

Assessing a Tourism Satellite Account: a programme for ascertaining conformance with United Nations standards

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The Tourism Satellite Account (TSA) is the method for measuring the economic contribution of tourism to a nation's economy approved by the United Nations and other authoritative international organizations. While a considerable number of countries have developed TSAs, no programme has been proposed for determining how closely a given TSA conforms to the United Nations standards. The purpose of this paper is to present a programme for ascertaining the consistency of a given TSA with the United Nations standards and to apply this programme to a long-standing TSA, the United States Travel and Tourism Satellite Account (USTTSA). The results of this application are summarized and differences between the USTTSA and the United Nations standards are highlighted. The authors find that the programme is comprehensive, feasible in application and can improve the development, interpretation and comparisons of TSAs across countries.

Keywords: tourism GDP; tourism economic impact; Tourism Satellite Account (TSA); tourism statistics; USA; World Tourism Organization

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The Tourism Satellite Account (TSA) has been employed by more than 60 countries to measure the direct effects of one element of aggregate demand – visitor consumption expenditures – on their national economies (United Nations World Tourism Organization, 2010). It is designed as a distinctive method of measuring the direct economic contributions of tourism consumption to a national economy. Its unique approach derives from applying the principles and structure of the internationally adopted System of National Accounts (SNA) to measuring direct economic impacts of tourism.

Formally, the TSA comprises a set of interrelated tables that show the size and distribution of the different forms of tourism consumption in a country and the direct contributions to GDP, national value-added, income, employment and other macroeconomic measures of a national economy that result (Frechtling, 2010). Under the currently approved framework, a TSA always relates to a national area or national economy and focuses on calendar years, although quarterly estimates are not unknown (Organisation for Economic Co-operation and Development (OECD), 2010, pp 90–91).

In 2008, the United Nations World Tourism Organization (UNWTO) in conjunction with the United Nations Statistics Division released two sets of documents presenting the international standards for tourism statistics on supply and demand, namely *International Recommendations on Tourism Statistics* (IRTS, 2010) and *Tourism Satellite Account: Recommended Methodological Framework* (TSA, 2010).

TSA (2010) presents the conceptual framework of the TSA as approved by the United Nations Statistics Division, the UNWTO and other authoritative international organizations. In constructing a TSA, countries should follow the methodology specified in TSA (2010). However, some countries have elected to follow these international standards only partially. This frustrates one of the TSA's purposes, namely the comparability of tourism impact measurements across countries. Until now, no programme has been proposed and documented for determining how closely a TSA adheres to the United Nations standards.

We believe the need for such an assessment programme is urgent. The TSA is a remarkable method of measuring the direct economic impact of tourism on a national economy, and the only one producing macroeconomic aggregates directly comparable to a country's GDP, national employment and other elements of a nation's system of national accounts. Unfortunately, the success and prominence of the TSA has spawned imitations and misrepresentation that threaten user confidence in it (Frechtling, 2009). Moreover, 'discrepancies' in the way various countries have elaborated their TSAs have been noted (OECD, 2010, pp 96–97). Employing a system to 'audit' a TSAs compliance with the United Nations standards is an effective way to separate valid TSAs from invalid ones and strengthen international comparability.

Literature review

Some studies have investigated aspects of compliance. In 2001, Laurent Vassille (2001) discussed the challenges of the new standards for tourism satellite account for French tourism statistics as France developed its own specific system of satellite accounts beginning in the late 1970s.

In 2004, the Canadian Tourism Commission commissioned a study on how the Canadian TSA could be improved to meet the 2001 proposed standards (Kemp and Nijhowne, 2004). Three years later, the *Canadian Tourism Satellite Account Handbook* presented a very brief section entitled 'Comparison of the Canadian TSA to the international standards', in which differences in terminology, classification, coverage and valuation were highlighted (Statistics Canada, 2007).

In 2006, Libreros *et al* published a comprehensive review of worldwide implementation of the TSA. Although a substantial number of countries were engaged in various stages of developing TSAs, the authors noted that 'a number of variations exist in the implementation of TSA-RMF standards' and 'These variations limit, for now, the comparability of TSA results between countries' (Libreros *et al*, 2006, p 83).

In 2008, the European Commission through Eurostat commissioned a study of all 27 member states to assess development efforts towards TSAs by individual countries. A detailed analysis was provided of the methodology and different levels of compliance with TSA 2010 among European Union countries (Eurostat, 2009). Nevertheless, the report did not present a detailed analysis of individual country's TSA compliance with United Nations standards.

