Shandong has exceeded 7000 million Yuan, which

⁴ New South Wales (NSW), Victoria (VIC), Queensland (QDL), Western Australia (WA), South Australia (SA), Tasmania (TAS), Northern Territory (NT) and Australian Capital Territory (ACT).

⁵ Gold Cost, Brisbane, Sunshine Coast, Hervey Bay/Mary borough, Southern Downs, Toowoomba Golden West, Bundaberg, Fitzroy, MacKay, Whitsundays, Northern (Townsville), Tropical North Queensland, Outback and other

occupied the 11.2% of GDP in 2015. Moreover, tourism investment is 1400 million Yuan in Shandong. Furthermore, the number of visitor arrivals, Shandong is the seventh among the mainland of China⁶, which are about 440.52 thousand people (Figure 1). Besides, the International Tourism Receipts continually increase from 1995 to 2016 as a whole (Figure 2). Shandong is a crucial economic province in China, which has an apparent advantage in primary and secondary industries that could provide the solidify basis for the development of tourism. SDTSA was completed in 2008, which experienced 4 steps⁷. Comparing with the other Chinese Regional Tourism Satellite Account (CRTSA), SDTSA has three innovations. Firstly, it had more precise and stricter definition than other CRTSAs. For instance, in Jiangsu TSA (JSTSA), “the duration of a trip” roughly clarifies “Within 12 months”. However, in SDTSA, “the duration of a trip” means the time is up to 6 hours, but less than 12 months. Secondly, it has completed ten tables, this is the most completed CRTSA in China until now. The third innovation is to use the “outside province tourist” and “local tourist” instead of domestic tourists. Because SDTSA focused on the region, the index of “domestic tourist” is usual but fuzzy. This kind of adjustment could be more suitable in terms of regional tourism satellite.

Figure 1. The Number of Visitor Arrivals in China’s Mainland 2017 (Unite: Ten thousand persons).



Source: China’s Tourism Statistical Yearbook 2017.

Nevertheless, it is just a one-off account. And it also existed some issues in data quality, survey method, and a series of specific aspects such as how to improve the tourism social transfers in kind. Based on these conditions above, this paper will take advantage of the SDTSA as an example to compare with QDTSA to look forward to the way to perfect the CRTSA to assist the local tourism development and improve the significance of the tourism among the national

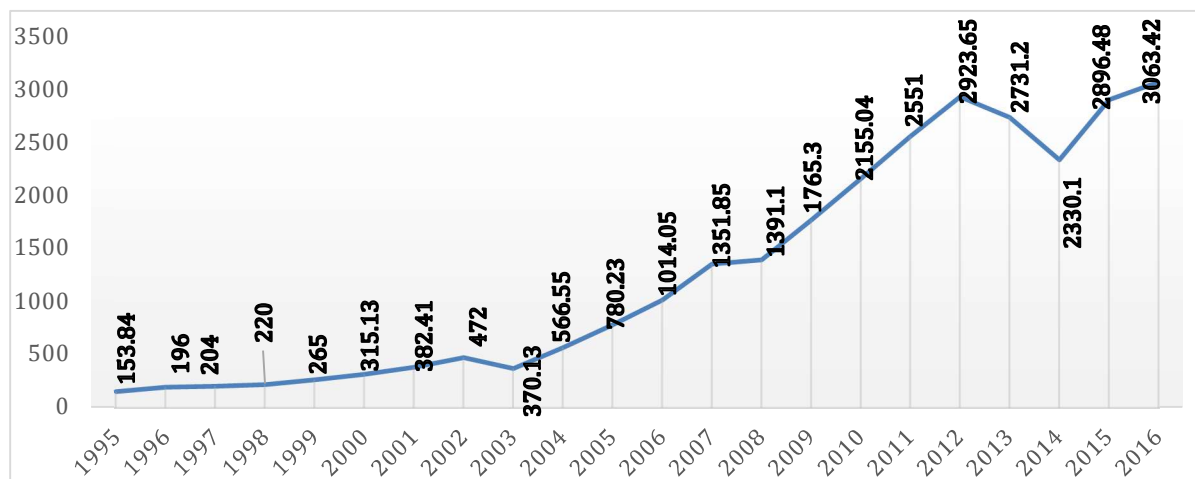
⁶ The mainland of China has 22 provinces, 5 autonomous regions, 4 municipalities.

