

Methodology for the production assessment of tourism industries¹

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Abstract

This paper deals with the illustration of the methodology developed within Istat National Accounts Directorate in order to assess the production account of tourism industries and other industries, and it is part of a wider process of implementation for the first Italian Tourism Satellite Account (ITSA). The approach adopted for the compilation of the Italian TSA Table 5 (IT5), this latter being one of a complete set of 10 TSA tables, processes data starting from the format provided by the Italian Supply and Use tables (ISUT). Such procedure has been gradually developed by means of a set of worksheets hierarchically organized in a modular and additive structure finalized to the automatic compilation of IT5.

Keywords: National Accounts (NA); Supply and Use Tables (SUT); Tourism Satellite Account (TSA); Italian Table 5 (IT5); class of economic activity; tourism industry; worksheets.

Executive summary: the first Italian TSA (ITSA) is the result of an inter-institutional collaboration attended by the most important Italian institutions involved in tourism field and research⁵, conducted under the technical coordination of the Department of Italian National Accounts.

This work refers exclusively to the production accounts of Italian tourism industries and other industries, (Table 5 of a TSA), and is articulated as follows:

- in paragraph 1: a brief reminder about the principal purposes served by a TSA;
- in paragraph 2: key concepts of TSA;
- in paragraph 3 and 4: notes on the structure of the ITSA and the IT5;
- in paragraph 5: and its subsections: sources used and methodology developed to assess production account of Italian tourism industries;
- in paragraph 6: and its subsections: special issues; intermediate consumption; value added;

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- in paragraph 7: description of the integrated set of worksheets for compilation of IT5.

Introduction

The central framework of National Accounts (NA) provides a suitable structure for an adequate depiction of the several aspects which characterize economic systems, but in some cases working within the central framework is not sufficient in order to make apparent and to describe in more depth aspects that are hidden or surface only in a limited number of points. It is necessary to develop satellite accounts in which to accommodate widened concepts and detailed accounts that would have overburdened the central ones.

There are two general types of satellite accounts: those that basically expand and or organize the detail in the core accounts and those that go outside of the core altogether by expanding their conceptual boundary⁶.

The first type is particularly suitable for analyzing specific economic sectors as tourism. In it the basic intention is not to use alternative economic concepts, but simply to focus on a certain field or aspect of economic and social life in the context of National Accounts. In this context Tourism Satellite Account (TSA) is an extension of the NA system. As such, it highlights the economic transactions that are recorded in NA, but which are related specifically to tourism. In particular, the TSA identifies and emphasizes the transactions between visitors in an economy and the industries that serve them⁷.

The TSA shares the basic concepts and definitions concerning the different aspects of tourism provided by the 2008 *International Recommendations for Tourism Statistics (IRTS2008)*: different forms of tourism; the different main purposes of a tourism trip; the concept of tourism expenditure and its different categories related to the different forms of tourism; the different classifications that can be used in the analysis of tourism.

The structure of the TSA has been conceived aligned and integrated with the international macroeconomic frameworks provided by SNA93 and ESA95, and in particular with the structure of the "Supply and Use" tables (SUT) of National Accounts.

The result of such tight integration is the international manual for compilation of a TSA, *2008 Tourism Satellite Account (TSA): Recommended Methodological Framework – TSA:RMF (TSA:RMF2008)*, in which the setting up of a tourism satellite account is guided step by step.

The work presented in this paper is part of the implementation process for the first Italian TSA (ITSA) and is specifically referred to the compilation of the Italian Table 5 (IT5), regarding the production account of tourism industries and other industries. In this context the focus of the work is thus the measurement of tourism sector using the supply side approach, namely identify the economic activities which serve the tourism demand and estimate their production.

The content of this paper will be organized in the explanation of the methodology developed to estimate the production account of Italian tourism sector, and in the illustration of the set of integrated worksheets prepared for a smooth and automatic compilation of IT5.

⁶ More details in System of National Accounts 1993 (SNA93); chapter XXI, par.21.45- and 21.46. pg. 614.

⁷ The concept of visitors and industries will be explained in the following.

The acronyms used in this paper are listed below:

BOP:	Balance of Payments;
CPC	Central Product Classification
ESA	European System of Accounts
IC and P2:	Intermediate Consumptions;
ISIC:	International Standard Industrial Classification of All Economic Activities;
GDP:	Gross Domestic Product
GVA	Gross Value Added
NA:	National Accounts;
NACE	Nomenclature d'activité de la Communauté Européenne
P1:	Production;
PT:	Package tours;
SBS:	Structural Business Surveys;
SNA	System of National Accounts
SUT:	Supply and Use Tables;
T5:	Table 5 of TSA: production accounts of tourism industries and other industries;
TA:	Travel Agencies;
TO:	Tour Operators;
TSA:	Tourism Satellite Account;
TVA:	Tourism Value Added;
VATI:	Value Added of Tourism Industries;

1. Role of the Tourism Satellite Account

The implementation of a TSA implies a “*detailed analysis of all aspects of the demand for good and services which might be associated with tourism; the establishment of an actual interface with the supply of such goods and services within the economy of reference; the highlight of how this supply interacts with other economic activities, using the SUT as reference*”⁸.

A TSA serves a number of purposes. First and foremost, it provides a coherent framework within which to integrate, reconcile, organize and analyze the variety of economic statistics relevant to tourism, both on the supply side (i.e., production and costs of tourism industries; level of use of labour; investments in productive capital; role of Public Administration) and on the demand side (i.e., different types of tourisms; type of goods and services on demand). This is the more important the more tourism is not an explicitly identified industry within the statistical system as it cross-cuts several industries⁹. In a TSA

⁸ TSA:RMF2008, pg.2.

⁹ As already touched on when T7 and T10 has been introduced, the concept of tourism supply embraced by a TSA is other, and broader, than that typically understood in tourism statistics. In TSA the dimension of supply (the productive activities which provide products bought by tourists) takes shape after and according to the statement of the demand structure, which is made up by means of tourists expenditure's behavior.

tourism's various components are pulled together and articulated into analytical tables; as such, it explicitly defines the tourism industry within the statistical system.

A complete TSA is composed by 10 tables, but the full compilation of the first 6 is considered enough to obtain a measure of the magnitude of tourism sector within the whole national economy. Each table is useful as individual evaluation element, as they collect detailed information on a specific aspect of tourism.

The whole concept of tourism internal demand is surrounded in Tables 1-4 and tables 8-9. The first 3 tables estimate tourism consumption, respectively inbound (T1), domestic (T2) and outbound (T3). Internal tourism consumption (T4) is the sum of T1 and T2 and represents the quantitative basis for comparison with the supply side. Tables 8 and 9 contribute to define a broader concept of total tourism internal demand, and refer to tourism gross fixed capital formation of tourism industries and other industries (T8) and tourism collective consumptions (T9).

Tables 5 (T5) and table 7 (T7) depict the TSA's concept of tourism supply. T5 describes the production account of tourism industries and other industries and constitutes the preliminar step for the calculation of tourism value added (TVA), one of the most important tourism indicator produced in the context of a TSA. T7 shows, for each tourism industry, the number of establishments and the level of employment, this latter in different measures: jobs, hours works, full-time equivalent jobs.

Nevertheless, the TSA would be an underutilized tool without an analysis of the interrelation between tourism supply and demand. In order to permit such dialogue¹⁰ a common room is necessary: Table 6, which provides the suitable conceptual and methodological environment by reproducing the structure of the "Supply and Use" tables of NA.

Table 10 provides a set of non monetary indicators (number of trips, types of accommodation, modes of transport, number of establishments¹¹) that are relevant to specify the characteristics of the economic variables. In this context A TSA offers a link bridge between economic data and non-monetary information on tourism.

Being rooted in the System of National Economic Accounts a TSA provides an economic measure of the importance of tourism in terms of expenditures, gross domestic product, value added and employment which are comparable with similar measures referred to the overall economy of reference, to one or more productive sectors, to different regions, countries or international areas of interest.

In general terms, a TSA serves to define what are considered to be the tourism products

¹⁰ Both in the restricted, but "core", concepts of internal tourism consumption (T4) and of production of tourism industries and other industries (T5).

¹¹ Both T7 and T10 require the number of establishments for tourism industries. For Italian T7 data source has been the Statistical Register of Active Enterprises (ASIA), which provided the number of establishments. Instead, T10 has gathered data from the monthly census survey "*Occupancy of tourist accommodation establishments*", conducted by Istat. For this latter survey is in force the Regulation on tourism statistics (EU) 692/2011, based on which the statistical units for collecting data from the supply side is the Local-Kind-of-Activity-Units (LKAU). The difference is substantial. An establishment is classified according to its main economic activity. Its eventual secondary activities surface only by means of LKAU. In the case of only one economic activity, the concept (and the number) of establishment and LKAU correspond; otherwise the same establishment can be composed by two or several LKAU according to the degree of diversification of its production. As a result, the number of establishments in IT7 and IT10 is quite different. A recent work presented by Italy at 12th Global Forum of Prague deals just about this issue. For details http://www.tsf2014prague.cz/assets/downloads/Paper%202.1_Francesca%20Petrei,%20Maria%20Teresa%20Santoro_IT.pdf.

and the tourism industries, and consequently helps to shape the development of tourism statistics.

