

Tourism and territorial economy: beyond satellite accounting

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1. Tourism and its representation through statistics

The pressing and increasingly urgent demand by policy makers, researchers and stakeholders for increasingly detailed and timely tourism statistics stems from the need to measure the economic impact on the one hand and the sustainability on the other of a sector that is considered to show resilience and adaptability, even in rapidly changing contexts, and poses a considerable challenge to producers of official statistics at international level.

The current European Regulation of 2011 (692/2011), which defines the reference areas and purposes of tourism statistics at European level, prescribes neither sustainability indicators nor economic and monetary indicators, despite the fact that both the previous directive (95/57 EC) and the current regulation have always considered tourism as a fundamental tool for the economic development of territories: *Tourism plays an important role in the EU because of its economic and employment potential, as well as its social and environmental implications. Tourism statistics are not only used to monitor the EU's tourism policies but also its regional and sustainable development policies*" (Eurostat, 2021).

Thus, although it seems to be well established that the transition towards a sustainable development of the territories is now indispensable and that certain phenomena linked to pollution and climate change could represent an obstacle to the growth of some tourist destinations, we are still far from having a shared and homogeneous definition of sustainable tourism and the carrying capacity indicators used do not seem able to represent exhaustively such a complex and multidimensional phenomenon (European Commission, 2004).

Furthermore, the elaboration of satellite accounts on tourism - even in their possible integration with the environmental module - continues to be a mere voluntary exercise for member countries, even though they are specifically provided for by the European System of National and Regional Accounts (SEC).

Finally, the need for timely statistics that also describe people's movements within the territory would require broadening the profile of their relevance by including the use of big data in the system of tourism statistics *"the arrival of big data is also changing the working environment for statisticians. Many sources of big data measure flows or transactions. Tourism statistics try to capture physical flows of people — as well as the accompanying monetary flows; big data provides promising new sources of data and previously unavailable indicators to measure these flows (and stocks)"* (Eurostat, 2017), but to date the first attempts in this respect are still experimental and at a very early stage.

As far as European tourism statistics are concerned, the first report by the European Commission was made in 2016, but it is only in the second one, in 2022, that there is talk of a possible revision of the Regulation, with additions towards a requirement for satellite accounting and sustainability indicators (European Commission, 2022).

In this paper, after an examination of the current state of Italian and European public statistics to (section 2), we make some attempts to arrive at a more comprehensive information picture regarding the contribution of tourism to regional added value (satellite accounting). The

¹ The views expressed in this paper are solely those of the author and do not involve the responsibility of Istat.

experimental verification was conducted in section 2.1 regarding the demand side using tourism density as a regional attractor and in section 3 regarding Value Added. The impossibility of having direct access to Istat Territorial Frame SBS (Structural business statistics) micro-data² places unavoidable limits on the estimation carried out. On the other hand, the objective of this work is to make it clear how important and urgent it is to have a measure of the economic contribution of tourism to the growth of territories.

2. How to implement tourism statistics: the possible role played by satellite accounts

In 2010, satellite accounts on tourism (TSA) were compiled for the first time in twenty-three countries (Eurostat, 2009). This was then done every three years: in 2013, twenty-two countries participated in the compilation and in 2016, nineteen. Compared to the originally planned indications the greatest critical issue has always been the homogeneity and comparability of the data contained in the TSA produced in each country. The same indicators contained in the ten tables of the theoretical scheme have, depending on the country, different coverage of the required indicators. The only table that is compiled (T5) with full coverage with respect to the required indicators is the one concerning the "*production accounts of tourism industries and other industries*", which is also the only one compiled by all countries.

The table of "*tourism collective consumption*" (T9) is a relevant part of the transition from the aggregate of tourism expenditure to the broader aggregate of tourism consumption. The employment statistics themselves, which refer to jobs, are incomplete, being compiled by only thirteen countries.

With reference to the table of "*production accounts of tourism industries and other industries*" (T5) and "*Total domestic supply and internal tourism consumption*" (T6), a further difference concerns the statistical sources used, since only some countries use business statistics. The different use of the sources implies a different methodology used in the determination of the relevant aggregates³.

To date, therefore, not all member countries compile satellite accounts and those compiled often do not refer to the same time period or have discrepancies in the methodologies used or the data sources, making international comparability practically impossible.

On the other hand, the indicators that were more difficult to compile were "*Tourism gross fixed capital formation*" (T8) and the "*Tourism collective consumption*" table (T9), with Spain being the only country to compile both tables.