⁷ The four steps are clarifying the purpose requirement, determining the framework, sorting and compiling data, analyzing the result, respectively.

economy.

Yang (2018a) also describes establishment of TSA could be a benefit for improving China’s tourism statistical system, because TSA could make an extensive range of tourism statistics. China’s tourism statistics focus on the non-monetary index, such as the number of visitors. And the tourism expenditure index is ambiguous (Liu, 2016). These could not reveal the actual tourism contribution of the economy. By comparing RTSA in China and Australia, it could be benefit for pointing out the number of deficiencies of China’s tourism statistical system.

Figure 2. International Tourism Receipts 1995-2016 in Shandong (Unit: Million.US\$)



Source: Shandong Statistical Yearbook 1995-2016.

2.3 The comparison between QDTSA and SDTSA

Table 2 describes similarities and differences between QDTSA and SDTSA in the basic concept. “visitors” is the prior requirement to define the tourism activities, the most apparent differences are about defining the “usual environment” and disposing of “International student.” In terms of “usual environment,” the distance restriction in QDTSA is “40 kilometers from home for overnight trips and up to 50 kilometers from home for day trips”. Moreover, that of SDTSA is smaller than QDTSA, which is “up to 5 kilometers”. Moreover, according to TSA: RMF2008, the concept of “Tourism expenditure” is used in the first three TSA tables, while “Tourism consumption” applied in table 4 and 6 with the same formal definition as tourism expenditure, while the concept goes beyond that of tourism expenditure. Hence, it is necessary to clarify two concepts to make the detailed classification so that it could ensure the accuracy of data. Unfortunately, SDTSA combined them. Differences are also reflected in the “tourism characteristic industries” and “tourism characteristic product.” Tourism activities have a complicated relationship with other industries. It is hard to strip the tourism proportion from other industries. Hence, the primary requirement for establishing TSA is to determine the tourism characteristic industries and related categories. Both these two regional TSA are based on the TSA: RMF 2008, while QDTSA clearly regulated the tourism characteristic industry and tourism characteristic product is at least 25% of its output must be consumed by visitors. It is no doubt that it specified the categories. Meanwhile, there is also a process about SDTSA based on the unified International Standard, and it considered that tourism activities have significance in the environmental industries. Therefore, it regarded the environmental resource as the tourism characteristic industries. Moreover, China does not have the Central

Product Classification (CPC), so some tourism products just admitted within China. That would occur the obstruct in international comparability.