It is worth noting that the Asia-Pacific Economic Cooperation Tourism Working Group (APEC TWG) recently published results of a survey of APEC countries. A specific question was posed to capture the state of compliance with 'international standards as defined in TSA:RMF' (APEC TWG, 2010, p 28). The authors concluded, 'In a broader sense, no economy claims to fully implement the TSA:RMF standards in their entirety' (APEC TWG, 2010, p 28).

In 2010, the OECD, a group of 34 countries committed to democracy and market economies with the mission of stimulating economic progress and world trade, published a review of its members' and partners' efforts towards compiling TSAs and disseminating their results (OECD, 2010). A self-assessment of compliance with the international TSA standards displays quite considerable differences in this compliance (OECD, 2010, pp 104–105). Moreover, such a self-assessment may well neglect to detail all of the differences between the United Nations standards and actual compilation of the accounts.

During the same year the UNWTO (2010, p 2) reported that worldwide 'a total of 60 countries have been identified by early 2010 as having already produced or are currently developing a TSA exercise'. Referring to the United States Travel and Tourism Satellite Account it stated, 'It is compliant with TSA:RMF where possible' (UNWTO, 2010, p 34).

To summarize, several studies have examined compliance of national TSAs with TSA recommendations from various sources. However, an exhaustive search of the CABI (2013) Leisure Tourism database and queries to UNWTO have uncovered no documents that present a detailed comparison of a national TSA to the United Nations TSA standards contained in IRTS 2010 and TSA 2010. Now that these international standards have been in place for several years, it seems appropriate to develop a programme of TSA conformance assessment procedures and apply them to an established TSA. The process and its application elaborated herein can be employed by other countries. Such activities across a number of nations can add substantially to the world's

knowledge of the economic contribution of tourism to national economies and how closely various TSAs conform to the United Nations standards and to each other.

In 1998, the USA was one of the first countries in the world to elaborate a TSA in its 'US Travel and Tourism Satellite Account' (USTTSA). This was well before the final United Nations recommendations were adopted in 2008. Examining current compliance with the United Nations standards for TSAs provides an illuminating example of how well a country with substantial experience in TSA development is currently conforming to United Nations TSA standards.

TSA conformance assessment procedures

The authors developed the following procedures to assess conformance of the USTTSA and applied them (Frenç, and Frechtling, 2013). The TSA conformance assessment programme comprises six steps:

- (a) select a country TSA;
- (b) secure the country's TSA documents on methodology and presentation of results;
- (c) secure *International Recommendations for Tourism Statistics 2008* and *Tourism Satellite Account: Recommended Methodological Framework 2008* for the United Nations standards for compiling TSAs;
- (d) compile a comprehensive inventory of national tourism statistics for the TSA selected;
- (e) compare definitions, classifications, methodology, data sources, presentation tables and macroeconomic aggregates to the United Nations standards and identify departures from these standards;
- (f) develop recommendations for bringing the country's TSA into closer conformance with the United Nations standards.

This programme is explained below.

(a) Select a country TSA

While this is rather straightforward, it is important to choose a TSA that has been published after the release of the two authoritative TSA documents (see step 3, below). It is fruitless to apply the authoritative standards to an exercise that has not been undertaken since 2008. The other criterion is that the methodology for the TSA – definitions, classifications procedures, data sources, tables – is accessible to the reviewer.

(b) Secure country TSA documents on methodology and presentation of results

While having the ability to discuss TSA features with the compilers is a valuable resource, it is essential to acquire written documentation on the TSA that can be assessed and recommended for revision. This documentation includes the detailed source statistics, methodology and presentation of the TSA tables. The lack of such documentation suggests the TSA is in an experimental or pilot phase and likely to change substantially in the near future.

(c) *Secure International Recommendations for Tourism Statistics 2008 and Tourism Satellite Account: Recommended Methodological Framework 2008*

It is important to note that evaluating compliance with United Nations TSA standards is in fact a comparative analysis not only of a country's TSA to the recommended methodology but also of the country's system of tourism statistics to recommended standards. *International Recommendations on Tourism Statistics 2008* details the definitions, classifications and methodologies for providing source statistics for the TSA that are required to meet United Nations standards. *Tourism Satellite Account: Recommended Methodological Framework 2008* elaborates the concepts and structure of the TSA and how results should be presented. Both of these documents can be downloaded from the United Nations World Tourism Organization website (<http://statistics.unwto.org/>).

