Measuring Tourism Pressure on Italian Destinations: a Vulnerability Analysis at Provincial Level

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Extended Abstract

Over the past 30 years, international arrivals have more than tripled, reaching a total of 1.5 billion tourists. The growth in tourism has been steady over time, despite certain adverse events that have only temporarily reduced the number of travellers, who have promptly resumed travelling in subsequent years, often at increasing rates. Even in more recent years, following the severe crisis caused by the Covid-19 pandemic, international demand has demonstrated extraordinary resilience, fully recovering its 2019 levels globally by 2024.

In response to this significant increase in tourism demand, an increasing number of destinations are experiencing congestion, often amplified by the media, which highlights the difficulties and frustration expressed by residents due to the uncontrolled and chaotic development of tourism. This situation is further exacerbated by the lack of regulation in the sector.

Several authors have highlighted that tourism activity is exposed to shocks that jeopardize the sector given that is an open system (Ridderstaat & Nijkamp, 2016; Ritchie, 2004; Williams & Balaz, 2016). Although several definitions of vulnerability exist from different areas of knowledge, it is usually associated with a greater probability that an unanticipated event significantly affects the sector's activity, such as the occurrence of an adverse natural phenomenon (Paraskevas & Altinay, 2013). Clark et al. (1998) and Turner II et al. (2003) not only consider the probability of external events but also include in the definition of vulnerability the ability to manage and adapt to these unforeseen impacts. Furthermore, they also consider the ability to manage changes in the demand caused by partially controllable events, such as population aging, changes in lifestyle and consumption patterns, or environmental concerns, which destinations must address to achieve long-term tourism sustainability.

The metrics commonly used to monitor tourism pressure on destinations fail to anticipate signs of discontent, as they have numerous limitations and are often inadequate for accurately assessing the phenomenon. This is particularly true because they do not sufficiently account for the widespread issue of excessive tourist concentration, both in terms of time (seasonality) and space (a few popular sites within potentially much larger areas).

The intensity, density, and saturation indices commonly employed to monitor whether destinations have reached critical levels of demand present several challenges. Firstly, they are unable to fully explain the complexity of the phenomenon, as they only consider certain aspects while overlooking key information necessary for a more comprehensive assessment. Secondly, these indices can be imprecise or even misleading, depending on the variables used in their calculation, which directly influence the final results. Lastly, they often rely on factors such as administrative boundaries or resident population, which may not accurately reflect the true extent of the tourism phenomenon.

In such cases, the use of a composite indicator that takes into account various spatial and temporal dimensions is essential to fully evaluate the different aspects related to excessive tourism pressure on a territory. This includes the intensity of demand—hence the performance of tourism in the area and accommodation facilities—the length of stay, and the speed at which tourism is growing within the destination (tourism dynamics). Additionally, it considers demographic trends, which reflect the economic and social development conditions of the host community.

In this study, after identifying the main limitations of some commonly adopted indicators for monitoring tourism flows, we present a methodology that addresses the issue of tourist concentration through a more comprehensive approach. To achieve this, we have developed a new composite indicator that integrates both the volume of tourist flows (pressure) and their dynamics over time. For the first time, it also simultaneously considers the degree of concentration of tourist flows in both time and space, a key factor behind most of the issues linked to tourism overcrowding. These include congestion at local attractions, transport infrastructure, and tourist facilities, as well as the resulting damage to environmental resources, cultural heritage, and the social and economic transformations that ensue. The methodology has been tested within a broad and diverse territorial context, namely across Italy's 107 provinces, through an empirical analysis involving extensive data collection and analysis at both provincial and municipal levels across the country.

Building on the commonly adopted indicators for measuring tourism density and the saturation index, which encompass the four essential variables for monitoring tourism flows: arrivals, overnight stays, resident population, and territorial surface area in km², we have introduced a dynamic indicator—the Annual Average Growth Rate—representing the rate of tourism growth recorded over the years in a given destination. It is crucial to incorporate this metric into the system for assessing tourism pressure, as the rapid growth of tourism in recent years has been the primary cause of the difficulties faced by destinations. These challenges arise from the inability to swiftly adapt the supply of infrastructure and tourism services to meet demand—one of the key reasons behind the proliferation of private and unregulated accommodation solutions offered through short-term rental platforms.

Before normalisation process, this indicator is weighted based on demographic trends within the unit of analysis to adequately account for potential depopulation phenomena and the replacement of residents with tourists. Specifically, the distribution of population change percentages over the 2013–2023 period is divided

into quartiles. Once weighted, the Annual Average Growth Rate is normalised and averaged with the first two indicators.

The arithmetic mean of the three normalised indicators—tourism pressure and growth—provides an initial partial measure of the phenomenon's scale, excluding the effects of tourism flow concentration within the provincial territory. To address this critical aspect, we have added two further indices to the previous indicators: one measuring spatial concentration (the Gini concentration index of overnight stays, based on municipal-level data) and one measuring temporal concentration (the Seasonal Peak Factor, calculated using monthly overnight stays). These serve as multiplicative factors for the previous composite indicator, allowing us to account for specific cases of extreme tourism concentration that may render the pressure unsustainable.

The findings of this study, summarised in this work, demonstrate the usefulness of the new composite indicator in monitoring the vulnerability of tourism destinations exposed to excessive tourism pressure. It goes beyond generic assessments of tourist numbers, typical of mass tourism, by also delving into other crucial aspects, such as demographic dynamics linked to the tourism economy and the concentration patterns of tourism demand. The final indicator obtained by multiplying the arithmetic mean of the three indicators by the product of the seasonality factor and the Gini concentration index, ensures that highly concentrated tourism flows are adequately reflected in the assessment of tourism pressure.

The insightful value of this indicator, which can be easily applied to various territories, provides precise policy guidance for administrators, industry professionals, researchers, and local stakeholders interested in promoting a balanced and harmonious development of tourism. This approach supports the governance and regulation of a key sector that continues to offer significant opportunities for economic and social diversification and growth.

Keywords: Tourism pressure, territorial vulnerability, overtourism, provincial analysis.

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