Table 2. The comparison in basic concept

Basic concept	Similarities	Differences	
		QDTSA	SDTSA
Visitors	<ul style="list-style-type: none"> ● The length limitation of the international visitor is one year ● Interstate/Inter-province travel: domestic overnight travel where a visitor travels to a state or territory/province other than that in which they reside. ● Intrastate/intra-province travel: domestic overnight travel where a visitor travels to a location in the state or territory/province in which they reside 	<ul style="list-style-type: none"> ● “A traveler taking a trip to the main destination outside his/her usual environment, for less than a year, for any main purpose (business, leisure or other personal purposes) other than to be employed by a resident entity in the country or place visited. ● “Usual environment” is defined by frequency and distance. (Place that is visited at least once a week and the locations up to 40 kilometers from home for overnight trips and up to 50 kilometers from home for day trips.) ● International student is not included in the process of investigation unless they are undertaking the short term course less than one year or travel outside their usual environment. ● Visitors are being classified into national and International visitors. ● National and International visitors both include overnight visitors and same day visitors. 	<ul style="list-style-type: none"> ● “A traveler taking a trip to the main destination outside his / her usual environment, for up to 6 hours but less than 12 months, for the primary purpose is not to obtain remuneration.” ● “Usual environment” means the locations up to 5 kilometers from home or workplace, or a far distant place that a person frequently visited. ● International student is included in the calculation whether or not exceed one year. ● Visitors are classified as the visitors from outside of the province, residents in the province, and International visitors. ● Visitors from outside of the province, residents in the province, and international visitors both include overnight visitors and same day visitors.
Tourism expenditure and tourism consumption ⁸	Measured by purchaser’s price	<ul style="list-style-type: none"> ● Defined them separately. ● Acquisition of valuable not included in the TSA. 	<ul style="list-style-type: none"> ● Combining these two concepts together, named as the tourism consumption
Tourism-characteristic industries and Tourism connected industries	Based on the TSA: RMF 2008 ⁹	<ul style="list-style-type: none"> ● Australian and New Zealand Standard Industrial Classification (ANZSIC) ● Tourism characteristic industry is at least 25% of 	<ul style="list-style-type: none"> ● National economy industry classification ● Regraded the “environmental resource” as the tourism characteristic industry

⁸ The detail information in the <Tourism Satellite Account: Recommended Methodological Framework 2008>

⁹ The detail information in the <Tourism Satellite Account: Recommended Methodological Framework 2008>

		<p>its output must be consumed by visitors</p> <ul style="list-style-type: none"> ● Food-and beverage-serving divided into “cafes, restaurants and takeaway food services” and “clubs, pubs, taverns and bars” ● Road passenger transport divided into “taxi transport” and “other road transport” ● Regarded “casinos and other gambling services”, “automotive fuel retailing” and “education and training” as the tourism characteristic industries ● Tourism connect industries are classified as “all other industries” 	<ul style="list-style-type: none"> ● Tourism connected industries mainly are retailing and trading business
Tourism characteristic products and Tourism connected products	Based on TSA: RMF 2008	<ul style="list-style-type: none"> ● Central Product Classification (CPC) ● Tourism characteristic product is at least 25% of total output of the product must be consumed by visitors ● All kinds of transport services emphasis on “taxi fares”, “local area passenger transportation”, “long distance passenger transportation” and “motor vehicle hire and lease”. ● Tourism connected products are consumed by visitors but are not considered as tourism characteristic products, they are classified as “all other goods and services”. 	<ul style="list-style-type: none"> ● Tourism connected products are regarded as one product is just determined in China as tourism specific product, but not admitted in the international. such as tourism shopping
Employed person	Employment caused by tourism consumption	<ul style="list-style-type: none"> ● Over 15 years’ old ● Specific work conditions (hours and etc.) 	According the tourism supply ratio to apportion employed person

Source: Australia National Accounts Tourism Satellite Account 2016-2017 (Cat.No.5249.0), Tourism Satellite Account - summary of key results 2017-2018, State Tourism Satellite Account 2017-2018, The compilation and research of SDTSA.

In table 3, it makes the comparison concerning the data source, survey method, and the compilation frequency. One of the most crucial points is that the survey method is consistent at the national level and sub-national level in Australia. That is why the RTSA could be reconciled with the national-level TSA¹⁰. Furthermore, about the compilation method, there are two different conceptual and methodological approaches for establishing

¹⁰ The report of State tourism satellite accounts introduces the detail information about how they reconcile the State TSA data to the national Target. And in the paper named as development of regional tourism satellite account: a case study from Australia, describes the methodology about establishing the State tourism satellite account in Australia.