2.1 The importance of satellite territorial accounting

A further weakness concerns the fact that while the successful introduction of satellite accounts in the regulation will be continued, thanks to which the current impasse can be overcome, there is no mention in the European Commission's report of the need to territorialise the satellite accounts on tourism. On the other hand, this is a fundamentally important aspect because tourism is a purely territorial phenomenon, since it is specifically linked to the specific characteristics and distinctive features of a specific place (Benassi et al., 2021), as well as being recognised as an important driver of local development. In Italy, for example, the differences at territorial level of the tourism are considerable and show a certain concentration of the occupancy in some specific areas; the tourist density (see table 1) is very different at regional level and even more so at municipal level, making an in-depth analysis at territorial level necessary, which would also need economic data that are currently lacking.

The satellite accounting tool would in fact be useful for understanding the economic effects of

² Istat: <https://www.istat.it/it/archivio/267573>

³ In Italy, the main surveys involved in the preparation of the Satellite Accounts carried out by Istat are the survey on '*Occupancy of tourist accommodation establishments*'; the survey on '*Expenditure by Italian households*' (Tourism trips), the survey on '*International Tourism*' by the Bank of Italy.

policies implemented at local level, analysing the benefits that certain policies have produced on the entire tourism chain. Moreover, satellite accounting on tourism if integrated with environmental satellite accounting would also be a possible tool to have a measure of the anthropic pressure generated by tourism flows and therefore a measure of the sustainability of tourism. And this is because satellite accounting was born from its introduction in the System of National Accounts (SNA 1993) as a scheme flexible to the needs of the country compiling it.

However, the distinction between functional satellite accounts and integrated satellite accounts remains relevant. The former - which include the satellite accounts for tourism, the environment and social protection - are oriented towards the analysis of the economic system, with the aim of making visible flows that are not evident within the national accounts. The latter, on the other hand, defined as integrated or “external” satellite accounts, use alternative concepts and definitions to the national economic accounts and are therefore an extension of the national accounts.

Table 1 - Tourist density

| 2019 | Nights spent | Population | NS/P | Italy=1 |
|------------------------------|------------------|-----------------|-------------|-------------|
| Piedmont | 14889951 | 4328565 | 3.44 | 0.47 |
| Aosta Valley/Vallée d'Aoste | 3625616 | 125653 | 28.85 | 3.95 |
| Lombardy | 40482939 | 10010833 | 4.04 | 0.55 |
| Trentino-Alto Adige/Südtirol | 52074506 | 1074034 | 48.48 | 6.64 |
| Veneto | 71236630 | 4884590 | 14.58 | 2.00 |
| Friuli-Venezia Giulia | 9052850 | 1210414 | 7.48 | 1.02 |
| Liguria | 15074888 | 1532980 | 9.83 | 1.35 |
| Emilia-Romagna | 40360042 | 4459453 | 9.05 | 1.24 |
| Tuscany | 48077301 | 3701343 | 12.99 | 1.78 |
| Umbria | 5889224 | 873744 | 6.74 | 0.92 |
| Marche | 10370800 | 1520321 | 6.82 | 0.93 |
| Latium | 39029255 | 5773076 | 6.76 | 0.93 |
| Abruzzo | 6176702 | 1300645 | 4.75 | 0.65 |
| Molise | 439645 | 303790 | 1.45 | 0.20 |
| Campania | 22013245 | 5740291 | 3.83 | 0.53 |
| Apulia | 15441469 | 3975528 | 3.88 | 0.53 |
| Basilicata | 2733969 | 558587 | 4.89 | 0.67 |
| Calabria | 9509423 | 1912021 | 4.97 | 0.68 |
| Sicily | 15114931 | 4908548 | 3.08 | 0.42 |
| Sardinia | 15145885 | 1622257 | 9.34 | 1.28 |
| Italy | 436739271 | 59816673 | 7.30 | 1.00 |

Source: Our processing on ISTAT data

For the estimation of the regional gross domestic product, the three methods proposed by the national accounts, i.e., production, income, and expenditure, remain relevant, although for income and expenditure at the regional level there are some methodological problems that require the direct use of data from business enterprise accounts. However, in this regard, the statistical archive prepared by the National Institute of Statistics of Italy, FRAME SBS, has considerably changed the availability of statistical information, as data from statistical business surveys have been supplemented with data from tax sources (Antolini and Grassini 2020a). On the other hand, the expenditure method is not considered reliable by ESA "10 due to the lack of statistical information on inter-regional trade and the flow of imports and exports". In the case of tourism, however, international trade is mainly in the credits and debits generated by incoming and outgoing tourist flows, on which expenditure (but not tourist consumption) is recorded monthly, quarterly, and annually by the Bank of Italy.