Last, but not least, it must be stressed that a TSA *“as such only makes possible to measure the direct effects of consumptions on output and value added of tourism industries and other industries serving them”*¹². This means that tourism’s impact on the economy is not fully reflected in the TSA tables as any measurement of the indirect and induced effects are taken into consideration by a TSA¹³.

2. Key concepts of the TSA

The key elements crucial to define tourism sector are in some cases shared with other related frameworks, such as SNA and the Balance of Payments (BOP), in other are specific to tourism statistics.

For both SNA and BOP the concept of residency has been used to define a traveller, in the international context, as someone travelling outside his or her country of residence. This concept is also used in tourism statistics and TSA in order to distinguish the different forms of tourism (international and domestic).

However since tourism statistics are concerned with domestic as well as international tourism flows, the concept of “usual environment” is specific to tourism scope, where it is used as a defining condition, additional to that of residence, whether someone is a visitor to a place or not.

The usual environment is defined *“as the geographical area (though not necessarily a contiguous one) within which an individual conducts his/her regular life routines”*¹⁴. This concept plays a major role in tourism statistics and relates to the place where the individual lives and works or studies and includes any other places frequented. This notion is not precisely defined in the international standard, thereby allowing a country to apply the tourism concept on its own specifications¹⁵.

In the TSA people who are engaged in tourism are called visitors. By definition, not all travel is tourism, and not all travellers are visitors.

According to IRTS2008¹⁶ *“a visitor is a traveller 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. These trips taken by visitors qualify as tourism trips.”*

Visitors are a subset of a wider category of travellers, these latter being *“who moves between different geographic locations, for any purpose and many duration”*¹⁷. Visitors are

¹² TSA:RMF2008, Annex 6 pg.95.

¹³ Indirect effects regard the additional inputs required by tourism industries to other productive sectors in order to serve visitors. In addition, the increase of income distributed to the labor force and to the owners of productive capital resulting from incremental visitor demand also generates increased demand for goods and services through a rise in household consumption (induced effects). TSA:RMF2008, Annex 6 pg.95.

¹⁴ IRTS2008, par. 2.21.

¹⁵ *Tourism Satellite Accounts in the European Union, Volume 1, Report on the implementation of TSA in 27 EU. Member States – Luxembourg, 2009*

¹⁶ IRTS2008, pgg 9-10.

¹⁷ Ibidem.

further split in tourists and same-day visitors. The former are those who stay one or more nights away from home, while the latter are those who spend no nights away from home.

What makes tourism sector special “*is the temporary situation in which an individual in the capacity of consumer finds himself*”¹⁸. Being a visitor is a transient situation, related to a specific trip. Once the trip is over, the individual loses his/her condition of being a visitor and goes back to being a mere consumer.

This feature affects all aspects concerning tourism supply’s measurements in the context of TSA.

Indeed, in a TSA perspective tourism is “*a demand side phenomenon and refers to the activities of visitors, and their role in the acquisition of goods and services*”¹⁹. The notion of activity encompasses all that visitors do for a trip or while a trip, as long as he/she stays in the condition of visitors. As a result the definition of tourism expenditure and tourism consumption does not depend on the mere purchase of specific tourism good and services, but on the fact that the purchase has been made by a visitor, and not by a consumer.

In this context the supply side is consequently settled up through the identification of goods and services (products) bought by visitors and of the productive activities that provide those products, hence, not only accommodation services, as typically occurs in tourism statistics from the supply side, but several others.

The dependence of tourism supply structure on the behavior of the demand witnesses its main feature: being a crosscut sector. This characteristic distinguishes the TSA both at a conceptual and methodological level, and has impact on the implementation of T5.

3. The content of the production account of tourism industries (T5)

The supply side in tourism statistics is mainly represented by the accommodation industry. In this restricted depiction, tourism supply is entirely surrounded by the correspondent economic activities. According to the Italian classification of economic activities (ATECO2007), accommodation activities are contained in Division 55²⁰. However, for the purpose of a TSA, the concept of supply is much broader than that adopted in tourism statistics. Indeed, it includes all productive activities that provide the goods and services that visitors acquire.

Such supply takes place in TSA’s table 5²¹.

“*TSA Table 5 (T5) compiles the production accounts of tourism industries and other industries in accordance with the TSA-RMF classifications of industries and products*”²².

The structure of T5 is suitable to make explicit the relationship between productive

¹⁸ TSA:RMF2008; chapter. 1, pg.2.

¹⁹ TSA:RMF2008, pg.1.

²⁰ ATECO2007 is the national application of the European classification of economic activities (NACE), in its turn directly derived from international one (ISIC). In it accommodation services included in tourism statistics are individuated at Group level, in particular 55.1, 55.2 and 55.3.

²¹ As already mentioned, within the complete set of 10 tables of a TSA, T5 represents a crucial, but not the only one, element of the analysis of tourism from the supply side. Besides the T5, useful to estimate the production accounts of tourism industries and other industries, the other table supply-oriented is T7 concerning *employment in the tourism*. ITSA includes Table 7, not yet completed at the time this document was written.

²² TSA in the European Union, Vol.3, par.3.5, pg.41

activities and the supply of products, as it is mostly based on the format of matrix of production provided by SUT. The main purpose of T5 is to prepare and compile data on gross value added (GVA) for tourism industries and other industries by transforming the national production account into a TSA production account.

T5 is divided into three main sections and copies the format of national accounting matrixes, that is to say it refers both to economic activities (industries) and products (good and services).

The middle pane of T5 is the national matrix of domestic production derived from SUT. In this section production refers to all productive activities of the country, grouped according to the criteria of the TSA, and articulated according the international standard of tourism products²³. In T5 the total output corresponds to the total national production derived from NA, except for the differences attributable to the net assets of tour operators, which will be discussed in detail in section 6.1.

Below the matrix production, places the vector of intermediate consumptions, by industry but not by product. Even for intermediate consumption are valid the aforesaid equivalence and the exception with national economy.

The difference between production and intermediate consumptions yields the value added, that in T5 is equivalent to that of national economy at total level.

In accordance with the format established in SNA93, the production is required at basic prices; intermediate consumption at purchaser's prices; gross value added at basic prices.

In T5, as in NA matrix of production, the overall national economy is represented: what does make the difference is the perspective pursued. T5 constitutes a tool for a tourism analysis, in it industries and products are highlighted and embedded so as to bring out the tourism sector.

This difference affects not only the criterion for grouping and displaying industries and products in the frame of T5, but implies the need to develop a specific procedure to evaluate production (P1), intermediate consumptions (P2) and value added (VA) for each industry of T5²⁴.

For the analysis of production and production processes, the establishment is the most suitable unit from which to gather data for SNA as well as the TSA²⁵. In NA industries are classified according to the international classification of economic activities (ISIC²⁶). A industry is defined as a group of establishments that engages in the same of a similar kind of economic activity.

However, tourism is not an industry in this sense. Rather, tourism cuts across industries identified in ISIC because it is dependent on the consumer's purchases as a visitor. Moreover, because visitors purchase goods and services from many different industries, the TSA must identify and separate out the tourism output of each of them, regardless that the economic activities isolated at ISIC level is tourism related or not.

²³ See in the next section.

²⁴ See in the next.

²⁵ According to the Regulation on tourism statistics, the statistical unit for collecting data on the supply side is the local kind-of-activity unit. In particular, *a LKAU is the part of a KA5 which corresponds to a local unit*. See "Methodological manual for tourism statistics, v. 1.2", par. 2.1.2, pg. 56, Eurostat, 2012, - Luxembourg.

²⁶ In European Countries the classification adopted is the NACE, compatible with international one. For details see in the follow.

From a methodological point of view the compilation of T5 requires that two different approaches will be met. Firstly, in a supply perspective, production must be evaluated with reference to a selected tourism economic activities, identified at the recommended ISIC level of detail, regardless that their main characteristic output (tourist by definition) will be totally absorbed by visitors, and regardless that they may have non-tourism secondary activities which, however, will be included in their total production. This approach aims to isolate the only tourism economic activities in order to compose each tourism industry and, consequently, tourism sector as a whole.

Instead, in a demand perspective, what is necessary to consider is the act of acquisition of a product by visitors. This act marks as tourist a generic product, and it can be produced by tourism industries as well as by those non-tourism economic activities eliminated in the above industry-oriented perspective.

In order to take into account both needs, these two point of view were merged in the compilation process of IT5, and will be explained in detail in the next dedicated sections.

Within T5 the value added generated by the only tourism industries (VATI) is the most important indicator produced. For each tourism industry VATI refers to its total production, which may includes tourism or not-tourism products.

It should be stressed that none consideration on its actual tourist destination is yet included in the VATI. It is still a gross value added of tourism industries, and only a part of it will be allocated to satisfy the demand of visitors. Furthermore, being limited to the tourism characteristic industries, VATI doesn't emphasize the productive role performed by the rest of economic activities, whose total output may certainly comprise products which will directly serve tourists.

In contrast with the central framework of NA, where the supply of a commodity always equals its demand, in a TSA the supply of a tourism commodity usually exceeds tourism demand. This is because tourism supply includes the total production of a tourism commodity whether it is purchased by a visitor or not.

4. Framework of the ITSA from the supply side (IT5)

In a supply perspective, one of the most important issues is the description and measurement of the role of tourism in the supply of goods. Inasmuch tourism supply is understood as the direct provision to visitors of the goods and services that make up tourism expenditure, the first object is to define tourism products, and then the productive activities that provide them.