(d) *Compile a comprehensive inventory of country tourism statistics*

In this step, the reviewer should identify all of the statistical series required for compiling the country's TSA as referenced in the country's TSA methodological documents. For each data series used, the definitions, coverage, recency and compiling agency of the series should be identified. It is essential here to verify that all of the series contributing to the TSA do, indeed, provide data consistent with the TSA definitions, classifications and methodologies.

(e) *Compare definitions, classifications, methodology, data sources, presentation tables and macroeconomic aggregates to the United Nations standards and identify departures from these standards*

To facilitate application, this step is broken down into six activities: (i) compare definitions of major terms; (ii) assess conformance of the visitor expenditure estimation methodology to the United Nations standards; (iii) compare classifications of products and productive activities for completeness, overlap, exclusions and additions; (iv) investigate handling of special issues; (v) review presentation of recommended macroeconomic aggregates; and (vi) review presentation of the ten TSA tables.

(e(i)) *Compare definitions of major terms.* First, the reviewer should compare definitions of the major terms in the national TSA to those specified in IRTS 2010 and TSA 2010. These terms are: travel; tourism; forms of tourism; visitor; tourist; same-day visitor; travel party; trip; trip characteristics (especially travel for business purposes distinguished from other purposes); tourism expenditure; types of tourism expenditure; tourism consumption; residence; and usual environment.

Table 1 presents terms in the USTTSA that differ from the United Nations standards for the same items. In the USTTSA, 'visitor' is defined as 'a person who travels outside of his or her usual environment for less than one year or who stays overnight in a hotel or motel' (Zemanek, 2013, p 39). In addition, it is specified, 'The visitor may travel for pleasure or business (private sector and government).' "Visitor" excludes travelers who expect to be compensated at the location of their visit (such as migrant workers, persons traveling to new assignments, and diplomatic and military personnel traveling to and from their

Table 1. Differences in TSA terminology between the USTTSA and TSA (2010).

USTTSA	TSA (2010)
Travel and Tourism Satellite Account (Tourism) commodity	Tourism Satellite Account (Tourism) product
Tourism commodity ratio	Tourism share
Internal travel and tourism (expenditure)	Tourism expenditure
Tourism demand	Internal tourism consumption
Tourism value added	Direct tourism gross value added

Source: Authors, based on Zemanek (2013) and TSA (2010).

duty stations and their home countries)' (Zemanek, 2013, p 39). However, according to the United Nations, a visitor is 'a traveler taking a trip to a main destination outside his/her usual environment, for less than a year, for any main purpose (business, leisure or other personal purpose) other than to be employed by a resident entity in the country or place visited' (IRTS, 2010, p 100).

These two definitions display the following similarities:

- more or less the same subject (person who travels = traveller);
- outside usual environment specification;
- duration: less than a year;
- for any purpose except the exclusions;
- recognition of business purpose as a distinct one;
- exclusion of work related purposes.

However, there are three significant differences. To begin with, the USTTSA adds to one traveling 'outside of his or her usual environment for less than one year' the optional qualification, 'or staying overnight in a hotel or motel' (Zemanek 2013, p 39). By introducing the 'or' condition, any person who spends one or more nights in a hotel or motel is a visitor regardless of how far he/she is away from his/her primary residence. This violates the United Nations standard of excluding from tourism residents within their usual environment. For example, the USTTSA allows local residents staying overnight at a hotel because it is inconvenient for them to return home for a night, people permanently residing at the hotel (that is, not transients) and owners' occupancies to count as visitors despite the fact they are remaining in their usual environment.

The second difference is the 'pleasure' purpose in the USTTSA versus 'leisure or other personal purpose' in IRTS 2010. The USTTSA term excludes other personal reasons for travel, such as visiting friends or relatives, health and medical care, religion/pilgrimage, and so on. This can cause serious comparability issues with other national TSAs.

The final difference is that the USTTSA excludes visitors who 'expect to be compensated at the location of their visit' (Zemanek, 2013, p 39) versus 'other than to be employed by a resident entity in the country or place visited' in the United Nations standards (IRTS 2010, p 100). This is major difference. According to the USTTSA definition, this excludes consultants, performing

artists, traveling salespeople compensated through their sales and others who have no determinate employment relationship at the place visited (that is, not commuting), who are considered visitors according to IRTS (2010, p 15). In addition, IRTS (2010, p 14) recommends that the compensation at the location visited 'should apply only in case of an existence of employer – employee contract with a resident entity in the country or place visited'. Such differences ensure that the USTTSA over counts visitors (through adding hotel and motel stays regardless of distance travelled) and under counts visitors (by excluding consultants and the like) compared to the United Nations standards. It is not clear which of these biases dominates USTTSA measures of visitors.

