

Background

The Tourism Satellite Account (TSA) is a methodologically coherent and analytically relevant framework for analysing the characteristics of tourism activity and quantifying the direct contribution of tourism to the economy (Frechtling, 2010). Its analytical relevance stems from the integration of the monetary aspects of tourism supply and demand within a national accounting framework, ensuring conceptual consistency with other macroeconomic aggregates. The fact that 22 European Union Member States use tourism's share in total gross value added based on the TSA methodological framework (Eurostat, 2023) demonstrates its wide acceptance as a relevant analytical tool for measuring tourism's direct economic contribution to national economies.

Despite its analytical relevance, the use of the Tourism Satellite Account for tourism policy formulation faces several limitations, partly due to its focus on the national level. This limitation is particularly relevant in the presence of regional asymmetries in the distribution of tourism flows and the intensity of tourism activity. As a result, methodological approaches for developing regional TSAs have emerged, involving the adaptation of the TSA to the regional level in terms of concepts, content, methods, and data sources (Jones et al., 2003; Cañada, 2013). The increasing use of regional TSAs across countries now enables the evaluation of the consistency of applied methodological practices with the general principles that any regional satellite account should follow (Frent & Frechtling, 2022).

Purpose, hypothesis and contribution

The analytical framework of this paper includes not only direct but also indirect effects of tourism. In addition to direct economic effects arising from the immediate interaction between visitors and tourism service providers, the analysis also considers indirect effects generated through production processes associated with the procurement of intermediate goods and services required for tourism production. This dual perspective is particularly relevant because regions, as result of complex supply-chain linkages, can face underestimation or overestimation of the economic impact of tourism.

The purpose of this paper is to analyse the methodological framework for assessing both the direct and indirect contribution of tourism at the regional level, using the example of a selected region in the Republic of Croatia and applying a top-down approach. The main contribution of the paper is a systematic evaluation of the strengths and limitations of methodologies used to measure regional tourism impacts based on the regionalisation of national data. This contribution is particularly relevant given that previous studies have predominantly focused on estimating the direct contribution of tourism through TSA regionalisation, employing either a top-down approach or a combination of top-down and bottom-up approaches (e.g. Zhang, 2005; Van Ho et al., 2008; Frent, 2023).

The research hypothesis is that the regionalisation of national data results in estimates that, despite existing methodological constraints, contribute to a better understanding of tourism's regional economic effects and provide an analytical foundation for evidence-based tourism policymaking.

Methodological framework

The methodological framework for estimating direct and indirect tourism contributions at the regional level is based on an integrated approach that combines the Tourism Satellite Account with an input–output model (Ivandić & Šutalo, 2019; Figini & Patuelli, 2022). This approach relies on the regionalisation of both the national TSA and the national input–output table into a common, internally consistent analytical format. The procedure is implemented in four stages:

1. analysis of available statistical data sources
2. alignment of the formats of the regionalised TSA and the national input–output table
3. adjustment of the modified national input–output table to the regional level using location quotients (Lovrinčević et al., 2021) and calculation of the Leontief inverse matrix
4. definition of the vector of domestic regional tourism expenditure expressed at basic prices based on the regionalised TSA.

Each stage of the procedure is examined with regard to methodological limitations that may influence the reliability and interpretation of the resulting estimates. Particular attention is given to the assumptions underlying the use of location quotients, the homogeneity of tourism products, the stability of technical coefficients, and the challenges of aligning regional and national expenditure structures.

The analysis is based on available statistical sources. The starting point is the Tourism Satellite Account for the Republic of Croatia for 2022 (Croatian Bureau of Statistics, 2025) and the national input–output table for Croatia for 2021 published by Eurostat (https://ec.europa.eu/eurostat/databrowser/view/naio_10_cp1700_custom_19882787/default/table). The TSA for Croatia is methodologically embedded in the System of National Accounts and comprises five tables: (i) inbound tourism expenditure; (ii) domestic tourism expenditure; (iii) internal tourism consumption; (iv) production accounts of tourism and non-tourism industries; and (v) total domestic supply and internal tourism consumption. The input–output table is a product-by-product table with 69 products/product groups and includes tables of total flows, import flows, and domestic flows.

In addition to these official statistical sources, the analysis incorporates the results of the pilot compilation of the Regional Tourism Satellite Accounts (RTSA) for Croatia for 2022, conducted within the project Establishing the System of Satellite Accounts for Sustainable Tourism of the Republic of Croatia¹. Additional data sources used to adapt the regional TSA and the input–output table include the Survey on Tourism Activity of the Domestic Population (Croatian Bureau of Statistics, 2023), the Attitudes and Expenditure of Tourists in Croatia – TOMAS Croatia survey (Marušić et al., 2023), as well as gross domestic product data for NUTS 2 regions and counties for 2022 (Croatian Bureau of Statistics, 2025). The location quotients used to adapt the national input–

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output table to regional analysis were calculated based on the ratio between the gross value added of individual activities and total gross value added at both the regional and national levels.

Results and conclusions

The analysis of the gap between available and required data, together with the characteristics of the applied methods, reveals several methodological limitations, particularly concerning the intertemporal harmonisation of data sources, the consistency of product/activity classifications between the regional TSA and the input–output table, and the feasibility of adapting the national input–output table to the regional level. Nevertheless, the results provide clear guidance for improving available data sources, especially in countries and regions where tourism represents a key driver of overall economic activity. This is particularly important because more accurate regional estimates of tourism’s economic contribution enable policymakers to design targeted and context-specific interventions and enhance the capacity to anticipate and mitigate tourism-related pressures.

Literature

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