Although visitors can make expenses in any product category, in order to facilitate international comparisons and to construct the accounting tourism systems, the international methodologies emphasize those product categories that are more closely related to tourism, i.e. accommodation, transport, travel agency services, and so on.

In accordance to the criteria established in the SNA93²⁷, international manuals²⁸ identify two kind of tourism specific products:

- *characteristics products*: those whose tourism expenditure on the product should represent a significant share of total tourism expenditure/supply of the product. That is to say; without tourism they would cease to exist at a significantly level. Characteristics products are made of two subcategories, according to their level of international comparison:
 - *internationally comparable products*
 - *Country-specific tourism characteristic products*
- *connected products*: those whose tourism expenses are significance and recognized, although their link to tourism is limited worldwide. Consequently, a list of such products will be Country-specific.

Besides tourism specific products, international standards foresee *non tourism-related consumption products*, namely, all other consumption of goods and services that do not belong to the previous categories²⁹.

Indeed, bearing in mind the role of visitor's behavior in the categorization of tourism products, and taking into account that what makes tourism product is its acquisition by a visitors, all kind of them are potentially tourism products, and they actually become as a such when purchased by visitors.

A first classification of products, according to their categorization as internationally comparable tourism characteristic, led to a long list provided by *IRTS:2008*³⁰. Identified in CPC³¹ they have been grouped at 4 digits level in a further, recommended list of tourism characteristic products³², grouping by main categories, as shown in Table 1.

This second list defines the core of tourism characteristic demand and represents the preparatory step for the subsequent identification of economic activities involved in the production of such products (namely, to outline the boundary of the supply).

As occurred with the list of characteristic products, a list of tourism characteristic activities is defined³³, that is to say, those that typically produce tourism characteristic products. According to the correspondence between the international classifications of products (CPC) and productive activities (ISIC), and starting from the aforementioned list of products, *IRTS:2008* has listed tourism characteristic industries, that too appear in Table 1, grouping in main categories.

²⁷ Chapter XXI, pg.615.

²⁸ *IRTS:2008*, pg. 47 and *TSA:RMF2008*, pg. 28.

²⁹ *Ibidem*.

³⁰ *IRTS:2008*, Annex 2, pgg.115-118.

³¹ Central Product Classification.

³² *IRTS:2008*, Annex 4, pgg.128-139.

³³ *IRTS:2008*, Annex 3, pgg.119-127.

Table 1 – List of categories of tourism characteristic consumption products and tourism characteristic activities (tourism industries).

PRODUCTS	ACTIVITIES/INDUSTRIES
1. Accommodation services for visitors	1. Accommodation for visitors
2. Food and beverage serving services	2. Food and beverage serving activities
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 activities
9. Cultural services	9. Cultural activities
10. Sports and recreational services	10. Sports and recreational activities
11. Country-specific tourism characteristic goods	11. Retail trade of country-specific tourism characteristic goods
12. Country-specific tourism characteristic services	12. Country-specific tourism characteristic activities

This ensemble of activities limits the TSA from the perspective of the supply and defines the tourism industry as a whole.

In principle, the mere observation of the aforementioned list and criteria for specialization can define the characteristic activities. Nevertheless, it is necessary to point out a few aspects, already touched on in the previous paragraph.

In supply side statistics, establishment, (the statistical unit used to compose the branch of economic activity in SNA as well as in TSA) are classified according to their main activity, which in turn is determined by the activity that generates the most value added.

As a consequence, the grouping of all establishments with the same main activity which is one of the tourism characteristic activities constitutes a tourism industry.

Nevertheless, an establishment can develop a main activity and perform one or several secondary activities. Therefore, on the one hand, characteristic activities that specialize on tourist products develop activities that are not exclusively or mainly tourist-based.

However, on the other hand, characteristic establishments may have as their main clients consumers other than visitor³⁴. Nevertheless, these activities will be included when referring to the tourism industry, in other word, when considering the supply in the TSA's perspective.

Furthermore, it must be careful when transpose international standards within the national economic frame. Indeed, for Italian Food and beverage tourism industry there is no perfect overlapping between the recommended industry and the Italian one in terms of class of economic activities included – See par. 5.

³⁴ A typical example are restaurant and other food and beverage industries.

All these aspects have affected and sometimes made difficult the implementation of the methodology for compilation of IT5.

With reference to Table 1, both for products and industries, categories 1 to 10 comprise the core for international comparison. Instead, the two latter are Country-specific, where category 11 covers tourism characteristic goods and the corresponding retail trade activities; category 12 refers to Country-specific tourism characteristic services and Country-specific tourism characteristic activities³⁵.

ITSA is articulated in 11 tourism characteristic categories, both for products and for industries. The first 10 follows those recommended, so as to permit international comparison. Instead, for Country-specific categories ITSA deviates from standard requirements.

With reference to the products, the following Table 2 shows the correspondence between TSA and ITSA for T5. In IT5 the two latter tourism characteristic categories are grouped in a single item, also inclusive of connected products. Indeed, “*Other consumption and non consumption products*” is a residual category, required in order to complete the national production. For IT5 it includes both consumption and non consumption residual products.

As far as economic activities are concerned, the correspondence in terms of main characteristic categories is almost perfect³⁶ – see Table 3. Even in this case, the same applies as for the categories 11 and 12 of products.

³⁵ IRTS:2008, pgg. 29-30.

³⁶ The alignment with international standards in terms of main categories of characteristic tourism industries doesn't mean that the same equivalence is reproduced in terms of ISIC at 4 digits level of economic activities, as suggested in Annex 3 of IRTS:2008. For Italy this discrepancy concerns the tourism industry of Food and beverage.

Table 2 - Tourism characteristic products and other products in international and Italian T5

INTERNATIONAL T5	ITALIAN T5
A. Consumption products	-
A.1 Tourism characteristic products	A.1 Tourism characteristic products
1 Accommodation service for visitors	1 Accommodation service for visitors
2 Food and beverage serving services	2 Food and beverage serving services
3. Railway passenger transport services	3. Railway passenger transport services
4. Road passenger transport services	4. Road passenger transport services
5 Water passenger transport services	5 Water passenger transport services
6 Air passenger transport services	6 Air passenger transport services
7 Transport equipment rental services	7 Transport equipment rental services
8 Travel agencies and other reservation services	8 Travel agencies and other reservation services
9 Cultural services	9 Cultural services
10 Sports and recreational services	10 Sports and recreational services
11 Country-specific tourism characteristic goods	11 Country-specific tourism characteristic products and connected products
12 Country-specific tourism characteristic services	-
A.2 Other consumption products	
B. Non consumption products	A.2 Other consumption and non consumption products
B.1 Valuables	
B.2 Other non consumption products	
TOTAL OUTPUT	TOTAL OUTPUT

Table 3 – Tourism characteristic industries and other industries in international and Italian T5

INTERNATIONAL T5	ITALIAN T5
Tourism characteristic industries	Tourism characteristic industries
1 Accommodation for visitors	1 Accommodation for visitors
2 Food and beverage serving industry	2 Food and beverage serving industry
3 Railway passenger transport	3 Railway passenger transport
4 Road passenger transport	4 Road passenger transport
5 Water passenger transport	5 Water passenger transport
6 Air passenger transport	6 Air passenger transport
7 Transport equipment rental	7 Transport equipment rental
8 Travel agencies and other reservation services industry	8 Travel agencies and other reservation services industry
9 Cultural industry	9 Cultural industry
10 Sports and recreational industry	10 Sports and recreational industry
11 Retail trade of country-specific tourism characteristic goods	11 Retail trade of country-specific tourism characteristic goods and other non specific goods
12 Country specific tourism industries	-
Total	Total
Other Industries	Other Industries
Output of domestic producers	Output of domestic producers

5. Methodology for implementation of Italian T5

The whole process of collecting, preparing and processing the information required (and available) to support compilation of IT5 was developed step by step as follows:

- recognition of international requirements – mainly IRTS:2008 and TSA:RMF2008 – and their concrete application within the Italian accounting context;
- analysis of available sources (ISUT and other INA data; basic statistics deriving from SBS; administrative data);
- assessment of Italian tourism industries' production;
- treatment of special issues;
- assessment of intermediate consumptions and value added;
- automated fulfillment of IT5 by means of a set of integrated worksheets.

The first step has been examined in the previous paragraph with reference to the determination of tourism products and tourism industries, according to the international recommendations. In the following the remaining will be discussed.

5.1 Data sources

ISUT are the primary data source for the implementation of Italian T5. They consist in matrices breakdown by branch of economic activity and by product. Therein, a detailed picture is displayed about: the supply of goods and services, both of internal and of imported origin; the use of goods and services for intermediate and final consumptions; the components constituting the value added generated by the branches. At a national level of analysis they highlight the connection between economic activities and products, by means of the description of internal production's processes and products' related transactions.

As shown in Figure 1, production and intermediate consumptions matrices provide data by branch and by product. Accordingly, an accurate outlining of Italian tourism sector strictly depends on the level of detail of the available Italian SUT.

For the first IT5 both products and activities have been traced starting from the highest level of detail provided by the Italian SUT, namely 106 branches of economic activities and 266 items of products (format not disseminated), in which both principal and secondary activities were distinguished.