regional or subnational TSA. They are “interregional approach” and “regional approach.” *The former is “to apportion territorially certain parts or variables of an available national TSA, using different indicators and methods”* (UNWTO, 2013). This kind of method has been attempted in Canada. It is also known as the “top-down” approach. The “regional approach,” which is also regarded as the “bottom-up” approach, is similar to the establishment of the national-level TSA. This kind of approach treats the region as a “small nation.” As an individual entity, it considers not only the general condition but also the interregional elements (Jones, Munday & Robert, 2009). Denmark, Finland, and Norway that take advantage of the second approach to develop the regional tourism satellite account systems derived from the national TSA or national accounts, and the input-output system (UNWTO, 2013). Dwyer et al. (2007) indicated Australia’s STSA adopted a hybrid approach, for instance, QDTSA’s tourism expenditure data are from TRA’s survey to each of the State, while the interstate trade was treated as if the QDTSA was a “small nation” trading with other countries or state. However, in terms of SDTSA, the data source originated from a wide range, and China does not have a standard national TSA. Based on many factors, it is challenging to classify what kind of approach adopted in the SDTSA. Besides, Kang (2001) has introduced that the TSA could be a database, which could gather the scattered information into an integrated framework. However, SDTSA is a one-off account, so it could not form a database, and then it is hard to follow the change of the relevant information, especially the detailed information about tourism expenditure, tourism-value added and the trend of the tourism employment. Comparing the SDTSA, QDTSA published every year.¹¹

Table 3. The comparison in other aspects

	QDTSA	SDTSA
Data source	<ul style="list-style-type: none"> ● Unpublished modelled regional expenditure data from TRA’s IVS¹² and NVS¹³ ● The National TSA produced by ABS¹⁴. ● The I-O database from the Enormous Regional Model (TERM) 	<ul style="list-style-type: none"> ● Economic census data ● National Input-output table 2007 ● Tourism-related departments statistical document ● Existing tourism statistics data sources ● Supplementary survey data
Survey method	The national level and state and territory level are in consistence.	The survey method is inconsistent with the national level and another province
Compilation Approach	Hybrid method ¹⁵	Indistinct
Compilation frequency	Published every year based on benchmark data, intermediate year TSA are based on actual year data.	One-off account.

Source: Australia National Accounts Tourism Satellite Account 2016-2017 (Cat.No.5249.0) , Tourism Satellite Account - summary of key results 2017-2018, State Tourism Satellite Account 2017-2018 , The compilation and

¹¹ The State Tourism satellite account published every year, it could reflect the change. For example, the tourism direct share of total state Gross value added (GVA) increased slightly from 3.0% to 3.1% during 2006-2017.

¹² IVS: International Visitors Survey

¹³ NVA: National visitor survey

¹⁴ ABS: Australia Bureau of Statistics

¹⁵ Part bottom up part top down

research of SDTSA.

As we could see from the table 4, SDTSA finished all ten tables in accordance the TSA: RMF 2008, and it also made a serious of adjustment to satisfy the sub-national conditions. For example, using the “local tourist” and “tourist from outside of the province” instead of “domestic tourists”, so the investigated objects more precise. On the opposite, QDTSA is not limited in 10 tables. Besides some direct aggregates and non-monetary index, QDTSA either includes the indirect contribution of tourism. Although this table is relatively rough, it could cover the shortage of the TSA¹⁶. Moreover, there is no unified standard about compiling RTSA, and most RTSAs are based on the national-level standard, so the form of the QDTSA is more flexible than SDTSA.