(e(ii)) Assess conformance of the visitor expenditure estimation methodology to United Nations standards. Estimating tourism expenditures is a key issue since 'TSAs necessarily begin with a visitor expenditure measurement system' (Frechtling, 2010, p 141). Table 2 presents 15 requirements of visitor expenditure estimates for the TSA derived from IRTS (2010). For the USTTSA, we assess compliance with these standards as being 'full,' 'partial' or 'not in compliance' in Table 2. Overall, we judged the USTTSA to be fully compliant with seven of the 15 standards and also partially compliant with seven. We found the USTTSA non-compliant for only one of the standards (13. Valuables). Valuables are defined in the international system of national accounts handbook as 'expensive durable goods that do not deteriorate over time, are not used up in consumption or production, and are acquired primarily as stores of value. They consist mainly of works of art, precious stones and metals and jewelry fashioned out of such stones and metals' (System of National Accounts (SNA), 2009, p 186).

One other point relevant to Table 2 should be noted: Item 15, 'Collect information on places visited and duration of stay in each' is only partially satisfied due to the sources of visitor volume and expenditure data. It is fully satisfied for inbound visitors as the Survey of International Air Travelers asks respondents to enumerate places visited and nights spent. Sources of visitor volumes and expenditures for domestic trips in the USA capture total trips and expenditures but they do not break out same-day visits from overnight visits. To be fully compatible with the United Nations standards, the USTTSA should show separate estimates for same-day versus overnight trips in TSA tables 1, 2 and 3 as required in TSA (2010).

Estimating same-day trip volumes and expenditures is challenging for many countries. Such excursions are not recorded by the customary sources of accommodation activity in places visited (IRTS, 2010, p 53). Moreover, it is more difficult for respondents to report same-day trips accurately in household surveys than to report overnight trips (Laimer and Ostertag, 2008). Consequently they are often neglected in studies of visitor activities and expenditures by place visited. By separately reporting measures of same-day activities and the methodology to derive them, the USA can present a case study on how to approach this difficult but required task in TSA elaboration (Laimer and Ostertag, 2008).

(e(iii)) Compare classifications of products and productive activities for completeness, overlap, exclusions and additions. TSA (2010) stipulates two classifications:

Table 2. Assessment of USTTSA compliance with IRTS 2010 standards for measuring tourism expenditure.

IRTS 2010 Standard	IRTS 2010 reference paragraph	Level of USTTSA compliance
1. Include a specific expenditure module in surveys of inbound visitors	4.28	Full
2. Carry out border surveys on an ongoing basis (monthly, quarterly, annually) or only occasionally (Inbound Tourism)	4.29	Full
3. Employ either a tourism-specific household survey or a module (monthly, quarterly, annually) attached to general household expenditure survey (Domestic Tourism and Outbound Tourism)	4.31	Full
4. In measuring Domestic Tourism Expenditure, the economy from which services are delivered or goods are acquired is identified in order to assign the economic effect associated with the movement of visitors to the appropriate economy	4.32	Partial
5. Consider alternative measurement methods such as administrative data (credit card reports, bank reporting systems etc)	4.33	Full
6. Consider recall bias in respondents' reporting expenditures in detail, especially when there is a lengthy period between reporting and when the trip was taken	4.34	Partial
7. Identify key characteristics of visitors and their trips in a way that allows this information to be linked with the universe of visitors observed in other statistical procedures	4.36(a)	Full
8. Identify separately the residence of visitor and that of the provider of services	4.36(b)	Partial
9. For visitors traveling on a package tour, data should be collected on the total amount paid, the components of the package and the country of residence of the tour operator or travel agent from whom the package was purchased	4.36(c)	Partial
10. Identify the modes of transport used to arrive at, travel within and leave the country under study	4.36 (d)	Full
11. Estimate as accurately as possible expenditures made by others for the visitor's benefit in addition to expenditure that the visitor has made from his/her own resources	4.36 (f)	Partial
12. Include expenditure for transportation and accommodation by business visitors as intermediate consumption in the country's national accounts	4.36 (g)	Full
13. Identify separately visitor expenditures for valuables	4.36 (h)	Not in compliance
14. Identify the composition of travel parties	4.36 (i)	Partial
15. Collect information on places visited and duration of stay in each	4.36 (j)	Partial