First of all, Italian tourism industries have been identified in NA's production matrix after excluding from the scope of analysis those activity groupings which clearly did not include any tourism industry. For each tourism industry so individuated, total production, inclusive of both main and secondary products, has been estimated by merging the two perspective industry/product³⁷, that is to say by conducting a cross analysis of the production's matrix content.

It is worth remembering that that selection does not lead to an equivalence with tourism consumption, in other words, with the demand estimates. What will guide to a pure tourism production will be its comparison with the level of tourism demand.

Figure 1– Simplified scheme of Italian production matrix

PRODUCTS	Branches of economic activity						Total
	1	2	...	i	...	N	
1	$p_{1,1}$	$p_{1,2}$	...	$p_{1,i}$	...	$p_{1,N}$	$P_{1.}$
2	$p_{2,1}$	$p_{2,2}$	...	$p_{2,i}$	...	$p_{2,N}$	$P_{2.}$
...
j	$p_{j,1}$	$p_{j,2}$	...	$p_{j,i}$	...	$p_{j,N}$	$P_{j.}$
...
M	$p_{M,1}$	$p_{M,2}$	...	$p_{M,i}$	...	$p_{M,N}$	$P_{M.}$
Total	$P_{.1}$	$P_{.2}$	...	$P_{.i}$	...	$P_{.N}$	$P_{..}$

³⁷ See par. 3, pg. 8.

Besides ISUT, a precise cut of the boundary of tourism production and intermediate consumptions (IC) required additional basic data sources. Namely:

- basic information on market component's production³⁸ and IC, available by *class* of economic activity (4 digits level), deriving from SBS;
- NA's employment data, available up to 5 digits level, corresponding to the *category* of Italian classification of economic activities;
- information base on *non market* component's production³⁹ (General Government), available up to 5 digits level, corresponding to the *category* of Italian classification;
- data concerning household final consumptions;
- administrative source.

5.2 Selection of tourism industries and products

The approach followed for the selection of tourism industries and products for IT5 is a *bottom-up*: they have been traced starting from the highest level of detail provided by Italian SUT structure and by SBS statistics.

As mentioned, Italian SUT has provided a good level of detail both for products (branches of homogeneous production) and for branches of economic activities. Such articulation allowed to extract with relative ease those branches and product relevant for tourism.

However, the branch of National Accounts, even if inclusive of tourism activities, can hardly be entirely overlapped to the corresponding tourism industry as understood in TSA, as the scope of a TSA is different and consists in grouping economic activities in a tourism logic. Therefore, after a first screening of the NA's branches, their analysis has been developed in three different steps using basic data provided by SBS surveys. For each selected branch from ISUT relevant for IT5, the process has been as follows:

- breakdown of each branch in its *classes* of economic activity – see column 2, Table 4;
- exclusion of all those *classes* in accordance with the NA's grouping concept but not relevant for the IT5's industry concept – see column 3 Table 4;
- composition of tourism industry by means of a new criterion of grouping, based on the selection of the tourism *classes* – see column 4 Table 4.

Table 4 shows, firstly, as the overlapping between *industry* (TSA) and *branch* (NA), in terms of number of *classes*, is not common. Furthermore, the different grouping criteria used in National Accounts and in T5 are based on different logics, so to make possible to split a *branch* into more than one tourism *industry* – e.g. branch n. 84 “*Renting and operating leasing activities*”, involved in two different tourism industries – 7 and 10 (Table 4).

³⁸ Market production is defined as that referring to goods and services for sale, mostly inclusive of products sold at economically significant prices.

³⁹ Non market production is defined as that referring to goods and services not for sale, mostly inclusive of products free of charge or sold at non economically significant prices.

The content of Italian tourism industries in terms of class of economic activities is almost totally aligned with international standards. However, specific considerations about the Food and beverage's industry have led to a slight deviation

The class of economic activity 55.29 is excluded in IT5 but included in international T5. During the work of IT5's implementation, an in-depth analysis of the correspondence between products/activities has been carried out. Crossing information from the supply and demand side it appears clear that IRTS2008 –Annex 2 - has specified that the inclusion of product CPC 63399 “*Other food serving services*” is justified when it is attributable to activities relating to a “*food provided by refreshment stands, fish-and-chips stands, fast-food outlets without seating, take-away facilities, etc., ice-cream parlors and cake serving places, vending machines, motorized or non-motorized carts, etc.*”⁴⁰. In the Italian statistic context, these services are related to activities included in the class 56.10 of Italian classification (ATECO), already included in the valuation of tourism industry, as well as in the class 47.81, concerning the “*Retail sale via stalls and markets of food, beverages and tobacco products*”. The United Nations defines the product 63399 as related to activities carried out in class of economic activity 56.10, as in the Italian case, and in class 5629, excluded in IT5.

On the basis of these analysis it was considered that the tourist part relating the product 63399 could have been attributed to the class 56.10.

Unlike that for activities identification's process, that for products has suffered from the lack of basic information. This has meant that it has been possible to work only using the detailed articulation provided by Italian SUT.

This lack of basic data for products has compromised the level of fineness of the production estimate process in the context of IT5, but didn't affect the measurement of the role of tourism sector as a whole within the national economic system.

Indeed, in general terms, any estimating process hides the risk of over or under estimation. So, for some tourism industries, as well as for some products, total output could be overestimated due to the “gross” content of the basic information. However, regardless the risk of over or under estimation, in TSA the total supply of a commodity usually exceeds tourism demand. In T5 the total domestic supply by product is estimated, but part of it will be excluded from tourism consumption and will be destined to the satisfaction of non-tourism demand. Indeed, as already stated, visitors are a subset of consumers, and a very few products are totally tourism-oriented⁴¹.

The gross content of production provided by T5 will be adjusted in a tourism use only when compared with internal tourism consumption, namely in T6.

In the following Table 5 are listed the items of products derived from INA which led to the corresponding tourism products.

⁴⁰ IRTS:2008, par. 5.27, pg. 50.

⁴¹ Perhaps, even travel agency's services can be bought by a consumer, and not by a visitor, albeit the tourism share of this product can be 100%. In case of change of usual environment, for example, the transport service purchased in a TA should not be considered tourism expenditure, since the purpose of the trip is not tourist.

Table 4 – Derivation of tourism industries (IT5) from branches of economic activities (ISUT*)

INA'S SELECTED BRANCHES OF ECONOMIC ACTIVITIES	ISIC. REV. 4 CODE – CLASSES INCLUDED IN THE SELECTED BRANCHES	ISIC. REV. 4 CODE – CLASSES INCLUDED IN TOURISM INDUSTRIES	IT5 TOURISM INDUSTRIES
61- Accommodation	5510-5520-5530-5590	5510-5520-5530-5590	
75- Buying and selling of real estate and real estate activities for third parties	6810-6831-6832	6810-6831-6832	1- Accommodation for visitors
76- Rental and management of properties owned or leased	6820	6820	
62- Food and beverage serving activities	5610-5621-5629-5630	5610-5630	2- Food and beverage serving activities
54- Railway transport	4910-4920	4910	3- Railway passenger transport
55- Other land passenger transport	4931-4932-4939	4932-4939	4- Road passenger transport
57- Maritime and inland water transport	5010-5020-5030-5040	5010-5030	5- Water passenger transport
58- Air transport	5110-5121-5122	5110	6- Air passenger transport
84- Renting and operating leasing activities	7711-7712-7721-7722-7729-7731-7732-7733-7734-7735-7739-7740	7711	7- Transport equipment rental
86- Services activities of Travel Agencies, Tour Operators and related reservation services and activities	7911-7912-7990	7911-7912-7990	8- Travel agencies and other reservation services activities
97- Creative, arts and entertainment activities	9001-9002-9003-9004	9001-9002-9003-9004	9- Cultural activities
98- Libraries, archives, museums and other cultural activities	9101-9102-9103-9104	9102-9103-9104	
84- Renting and operating leasing activities	7711-7712-7721-7722-7729-7731-7732-7733-7734-7735-7739-7740	7721	
99- Lotteries, betting and casinos related activities	9200	9200	10- Sports and recreational activities
100 – Sports, amusement and recreation activities	9311-9312-9313-9319-9321-9329	9311-9319-9321-9329	

*according to the articulation in 106 branches.

Table 5 – Derivation of tourism products (IT5) from branches of homogeneous production (ISUT*)

SELECTED PRODUCTS RELEVANT FOR TOURISM	IT5 PRODUCTS
194 - Hotel services and similar	
195 - Other accommodation services	
215 - Sale of real estate services with own property made services	
216 - Real estate services for third parties	1 - Accommodation services for visitors
217 - Administration services and property management for third parties	
218 - Real residential housing services	
219 - Imputed residential housing services	
196 - Food and beverage sales services	2 - Food and beverage serving services
175 - Interurban railway passengers transport services	3 - Railway passenger transport services
178 - Other land passenger transport services	4 - Road passenger transport services
184 - Shipping, cabotage and inland water passengers transport services	5 - Water passenger transport services
187 - Air transport services of passengers	6 - Air passenger transport services
233 - Services of renting and leasing of consumer goods for recreation and leisure	7 - Transport equipment rental services
237 - Travel agencies services	
238 - Tour Operators services	8 - Travel agencies and other reservation services
239 - Other reservation service and related services	
254 - Library, archives, museums and other cultural services	9 - Cultural services
255 - Creative, art and entertainment services	
256 - Services relating to gambling	
257 - Management services of sports arenas and sports facilities	10 - Sports and recreational services
258 - Sports entertainment and recreation services	

*according to the articulation in 266 products

5.3 Evaluation of production of tourism industries

As previously mentioned, by highlighting the tourism perspective IT5 represents a different way to display the national economy, both in its *market* and *non market* components.