2.2 Demand-side approach to satellite accounting

Tourism is a sector that is defined in relation to the economic activity of visitors making a trip outside their usual environment. For this reason, from an economic point of view it lends itself well to being measured from the demand side (visitor activity). The operational difficulty on the demand

side is the identification of the visitor, which is crucial to have an estimate of tourists and their overnight stays. In the case of Italy, however, overnight stays are recorded both on the demand side (Tourism Trips) and on the supply side (Occupancy of tourist accommodation establishments) *“Provided an estimation of the average expenditure per overnight stay (from demand-side data, all tourism expenses included), the use of supply or demand-side figures leads to different results of the expenditure aggregate. The estimation provided by supply-side data offers indisputable advantages since it allows the production of scalable territorial data”* (Antolini and Grassini, 2020b). As far as visitors are concerned, economic activity is embodied in the expenditures made in preparation for and during the trip. Actually, the demand approach at macroeconomic level should consider the broader aggregate of tourism consumption, which evidently also takes into account the part of collective consumption from which the tourist indirectly benefits anyway.

Finally, an estimate of tourism demand should also be able to consider gross fixed capital formation, but, as illustrated above, both the investment and collective consumption tables are prepared by only a few countries. A further consideration concerns excursionists, whose increasing relevance in terms of flow would require the use of new statistical sources (big data).

Italy is currently using the demand approach, considering overnight stays recorded on the demand side: in 2019 (before the pandemic) total domestic travel was 216.7 million with 703.8 million overnight stays. Following the demand-side approach, in 2019 the Value Added of Tourism Industry (VATI) (United Nations, 2010) expressed in basic prices was 220.8 billion; if, on the other hand, we consider the contribution directly linked to tourism – Tourism Direct Value Added (TDVA) (United Nations, 2010) the amount is 99,9 billion (Istat, 2022). The distinction between these two aggregates, which refer to the production units pertaining (predominantly) to the tourism industry to produce those goods and services used by visitors, is due to the fact that, within tourism products, some services are also offered to those who are not tourists (for example, catering, restaurants or transports). It follows that each tourism product has its own tourism coefficient (Table n. 2), and it is for this reason that TDVA must be distinguished from VATI. For the time being, it remains impossible to produce estimates of this coefficient at the regional level, although at this level of detail the tourist expenditure of visitors is recorded and for domestic tourism it is also possible to reconstruct travel between regions.

2.3 Supply-side approach to satellite accounting

This approach requires the availability of analytical data collected directly in units pertaining to the tourism industry. It can be divided into the characteristic industry (accommodation facilities; passenger air transport; travel agencies and tour operators) and the tourism-related industry (restaurants and bars; passenger rail transport; passenger road transport; passenger sea transport; hire of means of transport). The ATECO classification supports the “perimeter” of the tourism industry, however, there may be some critical issues concerning secondary activities which, depending on the criterion used, may lead to a change in classification and cause the local unit to move from the characteristic industry to the related industry (e.g., bathing establishments offering restaurant services). It should also be noted that the perimeter of the tourism industry identified by Eurostat differs in some items from that used in the satellite account (Antolini and Petrei, 2021).

As illustrated above, the methodology used also depends on the available statistical sources and there is no doubt that on the supply side the use of business registers, for those countries that have prepared them, is a potential. In Italy, the preparation of FRAME SBS, offers an availability of economic information that should be valorised and, in any case, used also in a perspective of balancing demand with supply. Moreover, the use of FRAME SBS would make it possible to estimate value added using the value-added method for units that have their own business accounts, being market units, while for non-market enterprises the applicable method could be that of income or personal (Barbieri et al. 2017).

3. A possible estimate of the tourism direct added value at a territorial level

To be able to make an attempt at a regional supply-side estimation, the first step was to identify the economic sectors contributing to the Tourist Direct Value Added (TDVA). Then, starting from the regional total added values, the percentages shown in Table 2 were applied for each economic activity.