Source: Authors' review of USTTSA documents based on IRTS 2010, pp 36–38.

products, and productive activities (industries) that produce products. These are related to the classification of products (any good or service that is the result of production) (SNA, 2009, p 19) in the *Central Product Classification* (CPC, Ver. 2), and the classification of productive activities (establishments and other institutional units that produce goods and services (SNA, 2009, p 95) in the *International Standard Industrial Classification of All Economic Activities* (ISIC, Rev.4)). Establishments engaged in the same or similar productive activities are called 'industries' (SNA, 2009, p 92). Both of these classifications are maintained in the recommended TSA framework.

At the first level, TSA (2009) distinguishes between consumption products and non-consumption products. Non-consumption products include all products that by their nature cannot be consumption goods and services, and therefore, can neither be part of tourism expenditure nor part of tourism consumption (examples include assets and intermediate consumption products of productive establishments). Furthermore, consumption products are divided into tourism characteristic products and other consumption products. Tourism characteristic products are those products that either represent a significant share of tourism expenditure in most countries or account for a significant share of supply of the product in most countries. TSA (2010, p 99) splits these between 'internationally comparable tourism characteristic products' and 'country-specific tourism characteristic products.' The former is a set of ten products and related activities that are specified by IRTS 2010 as being common to all countries, while country-specific tourism characteristic products are those designated by an individual country to be significant in its economy but not in the former list. Other consumption products comprises '(country-specific) tourism connected products' and 'non-tourism-related consumption products' (IRTS, 2010, pp 41–47; TSA, 2010, pp 23–24).

Table 3 presents the categories of products and productive activities associated with them in the United Nations TSA.

Besides covering the tourism characteristic products and industries in its TSA, the country may wish to establish a list of country-specific tourism products. In establishing these, one or both of the following criteria must be observed (IRTS, 2010, p 40):

- (a) Tourism expenditure on the product represents a significant share of total tourism expenditure in the country (share-of-expenditure/demand condition).
- (b) Tourism expenditure on the product represents a significant share of the supply of the product in the country (share-of-supply condition). This criterion implies that the supply of this product would cease to exist in meaningful quantity in the absence of visitors.

Tourism Connected Products are those that do not satisfy these criteria but 'their significance within tourism analysis for the economy of reference is recognized although their link to tourism is limited worldwide' (IRTS, 2010, p 40). Non-tourism related consumption products comprise all other consumption goods and services that do not belong to these two categories but are useful for studying tourism in the country.

Table 3. Classification of products and tourism industries in the United Nations TSA.

Product	Related tourism industry
<i>A. Consumption Products</i>	
A.1. Tourism Characteristic Products	
1. Accommodation services for visitors	1. Accommodation for visitors
1.a. Accommodation services for visitors other than 1b	1.a. Accommodation for visitors other than 1b
1.b. Accommodation services associated with all types of vacation home ownership	1.b. Accommodation associated with all types of vacation home ownership
2. Food and beverage serving services	2. Food and beverage serving industry
3. Railway passenger transport services	3. Railway passenger transport
4. Road passenger transport services	4. Road passenger transport
5. Water passenger transport services	5. Water passenger transport
6. Air passenger transport services	6. Air passenger transport
7. Transport equipment rental services	7. Transport equipment rental
8. Travel agencies and other reservation services	8. Travel agencies and other reservation services industry
9. Cultural services	9. Cultural services industry
10. Sports and recreational services	10. Sports and recreational services industry
11. Country specific tourism characteristic goods	11. Retail trade of country-specific tourism characteristic goods
12. Country-specific tourism characteristic services	12. Other country-specific tourism characteristic industries
A.2. Tourism connected products	
A.3. Non-tourism related consumption products	
<i>B. Non-Consumption Products</i>	
B.1. Valuables	
B.2. Other non-consumption products ^a	

Note: ^aIncludes 'those products associated with tourism gross fixed capital formation and tourism collective consumption' (TSA 2010, p 34).

Source: TSA (2010, Figure 4.2, pp 35–36).