Table 4: The comparison in TSA tables

TSA Tables	QDTSA	SDTSA
1. Inbound Tourism expenditure by products and classes of visitors	Key direct tourism aggregate result	Tourism consumption by tourist from outside of province in Shandong
2. Domestic tourism expenditure by products, classes of visitors and types of trips	Direct tourism output by tourism category	Tourism consumption by residents in Shandong
3. Outbound tourism expenditure by products and classes of visitors	Direct tourism GVA by tourism category	Total tourism consumption by residents
4. Internal tourism consumption by products	Tourism consumption by tourism category	Total tourism consumption by tourist category
5. Production accounts of tourism industries and other industries at basic prices	Direct tourism output by industry — Basic prices and state and territory share of total	Production accounts of tourism industries and other industries
6. Total domestic supply and internal tourism consumption (at purchaser’s prices)	Direct tourism gross value added by industry — basic priced and state and territory share of total	Total domestic supply and internal consumption
7. Employment in the tourism industries	Direct tourism employment by industry and state and territory share	Employment in the tourism industries
8. Tourism gross fixed capital formation of tourism industries and other industries	Tourism consumption by product — purchaser’s prices and state and territory share of total	Tourism gross fixed capital formation of tourism industries and other industries
9. Tourism collective consumption by products and levels of government.	Indirect contribution of tourism	Tourism collective consumption, by product and level of government
10. Non-monetary indicators	Total effects of tourism consumption	Non-monetary indicators
11	State and territory totals of key economic aggregates	
12	Key direct tourism aggregate results, Domestic	

¹⁶ According the TSA: RMF 2008, one of the limitations of TSA is the TSA just consider the tourism ‘s direct effect. For example, tourist bought the souvenir from the retail store, TSA just regarded the “retailing industry” is related to the tourism while ignoring other industries related to the retailing industry.

13	Key direct tourism aggregate results, International	
14	Tourism shares in state and territory economy	
15	Industry shares of key economic aggregates	

Source: Australia National Accounts Tourism Satellite Account 2016-2017 (Cat.No.5249.0), Tourism Satellite Account - summary of key results 2017-2018, State Tourism Satellite Account 2017-2018, The compilation and research of SDTSA.

3. The problems of China's regional tourism satellite account and China's statistical system

1) Data problem

The data source of SDTSA is actually from many departments and supplementary surveys comparing with the QDTSA, the data is relatively dispersive, so it is a big project to collect and handle them. In the process of preparing and sorting the data, it is easier to cause the data problem.

Firstly, the data quality and accuracy are hard to guarantee, which reflect from two sides. On the one hand, the evaluations of the development of tourism mainly reflect in tourist numbers and total tourism income. These two large-scale indexes are linked to the performance of local government and different departments in China. If the data source is too broad, this is no doubt influence the accuracy of the data. On the other hand, some departments' business scope is not under the administrative region division (e.g., railway, banking, communications, etc.). For example, Suzhou railway station in Jiangsu province subordinates to the Shanghai railway bureau, hence the data collection and relative calculation are more complicated in China. Therefore, it is necessary to consider the method to deal with such kind of issue.

Secondly, from the demand perspective, as the information described in the front part, SDTSA does not divide the tourism consumption and tourism expenditure separately so that it would be difficult to sort the expenditure data into the right category. "Tourism consumption" includes services associated with vacation accommodation on its account, tourism social transfers in kind, and other consumption, which not belong to the range of the "Tourism expenditure" (TSA: RMF 2008). Furthermore, "tourism consumption" also makes some other precise adjustment about "tourism expenditure" when used in table 4 and table 6. Therefore, if we could not differentiate these two conceptions, it is not very easy to assure data accuracy. From the supply perspective, in SDTSA, many tourism service enterprises are not included in the regular statistical survey system, especially private and individual business units engaged in small catering, tourism products, tourism information services, tourism planning and consulting, etc. That also the problem of China's tourism statistical system. Zhao (2001) indicated that the current tourism statistical range in China is relatively narrow. Yang (2018b) described the related departments should consider from three aspects, supply, demand, and the requirements of the TSA, respectively, increasing the monetary indexes. Currently, China's tourism statistical system mainly concludes in 6 aspects.