Table 2 – Tourist coefficient product (at national level) and ATECO 2007 classification of Tourism Industries

| | | |
|--------------------------------|-------|---|
| Air transportation | 99.5% | 51: air transportation |
| Travel agents, tour operators | 99.3% | 79: activities of travel agencies, tour operators and reservation services and related activities |
| Accommodation establishments | 98.7% | 55: accommodations establishments |
| Maritime transportation | 86.3% | 50: sea and water transport |
| Rail transportation | 69.6% | 49: land transport and pipeline transports |
| Road transportation | 46.1% | 49: land transport and pipeline transports |
| Food services | 23.3% | 56: food service activities |
| Shopping | 13.2% | 47: retail trade (excluding motor vehicle and motorcycle trade) |
| Cultural services | 12.4% | 91: activities of libraries, archives, museums and other cultural activities |
| Second homes owned | 11.9% | |
| Sports and recreation services | 9.7% | 93: sports, entertainment and amusement activities |
| Vehicle rental services | 6.6% | 77: rental and operating leasing activities |
| Total | 4.0% | |
| Other | 0.8% | |

Source: Istat 2020, p. 4

We applied these tourism coefficient to the total value added of tourism industries (as defined by ATECO in the table 2) at regional level (Regional Value Added - RVA). A limitation of the current estimation process is that these percentages used are fixed and do not vary from region to region. The result of the processing is shown in Table 3.

Table 3 – Estimation of Regional tourism direct value added (RTDVA) and Tourism Index

| 2019 | RVA | RTDVA | RTDVA/RVA |
|------------------------------|------------------|-----------------|-------------|
| Piedmont | 66268532 | 5446181 | 0.08 |
| Aosta Valley/Vallée d'Aoste | 1888682 | 308161 | 0.16 |
| Lombardy | 215527656 | 17490901 | 0.08 |
| Trentino-Alto Adige/Südtirol | 22130065 | 3715278 | 0.17 |
| Veneto | 87015539 | 8325185 | 0.10 |
| Friuli-Venezia Giulia | 18331175 | 3694914 | 0.20 |
| Liguria | 21778529 | 1602364 | 0.07 |
| Emilia-Romagna | 82793677 | 6734658 | 0.08 |
| Tuscany | 57314569 | 5697593 | 0.10 |
| Umbria | 9732612 | 685978 | 0.07 |
| Marche | 19500211 | 1431651 | 0.07 |
| Latium | 84719386 | 9732937 | 0.11 |
| Abruzzo | 13456617 | 954828 | 0.07 |
| Molise | 2200599 | 207690 | 0.09 |
| Campania | 42702463 | 5495819 | 0.13 |
| Apulia | 28327093 | 3050717 | 0.11 |
| Basilicata | 4286614 | 313484 | 0.07 |
| Calabria | 8937634 | 1172927 | 0.13 |
| Sicily | 26777530 | 3660223 | 0.14 |
| Sardinia | 11683689 | 1595886 | 0.14 |
| Italy | 825372872 | 81317376 | 0.10 |

Source: Our processing on ISTAT data.

From the data obtained emerges that RTDVA, passing through the estimated data at the level

of the individual regions, represents approximately 10% of the total (a credible value as far as current knowledge goes). However, as can be seen in the table, this value varies from region to region ranging from around 7% in various regions (Liguria, Umbria, Marche, and Basilicata), to 16% in Aosta Valley, 17% in Trentino Alto Adige and 20% in Friuli V. G. It should be noted that for some regions in southern and insular Italy, RTDVA is much higher than what would be expected from tourism density, also and above all given the low level of VA per capita. But this is one of the aspects on which further investigation is needed in the future.

4. A final remark

The lack of access to Territorial Frame SBS does not allow the use of a true supply-side approach, so a flash estimate of the contribution of tourism at the regional level was not possible. Starting from the released data, we could only use the calculated tourism coefficients, as mentioned above. This represents, as mentioned, a simplification since it does not consider the variability of tourist flows, which are, however, contained indirectly in the added value of the branch of economic activity used. Having region-specific coefficients, at least for some branches, would be important.

Another possibility of intervention would be to succeed in identifying a model that would make it possible to arrive at an estimate of RTDVA at the regional level starting from historical or territorial series, even if not included in the tourism sphere, but which are thought to have an influence on the value to be estimated or to be an indicator, even indirectly, of this amount at the regional level, as is already the case, to give a simple example, for the estimation of presences at the municipal level through the weight of waste collected.

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