The procedure of assessing the production of tourism industries required a different way to proceed, depending on which concerned the *market* component or *non market* component.

As will be discussed in the following paragraphs, *market* component has been reconstructed starting from basic data at the highest level of detail available (*class* of

economic activity) and through appropriate methodologies to bring coherence to the basic data with the national constraint.

Instead, for *non-market* component an overall evaluation has been carried out in order to establish the share of this production – related to the Government institutional units – within the total economy.

5.3.1 *Evaluation of market production*

In most cases, availability of basic data by *class* of economic activity allowed to identify those relevant for tourism industries, and consequently to exclude non-tourism *classes*. Whereas higher level of detail needed, employment's basic data, provided at 5 digits level of the Italian's classification of economic activity, was used as splitting indicator of *class*'s production. In one case the lack of basic data up to the 6 digits of Italian classification resulted in the inability to exclude that part of production related to non-tourism activity⁴².

The methodology below explained refers exclusively to the market component of Italian production.

With reference to the above Figure 1, each branch of economic activity derived from Italian NA and selected for tourism sector has been further widened in terms of *classes* in it included. In the following Figure 2 two examples are highlighted: the first concerns a branch entirely tourism-related in terms of *classes* of economic activities (e.g. “*Services activities of travel agents, tour operators and related reservation services and activities*”); the second a branch partially tourism-related (e.g. “*Renting and operating leasing activities*”).

For each class of economic activity (*class*) included in the selected branches of NA, SBS survey provided basic information about value of production.

Total production, by branch, obtained as the sum by *class* through basic data is not yet the value shown in SUT matrix of production, as this latter is the final result of the accounting balancing procedure with the consumptions – *Use* –, whereas the former is still a pre-balanced data. Nevertheless, production by *class* has allowed to calculate a weighting structure by *class* within its branch of reference.

⁴² The reference is to the Cultural services Industry.

Figure 2- Simplified scheme of Italian production matrix, by class of economic activities

CN products	NA branches of economic activities											Total
TSA products	NA selected branches for T5's scope											
	1	2				i	n				N	
		C ₁	C _k	C _S	Σ		C ₁	C _k	C _S	Σ		
1	p ₁₁	(b2)p ₁₁	(b2)p _{1k}	(b2)p _{1S}	p ₁₂	p _{1i}	(bn)p ₁₁	(bn)p _{1k}	(bn)p _{1S}	p _{1n}	p _{1N}	P _{1.}
2	p ₂₁	(b2)p ₂₁	(b2)p _{2k}	(b2)p _{2S}	p ₂₂	p _{2i}	(bn)p ₂₁	(bn)p _{2k}	(bn)p _{2S}	p _{2n}	p _{2N}	P _{2.}
...
r	p _{r1}	(b2)p _{r1}	(b2)p _{rk}	(b2)p _{rS}	p _{r2}	p _{ri}	(bn)p _{r1}	(bn)p _{rk}	(bn)p _{rS}	p _{rn}	p _{rN}	P _{r.}
j	p _{j1}	(b2)p _{j1}	(b2)p _{jk}	(b2)p _{jS}	p _{j2}	p _{ji}	(bn)p _{j1}	(bn)p _{jk}	(bn)p _{jS}	p _{jn}	p _{jN}	P _{j.}
m	p _{m1}	(b2)p _{m1}	(b2)p _{mk}	(b2)p _{mS}	p _{m2}	p _{mi}	(bn)p _{m1}	(bn)p _{mk}	(bn)p _{mS}	p _{mn}	p _{mN}	P _{m.}
M	p _{M1}	(b2)p _{M1}	(b2)p _{Mk}	(b2)p _{MS}	p _{M2}	p _{Mi}	(bn)p _{M1}	(bn)p _{Mk}	(bn)p _{MS}	p _{Mn}	p _{MN}	P _{M.}
Total	P _{.1}	(b2)P _{.1}	(b2)P _{.k}	(b2)P _{.S}	P _{.2}	P _{.i}	(bn)P _{.1}	(bn)P _{.k}	(bn)P _{.S}	P _{.n}	P _{.N}	P _{..}

C= class of economic activity

It can be written as:

$P_{..}$, the overall matrix production of Italian SUT, 266 products*106 branches ;

$P_{.i}$ the total balanced production value for the generic i -th branch;

$\sum_{k=1}^S \hat{p}_k = \hat{P}_{.i}$ the pre-balanced production value for the generic i -th branch, for $k:1, \dots, S$ number of *classes* included in the branch.

The weight of the production by *class* within its branch of reference is given as:

$$x_k = \frac{\hat{p}_k}{\hat{P}_{.i}}$$

where k -th is the generic *class* and where

$$\sum_{k=1}^S x_k = 1$$

Such weighting structure, applied to the total balanced production of NA by branch, led to a new balanced level of production by *class*, given as:

$$p_k = x_k P_{.i}$$

now being

$$\sum_{k=1}^S p_k = P_{.i}$$

The result reflects, on the one hand, the production ratio by *class*, calculated starting from SBS basic (pre-balanced) data – x_k –; on the other hand, it benefits of the balancing procedure used in NA to guarantee the equality accounting achievement, as a result of the weighting of basic data by *class* with total amount of the production provided by NA – P_i .

In order to quantify the value of production for each tourism industry, according to its composition in terms of *classes* –Table 4 –, a selection of only tourism *classes* has been carried out. Appropriately grouped and summarized, such values define the new total of production for each tourism industry:

$$\sum_{k=1}^s p_{.k} = {}^{(1)}P_i$$

for $k:1, \dots, s$ the number of the subset of tourism *classes* included in the i -th selected branch, now become a tourism industry (i)

Production by *class* provided by SBS data is not articulated by *product*. So, in order to meet such crucial requirement, a second weighting structured appeared necessary. As previously said, the lack of basic data by *product* led to the need of implementing a weighting structured using the articulation by product furnished by ISUT.

More specifically, given the value of production for the generic j -th product for the i -th branch, the weight by product can be written as:

$$\lambda_{ji} = \frac{p_{ji}}{P_i}$$

finally allowing to estimate production by *class* and by *product* as follows:

$$\lambda_{ji} p_{.k} = p_{jk}$$

Now, for each *class*:

$$\sum_{j=1}^M \lambda_{ji} p_{jk} = p_{.k}$$

and *industry*:

$$\sum_{j=1}^M \sum_{k=1}^s p_{jk} = {}^{(1)}P_i$$

it is possible to articulate total production by products, for $j:1, \dots, M$, the number of products provided by the highest level of detail available⁴³. In doing so it is assumed that for each product the incidence on production is the same than for all the *classes* included in the branch of reference, regardless their kind of activity.

⁴³ 266 items of products.

5.3.2 Evaluation of non market production

“The public sector plays an important role in the development of tourism activities in many countries. It establishes the legal framework for the tourism activity. It establishes certain controls on the production of services, and in some cases guarantees the quality of the service that is provided through the provision of licenses and the development of codes of conduct”⁴⁴.

The value of these different activities developed by the public administration can be established along the same parameters of measurement as any other collective non-market services, that is, through their cost of production. For public sector the value of consumption is, by convention, equal to the value of production.

Despite the availability of basic information up to 5 digits level of detail, estimates has been carried out in a different way that for market production. More specifically, the overall non-market matrix of production of NA has been analyzed in a perspective of comparative incidence on the total economy.

This choice is the result of various considerations. Evaluation criteria of basic data for non-market production are different then those for market producers. This would have required the development of an estimation process completely different from that described as above. At this stage of development of the implementation process of the first ITSA it was considered sufficient make an overall assessment of the role of public administration in the tourism sector as a whole.

Future improvements and advances in development and compilation works for the whole ITSA will regard the research of a more detailed estimation of the non-market's component of production for IT5. An additional next step, in this specific area, could be the estimates of tourism collective consumption⁴⁵.

5.4 Relationship between tourism industries, other industries and products.

The ensemble of tourism activities listed in Table 4 defines the tourism industry as a whole, namely, the concept of tourism supply in the frame of TSA.

“Tourism supply is understood as the direct provision to visitors of the goods and services that make up tourism expenditure. The analysis of tourism supply consists, first, in showing how the conditions are created that enable producers to provide goods and services to visitors, and, second, in describing the processes, the production costs and the economic performance of the suppliers in the tourism industries”⁴⁶.

As just shown, in TSA tourism sector emerges from the national productive system of NA. In this regard it has already pointed out as in National Accounts a branch of economic activity is defined as *“a group of establishments engaged on the same, or similar, kinds of activity. At the most detailed level of classification, an industry consists of all the establishments falling within a single class of ISIC and which are therefore all*

⁴⁴ IRTS:2008, pg.60.

⁴⁵ Table 9 in the TSA.

⁴⁶ IRTS:2008, pg. 54

*engaged on the same activity as defined in the ISIC*⁴⁷.