Moreover, most of them are non-monetary index, which has the long-distance with the international tourism statistics standard. These indexes are not the real sense of the tourism added value. Hence, the International competitiveness is relatively weakly. Table 5 will show detailed information about the contents of China's tourism statistics. In terms of tourism demand indicators, it is necessary to cover the indicator related to the tourism expenditure and consumption. For example, the visitor final consumption expenditure in cash or in kind,

tourism social transfer in kind and etc. (Vanhove,2018). Tourism supply statistics only include the tourism agencies, and star-rated hotels in China, other industries such as restaurants, transportation do not have any recording. Because of the deficiency of the critical index, both the quality and the accuracy of the data will be affected. Therefore, improving China's statistical tourism system would be useful for developing CRTSA.

Table 5. China's tourism statistical system

The classification of China's tourism statistical system	The detail content
Inbound tourism statistics	Number of inbound tourists, Number of overnight visitors, and International tourism income by foreigners, compatriots in Hong Kong, Macao, and Taiwan
Domestic tourism statistics	Domestic tourism arrivals, tourism income, and expenditure per visitor by urban and rural residents
Outbound tourism statistics	Number of citizens traveling abroad, total number of outbound tourism organized by travel agencies, Number of Hong Kong and Macao, Taiwan and outbound tourists and outbound tourism expenditure
Travel agency scale and business statistics	The number and employment of domestic and international travel agencies in various regions of the country, the total assets of the national travel agencies, operating income, taxes, profits, total labor productivity
Star-rated hotel scale and business statistic	The number of star-rated hotels, rooms, beds, original fixed assets and operating income
Tourism education and training statistics	The number of tourism universities and colleges and the number of students in the country

Source: The yearbook of China tourism statistics.

2) Compilation method

Two approaches could be applied for establishing RTSA, and Australia used the hybrid approach. However, SDTSA's compilation process is relatively complex, which is hard to define which kind of method is used. The top-down method requires the proactive central statistical office, regionally stratified national survey, and a full set of regional Input-output tables. Moreover, the bottom-up method needs the developed regional account, regional tourism consumption data, local institutional engagement, and technical human capital. However, China's current situation not satisfied both of these two approaches' requirements. Comparing with Australia, China has a more complex geographic condition and tourism resource allocated differently. Therefore, from the top-down perspective, it is tough to standardize the structure across regions. Typically, the establishment of TSA is from the national-level, because a nation's economy is a relatively closed system with a steadier condition, which could be easier to keep a balance between supply and demand perspective. However, this balance does not exist at the regional level. The region is a conversely open environment, and the condition is more complicated than the national condition. The essential condition of the bottom-up approach is to regard the region as a "small nation." China has many administrative regions, the industrial structure is diverse, and the economy distributed unevenly, so it is tough to deal with the inter-province trade information and establish

the RTSA in each province. Furthermore, the development of Australia's RTSA based on Australia's national TSA, while China does not have a mature national TSA; hence, which method of the CRTSA should adopt has to consider carefully.

3) Statistical method

Australia Bureau of Statistics (ABS) ensures consistency across the national and regional TSA, and TRA is the leading government research organization that conducts a comprehensive and detailed survey of the tourism, which could provide the data on regional shares of tourism expenditure (Pham et al. 2008). However, the survey paths and responsible department at the national and provincial levels are inconsistent in China. For domestic travel survey data, the national level by the National Tourism Administration, entrust the National Bureau of Statistics survey team to randomly collect ten thousand rural and urban residents respectively as the survey sample to estimate the relevant tourism data (Yang b, 2018). The survey of domestic tourists receive at the local level was completed through the sampling of overnight tourists of tourist accommodation facilities, supplemented by the survey of one-day tourists of scenic spots and overnight tourists of relatives and friends. The National Bureau of Statistics and the National Tourism Administration also do not have a unified standard, which causes the data incredible. Besides, provinces do not have a unified survey period. For example, the reporting period has three different periods: one year, half-year, or seasons, which is chosen by the local government freely. Therefore, it is impossible to make RTSA reconcile with the national TSA, and it could not make a comparison between provinces. Moreover, the sampling method and frequency need to be improved. Specifically, the sampling frequency is small, especially for rural residents who are only surveyed once a year. Moreover, it would enlarge the gap if we use the ten thousand samplings to calculate the whole country's data because the sampling will become small and uneven when distributive to the provinces. Therefore, it also needs to improve the statistical method in China considerably.