Assessment of a country's TSA conformance to the United Nations standards here comprises:

- Checking that all tourism characteristic products and related industries are included in the country's TSA and populated with data.
- Checking the country-specific tourism characteristic products for overlap with any of the tourism characteristic products and recommending removing such duplication. Note that it is not necessary to check the tourism industries for overlap as this is unavoidable in a TSA. There is 'no strict one-to-one relationship between products and the industries producing them as their principal outputs' (IRTS, 2010, p 40). This is most clearly recognized in tourism where visitors purchase food and beverage serving services from both the food and beverage serving industry and the accommodation services industry.
- Checking that the related industries provide their products directly to visitors rather than as an intermediate output or investment goods (IRTS, 2010, p 50).

Applying this exercise to the USTTSA finds that it provides a more detailed classification of tourism characteristic products and related industries than TSA 2010 requires. For instance, the USTTSA presents 24 products and 26 industries while TSA 2010 proposes only 12 products and their related industries. However, USTTSA includes three industries (petroleum refineries, industries producing nondurable PCE commodities excluding petroleum refineries and wholesale trade and transportation services) that cannot be considered tourism industries according to TSA 2010 standards because there is no direct provision of their products to visitors. Rather these industries sell their output to other industries that then sell gasoline and other goods directly to visitors; they should be removed from the USTTSA.

In addition to expanding the detail of the tourism characteristic products required by TSA (2010), we found that the USTTSA presents three country-specific tourism characteristic products namely: gasoline, parking lots and garages, urban transit systems and other transportation services. This conforms to the United Nations standards. On the other hand, we recommend adding the rooming and boarding houses industry and rental of recreational goods industry to the USTTSA.

(e(iv)) Investigate handling of special issues. TSA (2010, chapter 2, section B.3 and chapter 3, section B) identifies four issues that require special attention in elaborating a TSA, as shown in Table 4. It is important in TSA compliance analysis to understand which of these special issues are acknowledged in a country's TSA and, if addressed, whether they are handled according to United Nations standards.

(e(v)) Review presentation of recommended macroeconomic aggregates. TSA (2010, p 45) recommends the calculation of five 'main aggregates' in a TSA to characterize the size of tourism in its national economy: internal tourism expenditure; internal tourism consumption; gross value added of tourism industries (GVATI); tourism direct gross value added (TDGVA); and tourism direct gross domestic product (TDGDP). In addition to these main aggregates, TSA (2010) proposes calculation of four additional aggregates to aid understanding of the role of tourism in a national economy: tourism employment; tourism gross fixed capital formation; tourism collective consumption; and total tourism internal demand.

The TSA (2010, pp 31, 48) notes that elaboration of the last three of these aggregates requires 'overcoming specific conceptual challenges' and observes a 'lack of experience in defining operative solutions for the estimation of corresponding data by national statistical offices'. Consequently, TSA 2010 recommends that these aggregates are to only be considered at an advanced stage of TSA development. Overall, the correspondence between a country's TSA aggregates and the six TSA (2010) aggregates should be identified in assessing a TSA's conformance to United Nations standards. Table 5 presents our analysis of the correspondence of the USTTSA to the aggregates as specified by the United Nations.

Table 5 indicates that the United Nations TSA standards require five main demand and supply aggregates and one for employment. The USTTSA, using different titles, presents four of these aggregates (disregarding tourism direct gross domestic product) and five more aggregates not identified by the United

Table 4. Special issues in TSA Elaboration and USTTSA compliance.

TSA 2010 chapter, section number, special issue	Elaboration	USTTSA treatment
2.B.3.1. Tourism Consumption as intermediate consumption of producers	Spending on business trips by household members is included in Tourism Consumption but not in household consumption expenditure in the National Accounts.	Compliance in full
2.B.3.2. Services provided within the household for benefit of its members	The increase in household consumption from hosting a visitor should be included in Tourism Consumption.	Household consumption relating to hosting visitors is not included
2.B.3.3. and 3.B.1.1. Housing services provided by vacation homes on own account	A vacation home provides Tourism Consumption whether owner occupies it or not.	Included in the USTTSA 'Traveler Accommodations' product category but not separately identified (Kern and Kocis 2007, p. 20)
2.B.3.4. Tourism single-purpose consumer durable goods	Include purchase costs of relatively high value durable goods used exclusively or almost exclusively on tourism trips.	Not included
3.B.1.2. Timeshares and other types of innovative vacation home ownership	The rental value of timeshare periods and similar types of fractional lodging ownership additional to a household's primary residence is included in Tourism Consumption of the household that owns it; maintenance expenses, management fees and property taxes are not included.	Not clearly specified
3.B.2. Travel agencies, tour operators and other providers of reservation services	Value of travel agency reservation services and tour operator packaging services are included in Tourism Expenditure as separate items; intermediate tourism services must be broken out and distributed to appropriate Visitor Expenditure categories.	Compliance in full
3.B.3. The meetings industry	The expenditures of associations, corporations and others to organize and conduct meetings and conventions is not included in Tourism Expenditure.	Compliance in full

Source: Authors and TSA (2010).