As in the SNA, as well as in the TSA, the establishment is used for the analysis of production and production processes. Establishments are classified according to their main activity⁴⁸, as a consequence, *“the grouping of all establishments with the same main activity which serves visitors directly and that is one of the tourism-characteristic activities constitutes a tourism industry”*⁴⁹. However, an establishment that cater to visitors may often have more than one productive activity. Establishments,

Tourism sector as understood in TSA from the supply side is not an industry in the sense of branch: it cuts across several branches in the economic activities classification. In other words, there is no correspondence one-to-one between tourism sector as a whole and a branch of economic activity, because the former depends on the demand's purchases behavior.

Additionally, some industries are included in tourism sector even though the majority of their output can be attributed to non-tourism products. The Food and beverage services and Recreation and entertainment industries are pregnant examples. Such industries are included because without tourism their level of activity would be significantly reduced. Nevertheless, as the purchases of these goods and services is not entirely tourism, the TSA must identify and separate out the production's tourism components from each of industry.

On the other hand, tourism industries that specialize on tourism products can develop a main tourist activity and perform one or several secondary activities. It means that characteristic tourism activities that specialize on tourist products develop activities that are not exclusively tourist-based, or may have other tourism characteristic secondary activities.

By the same token *“establishments having a particular tourism-characteristic activity as a secondary activity should not be included in the tourism industry that is characterized by this activity”*⁵⁰.

As a result, the total output of any product, tourism or not, is the sum of the output generated from all industries, tourism or not, regardless that it is bought by visitors and non-visitors (consumers).

Such situation directly impact on the structure of table 5, and is illustrated in the below Figure 3. The main output of tourism industries is by definition tourism characteristic products, but they may also produce tourism connected products and other products. The main output of other industries might be any thing other than tourism characteristic products. The total output of any product is the sum of the output of this product from the total industries in the economy.

⁴⁷ SNA93, Chapter V, pg. 144. For tourism statistics from the supply side, according to the Regulation on tourism statistics, the statistical unit is the local kind of-activity unit. Instead, in the context of a TSA, the statistical unit of productive activities, that is to say the representation of supply side, is the *establishment*. As already mentioned, this difference is emerged in the phase of compilation of IT7 and IT10.

⁴⁸ Determined by the activity that generates the most value added.

⁴⁹ IRTS:2008, par.6.16, pg.55.

⁵⁰ IRTS:2008, pg 55.

Figure 3 – Flows of main and secondary outputs by industry

Products (P)	Industries (I)						total output by product						
	Tourism Industries (T)			Other industries (O)									
	1	...	n	1	...	n							
Characteristic products													
C ₁	X	x	x	x	x	x	Σ	C ₁					
...	x	X	x	x	x	x	Σ	..					
C _n	x	x	X	x	x	x	Σ	C _n					
Connected products	x	x	x	XX	XX	XX							
CO ₁	x	x	x	XX	XX	XX	Σ	CO ₁					
...	x	x	x	XX	XX	XX	Σ	..					
CO _n	x	x	x	XX	XX	XX	Σ	CO _n					
Other products	x	x	x	XX	XX	XX							
O ₁	x	x	x	XX	XX	XX	Σ	O ₁					
...	x	x	x	XX	XX	XX	Σ	..					
O _n	x	x	x	XX	XX	XX	Σ	O _n					
Total output of the industries	Σ	T ₁	Σ	...	Σ	T _n	Σ	O ₁	Σ	...	Σ	O _n	Σ

X= main output of the industry; x= secondary possible output of the industry; XX= main possible output of the industry
 Sources: IRTS2008, Fig. 6.1, pg.56.

With reference to the Italian tourism industries the assessment of production by product has required their preliminary partition into three subset of products: tourism characteristic, Italian specific tourism characteristic, residual.

More specifically, articulation by product made available by matrix of production of Italian National Account has been marked by specific indicators:

1. “c” for characteristic products falling into the first Italian 10 categories listed in Table 2;
2. “b” for Italian specific products (among those identified), falling into the Italian 11th category of products listed in Table 2;
3. “r” for Italian residual products, headed “*Other consumption and non consumption products*” in Table 2.

These indicators make possible to articulate total production of each tourism industry into three subset of products.

Given as:

c:1,.....m = the number of tourism characteristic products;

b:1,.....n = the number of Italian specific tourism characteristic products;

r:1,.....z = the number of residual products.

The total production by industry is articulated as follows:

$$\sum_{k=1}^s \left(\sum_{c=1}^m p_c + \sum_{b=1}^n p_b + \sum_{r=1}^z p_r \right) = {}_{(I)}P_i$$

From the activities side, the residual Italian productive units, “*Other industries*”, complete the display of Italian economy in a tourism perspective. The assessment of its

production has required a different and a more simplified approach from that for tourism industries. For this latter the whole evaluation process is based on 4 digits level of basic information, whereas for “*Other Industries*” of IT5 the total production by product is obtained as difference between the NA constraint by product and the total imputed to all tourism industries.

With reference to the *j*-th generic item of product, the value of production imputed to *Other Industries* is simply calculated as:

$$_{(R)}P_{j.} = _{(NA)}P_{j.} - _{(TI)}P_{j.}$$

where the subscript on the left refers to the residual macro sector of *Other Industries* (_(R)); to data of matrix of production of National Accounts (_(NA)) and to all tourism industries (_(TI)).

The last step is to group such estimates according to the structural requirements of T5. The below Figure 4 displays in a schematic way how data has been organized in order to fill the production account of Italian tourism industries and other industries.

Figure 4 - Simplified scheme of Italian T5

Products	Tourism industries					Other industries	Output of domestic producers
	1	...	10	11	Total		
C. Characteristic products							
1	X	x	x	x		x	$\sum_{c=1}^m p_c$
...	x	X	x	x		x	
m	x	x	X	x		x	
B. Country-specific tourism characteristic products and connected products	x	x	x	X		x	$\sum_{b=1}^n p_b$
R. Other products	x	x	x	x		XX	$\sum_{r=1}^z p_r$
Total output							
Total intermediate consumption							
Total value added							

X= main output of the industry; x= secondary possible output of the industry; XX= main possible output of the industry

6. Special issues

In principle, satellite accounts share the structure of the central ones of NA, but in some cases their specific perspective requires to take the distances with the general criteria adopted by the national accounts framework.

As far as the TSA is concerned, from the supply side the pursuit of a tourism logic has led to face the following special issues:

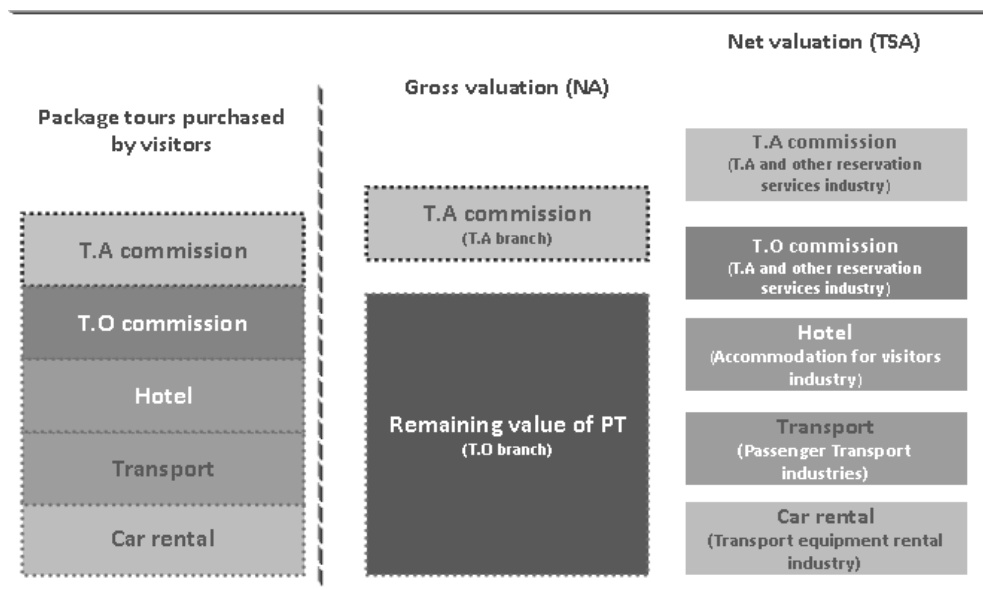
- net valuation of package tours;
- usage of second homes for tourism purposes.

6.1 From gross to net valuation of package tours (PT)

Total production estimated in IT5 as described in par.5 is not yet the whole Italian production in a tourism perspective. In fact, according to the TSA logic, the tour operating activity, which represents the main activity of Tour Operators (TO) and whose value is included in the final price of a PT, “*must be treated separately from the rest of services composing a PT and purchased through their intermediation*”⁵¹. In respect of such separation principle, the value of each service bundled in a package⁵² must be imputed, both in terms of production and of intermediate consumptions, to the involved industries.

In Italian NA the value of PT is twice imputed (gross valuation): once to the TO branch, once more implicitly included in the total value of production of the involved branches. This duplication – both for production and for intermediate consumptions – vanishes when value added is calculated, difference between intermediate consumptions and production value. Otherwise, from a TSA point of view the value of PT is required in a net valuation.

Figure 5 - Accounting recording of a PT in NA and in TSA



In order to meet this requirement it has resorted to two different sources, at first separately treated:

- administrative source;
- statistical source (SUT).

⁵¹ IRTS:2008, pg. 87

⁵² Typical services included in a PT are: transport, accommodation, excursions and guided tours, car rental, TA's commissions.