4. Conclusion

Based on the above content, the first essential requirement of establishing and perfecting CRTSA is to make the specific categories of Tourism-characteristic industries and Tourism-characteristic products following the International standard and China's conditions. In 2018, China's National Bureau of Statistics published < National tourism and related industry statistical classification (2018)>, which could be a guidance for tourism statistics. Therefore, each province could list the tourism-characteristic industries and Tourism-characteristic products based on this document. Moreover, after comparing, the first significant meaning for this paper is that China could make the RTSA more flexible as the QDTSA in tables and other aspects. Different regions could replenish categories according to their conditions, which could make the RTSA completer and more useful. Secondly, Australia uses the hybrid method to establish the STSA, and this approach also could be applied in the process of developing CRTSA. As China's tourism statistical system now has many problems, it is impossible to handle all issues immediately, so it is better to clarify, collect and handle the relevant data according to top-down and bottom-up approach firstly. And then to make a unified framework of RTSA so that it could be applied in each province. During this process, it also could improve China's tourism statistical system gradually. The most crucial problem that needs to handle is to extend the statistical range. As shown in the paper, Australia's RTSA is comparative maturity. The government, enterprises, and relevant organizations mainly take advantage of precise TSA's data to make decisions. By contrast, China's tourism statistical system is imperfect. It lacks many essential indexes required by TSA. It could not reflect tourism contribution. The development of RTSA and the improvement of China's statistical system interact with each other. Moreover, making innovation about the survey method also could perfect the required data quality. Big data information

age offers a new way for data collection. It uses multiple databases to accept client's (web, App, etc.) data for data collection. Tourism statistics could come through the network reservation system, electronic ticket system, portable devices, and tourism consumption system tools for travel-related data collected.

Thirdly, following the requirement of the TSA: RMF 2008 with the China's specific conditions to improve the definition, classification standards and indicator system of tourism statistical system.

Fourthly, QDTSA has same survey method as the national level, which decrease the difficulty of collecting data. However, the survey method is different between national-level and regional-level in China, the national data perhaps could not be used in the regional conditions. It is necessary to investigate each province separately. It is no doubt increases the difficulty in establishing RTSA within an identical framework. The further research will continue to study this issue.

Regional tourism satellite account is now still a continual research topic. There is no official guide that could help a nation to establish a regional or sub-national tourism satellite account. All the experience of establishing RTSA in the world is based on the TSA: RMF 2008. Therefore, there are many deficiencies in completing the complete TSA. Even in Australia, the outbound consumption by products and category of visitors, tourism gross fixed capital formation, and collective consumption by governments do not been included in the Australia TSA (APEC tourism working group,2010).

Although the establishment of China's regional tourism satellite account has many problems, especially many data-related problems. Nevertheless, in December 2015, the ministry of culture and tourism of China set up the data center, which became the national level tourism statistics professional organizations, specialized in the integration of the tourism statistical work, data analysis, etc. Therefore, the accomplishment of RTSA could also be an opportunity to improve China's tourism statistical system. Beyond that, the experience of establishing CRTSA is also valuable for perfect the International Regional Tourism Satellite Account.