Table 5. United Nations TSA macroeconomic aggregates and USTTSA conformance.

TSA standard aggregate	USTTSA aggregate
Internal tourism expenditure	Internal tourism [<i>sic</i>]
Internal tourism consumption	Tourism demand
Gross value added of tourism industries	Value added by tourism industries
Tourism direct gross value added	Tourism value added
Tourism direct gross domestic product	–
Employment in the tourism industries	Total employment
–	Direct tourism employment
–	Direct tourism output
–	Total tourism-related output
–	Real tourism output
–	Total tourism related employment

Note: A dash signifies that the equivalent aggregate is not found in the source document.

Source: Authors based on TSA (2010, pp 44–50) and Zemanek (2013).

Nations. An additional point of USTTSA non-conformance to United Nations standards is that USTTSA value added is stated in producers' prices, not basic prices as specified in TSA (2010, p 32). Such a departure from its standards is permitted by the United Nations (TSA, 2010, p 32) but should be clearly identified as such.

It should be noted that TSA 2010 requires compiling the *direct effects* of tourism consumption on value added and GDP in the TSA and excludes estimation of indirect and induced effects on the economic system (TSA, 2010, p 3). However, the USTTSA adds the *indirect effects* of tourism consumption on industry value added to obtain 'total tourism-related output' and on industry 'direct tourism employment' to obtain 'total tourism-related employment' (Zemanek, 2013, p 39). These additions are likely to prevent legitimate comparisons of the USTTSA with other countries' TSAs.

(*e(vi)*) *Review presentation of the 10 TSA tables.* TSA (2010) proposes 10 tables for complete TSA elaboration. The purpose of designating the content and format of TSA tables is to promote homogeneity among countries (TSA, 2010, p 31) and permit valid comparisons. Only 8 of the 10 tables of TSA (2010) are currently considered a priority by the United Nations since 'the compilation of Table 8, Tourism gross fixed capital formation of tourism industries and other industries, and Table 9, Tourism collective consumption by product and level of government, require not only the gathering of data from types of sources that usually are not part of countries' systems of tourism statistics, but also the overcoming of some 'specific conceptual challenges' (TSA, 2010, p 31). The USTTSA does not attempt to present these two tables, so only eight standard TSA tables (Tables 1–7 and Table 10) are considered here.

In assessing USTTSA compliance with the tables specified in TSA (2010), we suggest recognizing three distinct levels of compliance. The top and most preferred level is where a table conforms completely or nearly completely in content and format to its counterpart in TSA (2010). The second level is a table that presents much the same content as the standards require, but does not match the standards in structure. Such tables display the content and show at

Table 6. Conformance of USTTSA tables to required TSA tables.

United Nations standard TSA table	Level 1: USTTSA table fully conforms	Level 2: USTTSA table partially conforms	Level 3: Required table not presented
Table 1. Inbound tourism expenditure by products and classes of visitors		Table 3. Demand for Commodities by Type of Visitor	
Table 2. Domestic tourism expenditure by products, classes of visitors and types of trips		Table 3. Demand for Commodities by Type of Visitor	
Table 3. Outbound tourism expenditure by products and classes of visitors			X
Table 4. Internal tourism consumption by products		Table 3. Demand for Commodities by Type of Visitor	
Table 5. Production accounts of tourism industries and other industries (at basic prices)	Table 1. Production of Commodities by Industry ^a		
Table 6. Total domestic supply and internal tourism consumption (at purchasers' prices)		Table 4. Output and Value Added by Industry. Table 2. Supply and Consumption of Commodities. Table 3. Demand for Commodities by Type of Visitor	
Table 7. Employment in the tourism industries		Table 7. Employment by Industry	
Table 10. Non-monetary indicators			X

Note: ^aAt producers' prices.

Source: Authors based on TSA (2010, pp 51–72) and Zemanek (2013).

least one row or column equivalent to a table in TSA (2010). The third level identifies TSA tables required by the United Nations but not presented in a country's TSA. As displayed in Table 6, The most recent presentation of USTTSA results displays 8 TSA tables, not counting synthetic tables that present results in the form of time series (Zemanek, 2013).