The administrative source has provided the total amount of revenues and of costs specifically related to tour operating activity⁵³. The approach followed was *top-down*: the difference between revenues and costs, and its share on total revenues, has conducted to a first estimate of the net valuation of PT.

Statistical source, in this case the matrix of intermediate consumptions derived from *Use* tables, has provided costs by product, allowing to pursuit a *bottom-up* approach. First of all, exploiting the level of detail of Italian SUT an adequate selection of products that may be included in a PT has been made. For each of these input of (tourism) services included in a PT the cost was estimated in two different ways.

For some services – e.g. transport⁵⁴, insurance services, cultural services – the calculation of a ratio between the main production of TO – PT by definition - and the total production of the accounting branch in which is enclosed appeared necessary:

$$\lambda_{jto} = \frac{P_{jto}}{P_{.to}}$$

where the subscript _{TO} indicates both product and branch of Tour Operator, according to the Italian articulation 266x106. This ratio has been applied to the value of cost for each item of this first subset of services.

For the other elements of cost – e.g. commissions for travel agents, air transport, accommodation – the value provided by matrix of intermediate consumptions has been considered entirely relevant⁵⁵.

Although based on different approaches, the two assessment processes showed very similar results. A reconciliation between the two sources has been operated, so to lead to the net valuation of PT as required in *IRTS:2008*.

6.2. Usage of second homes for tourism purposes

*“The ownership of a vacation home on own account is peculiar, from a statistical perspective, because it generates both a tourism characteristic service and an equivalent tourism consumption. In the SNA 1993, a housing service on own account is associated with the ownership of a dwelling occupied by its owner, both as a production activity and as the output and consumption of a specific service. This situation covers both the principal dwelling and all other dwellings owned by a household for its own use. It covers in particular owner-occupied vacation homes”*⁵⁶.

The NA activity and product associated with the ownership of a dwelling are totally included in a TSA in the correspondent tourism industry and product – see Table 4 and Table 5.

⁵³ The use of administrative data poses problems of consistency with NA requirements. So this source has been used in order to estimate a weighting structure for costs and revenues to apply at TO production data derived from NA.

⁵⁴ Except for air transport.

⁵⁵ For these services the whole value of intermediate consumptions has been imputed to the activity of tour operating, regardless that part of them might be costs for business travels, which mainly involve accommodation and transport services.

⁵⁶ *TSA:RFM2008*, pg. 31.

In principle T5 reflects the total output of tourism and non-tourism industries, regardless the share directly demanded by visitors. However, the treatment of this specific issue required special attention during compilation of IT5. In NA's production matrix the value for imputed residential housing services is quite significant because refers to all Italian's households owners, regardless the purpose of use of dwelling. In the frame of T5 this value of production would have been totally contained because referring to tourism class and tourism product. In our opinion it would have introduced a distortion about the role performed by this industry within the whole tourism sector.

For this reason, in the context of IT5, the treatment of second homes industry represent an exception, as the total output of the industry is not a *gross* production, but yet a *tourist* part of it⁵⁷. In particular, the total production of the Italian NA branch has been weighed with the national share of use of second homes for tourism purposes.

For this purpose the resort to two sources needed, in particular:

- final consumption expenses of households;
- census of housing.

In summary, given γ as the national incidence of a tourism use of second homes, production of this tourism industry is calculated as follows:

$$\sum_{j=1}^M \sum_{k=1}^s p_{jk} \gamma$$

6.3. Intermediate Consumptions (IC) and value added (VA)

In T5 IC are shown for industry's vector. Unlike that for production, the analytical purposes of this aggregate does not require, within a TSA's scheme, its disarticulation by product⁵⁸.

Nevertheless, at basic information level, the process of reconstruction of IC of Italian tourism industries duplicated the methodology for the production estimate, although selection and distinction of products has not been carried out.

Finally, as for the total production, also intermediate consumptions are not perfectly comparable to those related to the whole Italian economy, due to the net valuation (v) of package tours.

For the whole economy VA can be written as:

$$VA = P1 - P2$$

⁵⁷ This type of evaluation is responsible for Table 6, where the total supply by product is compared with its total tourism demand, so as to achieve a tourism share.

⁵⁸ *TSA in the European Union*, Vol.3, par.4.17, pg.42 "it is simply suggested, if possible, to consider a breakdown of IC into the following categories of products: agriculture; ores and minerals; food and beverage; machinery and equipment; construction; distributive trade services; financial and related services; business and production services; community, social and personal services".

differing from the tourism perspective of T5, where it is given:

$$VA = [(P1-v) - (P2-v)]$$

7. Compilation of Italian T5 by means of a structure of worksheets

The whole methodological process for compilation of IT5 is developed through a structure of different worksheets for the redistribution of the production and IC by the different NA industries and products.

First of all, a key structure from SBS at 4 digits level of Italian classification of economic activities (ATECO) has been used to decompose the total production of NA branches into the different TSA industries. The structure of IT5, based on a logic cross-industries/products, essentially reproduces the format adopted in NA for production and IC matrices, which constitutes the direct starting point for the implementation of IT5⁵⁹. According to the highest level of detail of Italian national account balanced datasets available, efforts aimed at enlarging the internal compilation level of Italian SUT according to the needs of T5 industries and products classification.

The structure of worksheets for compilation of IT5 was built through the following phases:

1. analysis of matrices of production (P1) and of intermediate consumptions (P2) derived from Italian SUT in order to identify those branches and products suitable for the needs of IT5;
2. treatment of basic economic statistics deriving from SBS and of employment data from NA datasets, both useful to build a weighting structure by *class* to which to bind the SUT balanced data;
3. calculation of a new matrix of synthesis (both for P1 and for P2) enlarged by *class* of economic activity, for each tourism branch selected with regards to the needs of IT5;
4. dumping of all matrices of synthesis in an overall matrix suitable for the calculation of the value added of tourism industries and for comparison within the rest of economy;
5. automatic compilation of IT5, aggregating data by *class* and by product into the different IT5 industries and products.

In the immediate following these steps will be highlighted in a synthetic way.

7.1 Phase 1: analysis of P1 and P2 matrices of Italian SUT.

Starting point of IT5 compilation are the matrices of production and of IC from Italian SUT at the highest level of detail. Therein, the tourism involved branches has been identified and marked, whereas all products has been differently indicated according to their degree of tourism characteristicity – see Table 6.

⁵⁹ As well as for the subsequent T6, which compares internal consumption and total supply.

Table 6 - Simplified scheme of Italian P1 and P2 matrices for calculation of IT5 aggregates

RODUCTS	PRODUCT INDICATOR*	Branches of economic activity							Total
		1	2	...	i	...	...	N	
		r	c	...	b	...	...	r	
1	r	p ₁₁	p ₁₂	...	p _{1i}	...	...	p _{1,N}	p _{1.}
2	c	p ₂₁	p ₂₂	...	p _{2i}	...	...	p _{2,N}	p _{2.}
...	r	...	...	...	...	...	...	...	...
j	b	p _{j1}	p _{j2}	...	p _{ji}	...	...	p _{j,N}	p _{j.}
...	r	...	...	...	...	...	...	...	...
M	c	p _{M,1}	p _{M,2}	...	p _{M,i}	...	...	p _{M,N}	p _{M.}
Total		P _{.1}	P _{.2}	...	P _{.i}	...	...	P _{.N}	P _{..}

*symbols explained in par. 5.4.

The below Table 7 illustrates the example for *Food and beverage serving service* tourism industry. In it the value of production, by product, derived from Italian SUT, is shown.

Although Italian articulation is significantly enough in order to isolate the whole tourism industry, it does reveal not sufficient to split out tourism activities and no-tourism activities which compose the NA branch. The report to basic information has been crucial in order to articulate the total output of branch in its *classe's* contribution.

Table 7 – Output of Food and beverage serving service branch, by product. Year 2010 – million of euro

N*	Products	
153	Repair services	4
166	Specialized construction services	37
173	Retail trade, except of motor vehicles and motorcycles	3.837
196	Food and beverage services	67.098
197	Other food services	7.890
206	Software services for own account	4
218	Real residential housing services	19
220	Imputed residential housing services	58
227	Scientific research and development	4
235	Leasing of intellectual property and similar products, except copyrighted works	13
256	Gambling and betting services	975
TOTAL		79.939

* According to the articulation in 266 products - Source: Italian NA: SUT – matrix of production at basic price. Differences in sums are due to rounding

7.2 Phases 2 and 3: processing basic data and matrix of synthesis for tourism industries.

For each selected branch it was estimated the total value of output starting from the pre-

balanced basic information provided by SBS at 4 digits level of detail, then processed in order to establish the incidence of each *class* within its branch of reference - x_k . An additional weighting structure by *product* - λ_{ji} - obtained with data of NA matrix of production allows to arrive at a new balanced value of output for each *class* of economic activity, and articulated in 266 products, using the format of NA for production matrix – so called matrix of synthesis.

Table 8 shows the same data of Table 7, now articulated by each *class* of economic activity which compose the whole accounting branch of *Food and beverage serving service*. The lack of basic data even for products only allowed to proceed at the INA articulation level. Nevertheless the detailed used for IT5 makes quite easy to identify tourism characteristic products (indicated by the product indicator “c” in Table 8), whereas the category of Italian characteristic specific products results to be less precise (indicated by the product indicator “b” in Table 8).