References

- Australia Bureau of statistics (2018). Australia National Accounts Tourism Satellite Account 2016-2017 (Cat.No.5249.0), Canberra.
- APEC Tourism working group (2010). The implementation of Tourism satellite accounts in the APEC region :2009, Singapore.
- Dwyer, L., Forsyth, P., Spurr, R., &Ho, T, V. (2007). Developing an integrated suite of regional tourism satellite accounts (TSAS): A case study from Australia. 2007 TTRA International Conference.
- Jones, C. (2005). "Tourism Satellite Accounts: The Regional Perspective", World Tourism Organization Conference, The Tourism Satellite Account (TSA): Understanding Tourism and Designing Strategies, Iguacu Falls.
- Jones, C., Munday,M., & Roberts, A. (2009) Top down or bottom up? Issues in the development of sub-national tourism satellite accounts, *Current Issues in Tourism*, 12(4), 301-313,
- Ho, T, V., Pambudi, D., Forsyth, P., Spurr, R., Dwyer, L., & Hoque, S. (2009) Development of Regional Tourism Satellite Account: A case study from Australia. *Enzo Paci Papers*, 6, 345-358.
- Kang, R. (2001). The meaning, method and difficulty of establishing Tourism Satellite Account. Beijing: China economic publishing house.
- (康荣 (2001) 『建立旅游卫星账户的意义、方法与难念』中国经济出版社。)
- Smith, S, L, J.& Zhao, L, X. (2004). Tourism satellite accounts (TSA): What They are, what they mean. *Tourism Tribune*,19 (2),16-21
- (史蒂夫·史密斯, 赵丽霞 「探析旅游卫星账户的基本思想」 『旅游学刊』、2004年第2期、16-21页。)
- Liu, X, Y. (2016). The implication of International recommendations for tourism statistics to China. *The World*

of Survey and Research,10 ,47-52

(刘晓燕「旅游统计国际建议对我国的启示」『调研世界』、2016年第10期、47-52页。)

Li, M, Y., Li, J., & Chen, J, S. (2004). On some theoretical and practical issues of regional tourism satellite accounts in China. *Tourism Tribune*,19 (2),11-15

(李明耀, 黎洁, 陈劲松「我国区域旅游卫星账户理论与实践的若干问题研究」『旅游学刊』、2004年第2期、11-15页。)

Pham, T. D., Dwyer, L., & Spurr, R. (2008). Constructing a Regional Tourism Satellite Account: The Case of Queensland. *Tourism Analysis*, 13(5), 445-460.

Tourism Research Australia (2019), *Tourism Satellite Account - summary of key results 2017-2018*. Canberra

Tourism Research Australia (2019), *State Tourism Satellite Account 2017-2018*. Canberra

Tourism Satellite Account: Recommended Methodological Framework 2008.

WTO Statistics and Tourism Satellite Account Program (2013). *Regional Tourism Satellite Account. Statistics and TSA Issue Paper Series*. Madrid: World Tourism Organization

Vanhove, N. (2018). *The economics of tourism destinations – theory and practice*. London and New York: Routledge.

Yang, M, Y.(2018a). The research of constructing China's tourism statistical system. *Productivity Research*, 1, 97-100

Yang, M, Y.(2018b). The research of constructing China's tourism statistical system. *Productivity Research*, 1, 97-100

(杨美沂「构建我国旅游统计体系研究」『生产力研究』、2018年第1期、97-100页。)

Yang, X, J. (2015). The methods and difficulties to compile Regional Tourism satellite account- The case of Hainan. *Economic Research Guide*,3,70-72

(杨晓娟「区域TSA的编制思路及难点—海南省为例」『经济研究导刊』、2015年第3期、70-72页。)

Zhao, L, X. (2001). On the Establishment of National Tourism Satellite Account (TSA) in China. *Journal of Xiamen University (Arts & Social Sciences)* ,4, 32-37

(赵丽霞「创建我国国家旅游卫星账户初探」『厦门大学学报(哲学社会科学版)』、2001年第4期、32-37页。)

Zhao, L, X., & Wei, W, X. (2001). Establishment of Tourism Satellite Account —1998. *Statistical Research* ,8, 13-17

(赵丽霞, 魏巍贤「旅游卫星账户(TSA)-1998构建」『旅游科学』、2001年第8期、13-17页。)

(査読論文 2020年2月28日受理)