As Table 6 shows, only one of the USTTSA tables conform closely to United Nations specifications, while four conform partially to five standard TSA tables. Two standard TSA tables are missing altogether from the USTTSA. Finally, the USTTSA presents three tables that are not required by TSA (2010): output by

commodity (USTTSA Table 5), employment and compensation of employees by industry (USTTSA Table 6) and real tourism output (USTTSA Table 8) (Zemanek, 2013).

(f) Develop recommendations for bringing the country's TSA into closer conformance with the United Nations standards

The full report of our assessment of the USTTSA presents 55 individual recommendations grouped as follows (Frent and Frechtling, 2013, Annex 8):

- travel and tourism statistics: 24 recommendations;
- travel and tourism satellite account: 31 recommendations.

Space is lacking to present these here, so the reader is directed to access the full report (Frent and Frechtling, 2013).

Conclusion

The TSA is a powerful tool for measuring and analysing the role of tourism in a national economy. It is unique among methods of assessing tourism in that its concepts, definitions, input data, structure and output are specified in two documents published by the United Nations and endorsed by other authoritative international agencies. These documents define what a TSA is, how it should be constructed and how its results should be interpreted in relation to systems of national accounts.

In principle, all countries producing a TSA or planning a TSA exercise must conform to the United Nations standards presented in TSA (2010) and IRTS (2010) in order to truthfully claim to have such an account. While more than 60 countries have conducted a TSA exercise in the last two decades, there is no evidence that these efforts conform to the United Nations standards or to each other. A number of these accounts were compiled prior to the publication of the two authoritative United Nations documents, suggesting that compliance with current standards is quite lacking.

This study finds that the TSA system of a major industrial nation elaborated annually since 1998 does not conform very closely to the United Nations standards. The authors developed an objective programme for assessing such conformance and applied it to the USTTSA, finding a number of areas where it does not follow United Nations standards and documenting these discrepancies in a written report (Frent and Frechtling, 2013).

The authors sent copies of their report to officials in the U.S. government responsible for compiling the USTTSA and discussed it with them in a workshop setting. The report was favourably received and the officials committed to examining how the discrepancies found could be corrected in future editions of the USTTSA and what resources would be required. Consequently, we conclude that the programme for ascertaining consistency of a given TSA to the United Nations standards presented herein is comprehensive, successfully identifies discrepancies and recommends ways to resolve them.

This study of one nation's TSA conformance with the United Nations standards was conducted independently of those compiling the accounts. This

required the auditors to analyse the USTTSA in all of its concepts, definitions, input data, structure and output relative to the United Nations standards. The assessment was aided by complete answers from compilers in response to our inquiries on specific points. While we have no proof, we believe such an independent exercise identified more points of non-compliance of the USTTSA with United Nations standards than an internal evaluation by the compiling staff would have. Consequently, we suggest that such TSA audits be conducted by organizations outside the TSA-compiling agencies. Eurostat and OECD seem particularly well suited to produce such assessments for their member countries. For those countries not members of either of these organizations, the UNWTO might establish a TSA Conformance Assessment Program staffed by professionals with the requisite skills to produce such assessments on demand.

Such efforts to improve international conformance of TSAs to the United Nations standards will be aided by UNWTO's current development of an 'International Recommendations for Tourism Statistics 2008 Compilation Guide'. This guide will provide detailed recommendations on how to collect and present national tourism statistics in conformance with IRTS (2010) and country case studies.

We hope this programme and experience will encourage national income accountants, tourism researchers and others in countries with current TSAs to examine their own systems and make appropriate changes to improve conformance to United Nations standards. These efforts can only improve our understanding of the contribution tourism makes to national economies throughout the world.

Further research

While we have identified departures of the USTTSA from United Nations standards, we did not attempt to quantify how much individual elements of non-conformance may bias TSA results. For example, how much does inclusion among tourism industries of three industries that never sell directly to visitors bias USTTSA aggregates? And what is the net bias introduced by USTTSA failure to conform to the United Nations definition of 'visitor'? We expect that some of the USTTSA departures from the United Nations standards will produce minor biases while others will have substantial distorting effects on computing tourism macroeconomic aggregates.

The TSA conformance assessment programme detailed above can also be applied to two national TSAs, to see what adjustments must be made to achieve comparability in methodology, definitions and results between them. This could be extremely beneficial to neighbouring countries sharing many of the same origin markets and types of visitors due to their proximate geography.

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