As for products, tourism and non-tourism *classes* of economic activity has been differently marked in order to leave the accounting branch concept and to meet the tourism industry concept.

Table 8 – Output of Food and beverage serving service branch, by class and product. Year 2010
millions of euro

N*. Products	Product indicator*	ISIC-REV.4 5610	ISIC-REV.4 5621	ISIC-REV.4 5629	ISIC-REV.4 5630	Total output by product
		c	r	r	c	
153 Repair services	r	2	0	0	1	4
166 Specialized construction services	r	19	1	3	13	37
173 Retail trade, except of motor vehicles and motorcycles	b	1.978	127	349	1.383	3.837
196 Food and beverage services	c	34.581	2.226	6.100	24.191	67.098
197 Other food services	r	4.066	262	717	2.845	7.890
206 Software services for own account	r	2	0	0	1	4
218 Real residential housing services	c	10	1	2	7	19
220 Imputed residential housing services	r	30	2	5	21	58
227 Scientific research and development	r	2	0	0	1	4
Leasing of intellectual property and 235 similar products, except copyrighted works	r	7	0	1	5	13
256 Gambling and betting services	c	502	32	89	351	975
Total		41.198	2.652	7.268	28.820	79.939

*According to the articulation in 266 products – **Symbols explained in par. 4.4 - Estimates on SUT data and SBS data. Differences in sums are due to rounding

The construction of the matrix of synthesis for *Food and beverage serving service* branch begins by selecting the only tourism *classes* and tourism products – see Table 9, thus clearing the content of the previous Table 8 for those parts which are not strictly

tourist. Total output by product of the industry may be equal to the total output by product of the accounting branch, according to the number of tourism *classes* comprised in tourism industry – all *classes* or a part of it.

Tourist output of tourism industry is the sum of characteristic and specific products (“c” and “b” in Table 9). Most of the production value of the *Food and beverage* tourism industry is obviously represented by its main output, that is *Food and beverage service*. Nevertheless, it is quite spread the case of secondary productions, which may be still tourism output. For *Food and beverage* tourism industry tourist outputs (main and secondary) are listed in Table 9.

Table 9 – Output of Food and beverage serving service industry, by tourism characteristic class and tourism characteristic product. Year 2010 – millions of euro

N*.	Products	Product indicator* *	ISIC-REV.4 5610	ISIC-REV.4 5621	ISIC-REV.4 5629	ISIC-REV.4 5630	Total output by product
			c				
173	Retail trade, except of motor vehicles and motorcycles	b	1.978			1.383	3.361
196	Food and beverage services	c	34.581			24.191	58.772
218	Real residential housing services	c	10			7	17
256	Gambling and betting services	c	502			351	854
Total			37.071			25.932	63.004

* According to the articulation in 266 products – **Symbols explained in par. 4.4 - Estimates on SUT data and SBS data. Differences in sums are due to rounding

Besides tourism products (characteristic and specific) *Food and beverage serving service* industry may produce other outputs, classified as non-tourism - “r” – see Table 10 – and which correspond to a residual category of outputs. As mentioned, for IT5’s scope this production must be included in the total output by industry.

As far as the non-tourism *classes*, they are excluded from the concept of tourism industry, but will constitute the content of the residual “*Other industries*” category, as to equal the aggregates of production for the whole Italian economy.

Matrices of synthesis of intermediate consumptions slightly differ from the format use for production. In particular, they do not report the articulation of output by “c”, “b” and “r” products - columns 7, 8 and 9 in Table 10 - since such articulation is not required and relevant for costs.

Table 10 – Output of Food and beverage serving service industry, by product Year 2010 – millions of euro

N°.	Products	Product indicator**	ISIC-REV.4 5610	ISIC-REV.4 5630	Total output by product:	Industry output by product			Other industries (ISIC-REV.4 5621/5629)
			c	c		c	b	r	
153	Repair services	r	2	1	4			4	1
166	Specialized construction services	r	19	13	32			32	5
173	Retail trade, except of motor vehicles and motorcycles	b	1.978	1.383	3.361		3.361		476
196	Food and beverage services	c	34.581	24.191	58.771	58.771			8.327
197	Other food services	r	4.066	2.845	6.911			6.911	979
206	Software services for own account	r	2	1	4			4	0
218	Real residential housing services	c	10	7	17	17			2
220	Imputed residential housing services	r	30	21	51			51	7
227	Scientific research and development	r	2	1	4			3	0
235	Leasing of intellectual property and similar products, except copyrighted works	r	7	5	11			11	2
256	Gambling and betting services	c	502	351	854	854			121
Total			41.198	28.820	70.018	59.642	3.361	7.015	9.920

* According to the articulation in 266 products – **Symbols explained in par. 4.4 - Estimates on SUT data and SBS data. Differences in sums are due to rounding

7.3 Phase 4: overall matrix for the calculation of the value added.

All matrices of synthesis of the production of tourism industries in their integral format constitute the structure of a new, overall matrix. In order to allow calculation of value added of tourism industries, such matrix is integrated with total values of intermediate consumptions of industry⁶⁰. Now it is possible to obtain the most important indicator of T5: the value added of tourism industries (VATI). In this macro matrix all aggregates are available, in their total value, at different level of detail: by *class*, by *branch* and by *industry*.

7.4 Phase 5: automatic compilation of IT5.

Appropriately grouped to meet the concept of tourism industry and tourism product, data previously processed are automatically transferred in IT5 through a unique link key.

In standard format of T5 –Figure 4 – is not immediately apparent the contribution, in terms of share of production, intermediate consumptions and value added, of each industry

⁶⁰ However, due to the disposal of basic information, P2 data are processed and hence available at class level.

on the total of economy. This setting should be read according to the instrumental optical in which T5 is inserted in the structure of a TSA: *“the main purpose of this table is to prepare and compile data on gross value added for various industries by transforming the national production account into a TSA production account”*⁶¹.

Nevertheless, the complex structure of hierarchically ordered worksheets developed for the compilation of IT5, exposed at earlier stages in very few words, allows the calculation of indicators and ratios of specific interest, as well as the construction of graphs for an in-depth analysis of Italian tourism sector on the supply side.

Conclusions

This work, that is part of the implementation process of the first Italian TSA, has focused on a description of the methodology developed in order to measure the production accounts of Italian tourism industries and other industries, in a consistently way with Italian NA procedures.

From a methodological point of view the close link between the core system of National Accounts and that envisaged by the TSA, particularly T5, represents a mutual strength. On the one hand, the compilation of IT5 strictly depends on the detail of information provided by Italian SUT. On the other hand, the implementation of a satellite account represents a valuable opportunity to test the accuracy of core one, due to its demand of a thorough and detailed data.

The assessment process for the whole Italian tourism sector is based on data at 4 digits level of the international classification for economic activity. As far as the products, the lack of basic data has been overcome thanks to the great detail provided by Italian SUT for the year 2010, compiled for 106 branches of economic activities and 266 products (for internal use only). This articulation significantly impacted on the successful compilation of IT5.

The key findings highlighted in this work are twofold: on the one hand, the implementation of a methodology consistency with the national accounting procedures; on the other hand, innovation and development in working methods.

The first strictly derives from the particular perspective of a TSA. Both the *bottom-up* approach, applied for treatment of basic information, and the *top-down* approach that has characterized the treatment of SUT data, has provided compilers an important element for reflection: the needs of aggregation of NA must always ensure the binding of consistency with the information base, from which they derive.

The second is based on operational aspects. The gradual compilation of the production account of IT5 led to the building of a set of integrated worksheets, each of which designed for an automatic calculation of its output. Their modular structure allows to decouple the process of compiling for a particular reference year, which ranks as a tool for a time series analysis.

IT5 represents the first experience of compilation at national level. However, the province of Bolzano has compiled territorial TSA, and thus T5, since 2005. Despite some

⁶¹ TSA in the European Union, Vol.3, par.3.4, pg.41.

differences in concepts and in contents⁶², this sub-national T5 provided an “experienced” final result based on which evaluate the level of finesse of the construction process of IT5.

At international level, the long experience of Spain in compiling TSA, especially as far as net valuation of TO is concerned, has been repeatedly consulted⁶³.

Furthermore, the deep knowledge developed by Canada led us, during the compilation process of IT5, to enrich the reference material⁶⁴.

Summing up, it is now possible to state that this first compilation of IT5 doesn't make apparent a significant gap when compared with other compilations. However, some future improvements has emerged. Among these, the special treatment of goods and the retail trade services⁶⁵.

⁶² The international standards used for 2005 and 2008 Bolzano's TSA was version 2001, both for IRTS and TSA:RMF. They proposed a different definition of tourism consumption and a different articulation of products/industries. Publication on TSA for Bolzano available http://www.provinz.bz.it/astat/it/256.asp?News_action=4&News_article_id=389255.

⁶³ National Statistics Institute - National Accounts General Department “Spanish Tourism Satellite Account: Methodological note”, Madrid, 2004.

⁶⁴ Canadian Tourism Commission, “*Study of the Canadian Tourism Satellite Account (CTSA) – Comparison of TSA-RMF and CSTA*”, Ottawa, 2004.

⁶⁵ TSA:RMF2008, Annex 4, pgg 88-90. The processing of goods and retail trade services has been the object of a study following the compilation of the first T5.

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