

## RESEARCH ARTICLE OPEN ACCESS

# Exploring Transport Modal Choices of Albergo Diffuso's Guests in Italy: Insights From Facilities' Owners and Managers

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## ABSTRACT

The Albergo diffuso is a peculiar Italian model of tourism hospitality, aiming also at achieving economic, social, and environmental sustainability. Several papers have analyzed a whole range of issues related to ADs. However, the transport modal choices of guests and the motivation of visitors, especially in the case of active tourism holidays, have not yet been considered. This paper aims to fill this gap by carrying out a survey proposed to the large majority of certified ADs in Italy and to an equivalent control group of accommodation facilities. The results of the analysis allow us to draw some conclusions and recommendations to stakeholders. First, to stimulate networks; second, to build new scenarios of green innovation; third, to develop public transport, investing in bicycle and foot pathways, in electric recharge stations, and in electric car sharing. More emphasis should also be placed on providing public transport to reach rural destinations.

## 1 | Introduction

Since the 1990s, the *Albergo diffuso*<sup>1</sup> (Scattered hotel, from now on AD) has constituted a peculiar and innovative Italian model of tourism hospitality able to deliver accommodation services in houses that are scattered closely to a main reception facility, mainly in rural environments and in historical city centers. The literature focusing on ADs has provided a clear definition: the term “diffuso” (scattered/spread/diffused) denotes an accommodation facility in a village or in a city center with rooms and services located in different buildings with a common reception where leisure and dining facilities may also be located. This new model was proposed by considering the positive impacts that it may have in terms of economic, social, and environmental sustainability. This may be determined by a series of factors, such as: (a) the restoration of existing buildings in accordance with local cultural and historical features; (b) the fostering of local economic development of small rural destinations, while avoiding depopulation and employing local people; and (c) the

creation of value for all stakeholders through the enhancement of the landscape and the attractive development of tourism destinations. This combination of factors ultimately determines the degree of sustainability in a rural destination.

In the last decades, several papers have analyzed a whole range of issues related to ADs, as will be discussed in the literature review section. However, the consideration of transport modal choices of guests and the motivation of tourists, especially connected with active tourism options, seems to be missing. Active tourism represents a demand niche particularly sensitive to wellness practices and to the environment, determined to use soft means of transport to reach and explore natural places far from urban areas. In this context, a large share of ADs is located in rural areas and mostly attracts tourists characterized by this lifestyle. This paper aims to analyze the certified ADs in Italy through a survey that is based on a sample of 126 accommodation facilities (63 scattered hotels and 63 control group hotels). The evidence emerging from the questionnaire will first

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be illustrated by some descriptive tables and figures. Moreover, an Exploratory Factor analysis and logit regression will be performed.

The paper is structured as follows. The next section will provide a review of the literature considering the notion of ADs, their role in sustainable tourism, and the importance of transport for sustainable tourism in rural areas. The following section presents the methodology used for the study. The ensuing section presents the evidence emerging through descriptive statistics, EFA, and logistic regression. The last section concludes and proposes some policy implications and future directions of research.

## 2 | Literature Review

### 2.1 | The Notion of AD and Its Contribution to Sustainable Tourism

Especially since the 1990s, the role of the tourism industry for the achievement of the goals of sustainable development has been taken into account by scholars, public administrations and practitioners. Sustainable tourism contributes to attaining intergenerational equity, to protect biological diversity, to maintain ecological systems, and to ensure cultural integrity and social cohesion. Perkumienė et al. (2020) have presented an integrative literature review on sustainable tourism. Such review has also considered the growing interest in the AD, an Italian hospitality model of accommodation that first appeared in 1982<sup>2</sup> in Friuli to reuse buildings and hamlets restored after the earthquake in 1976. AD took inspiration from international experiences such as the Portuguese Pousadas, the American Cluster Inns, and, most of all, the Ryokan model in Japan, strongly rooted in the culture and history of local communities. A workable definition has been provided by Vadalà (2012, 1), who has defined AD as a community oriented touristic model “aimed at developing touristic facilities outside the most celebrated touristic hotspots and conversely enhancing the attractiveness of generally bypassed places, with a simple idea in mind: to give a new life to historical villages—abandoned or at risk of abandonment—that could be gradually turned into dispersed hotel facilities, with a simple conversion of the abandoned houses into individual hotel rooms.” During the Covid-19 pandemic, ADs have represented an important element of the diffusion of staycation and of proximity tourism (Dall’Ara and Villani 2020).

Pietrogrande and Vaccher (2017) highlight two important factors that have fostered the development of ADs: (a) cultural tourism has changed in the last decades requiring more authenticity and experience value together with more attention to “cultural landscape”; (b) the tourism services must be developed through the use of sustainable solutions. According to Romolini et al. (2017) and Fissi et al. (2020), AD is a form of sustainable tourism development, given that it fosters the growth of the territory, the conservation of the eco-system, and the protection of the cultural environment. Sustainability can also be part of the AD model in terms of the business model. ADs’ owners generally develop initiatives that jointly consider financial returns and lifestyle. In this context, Presenza et al. (2016) claim that

these entrepreneurs want to combine a long-term economic return with sustainable and viable living. The authors then describe the results of a survey aimed at analyzing the main reasons motivating the startup of ADs. It emerges that the desires for independence, and for improvement of the quality of life of local communities, rank higher than their financial objectives. A different approach emerges from another study, based on online reviews of tourists (Gazzola et al. 2019). The authors find out that the AD model represents a tool for sustainable territorial marketing, proving that this form of hospitality has been able to enhance the tourist attractiveness of peripheral areas secluded from traditional mass tourist destinations, but also the well-being of tourists.

Trombadore (2020) identifies some possible drivers of sustainability and confirms that ADs may be a driver of development of local rural communities, and of environmental sustainability. Moreover, they can foster the revitalization of productive and commercial activities. In order to reach these goals, it is necessary to envisage new models for the sustainable use of the living spaces in fragile ecosystems of coastal and countryside regions, in historic villages, and in inner areas characterized by a state of depopulation and abandonment. The author applies these ideas to the project “Vivimed,” based on the analysis of 10 issues related to several issues connected to sustainability (territorial, urban, building, and cross-cutting scale of intangible resources, services and networks). Another similar case study has been proposed by De Montis et al. (2015) by focusing attention on Osini, an old village in Sardinia, abandoned in 1951 after a severe flood and landslide. The study states that it is necessary to develop specific landscape and geological planning tools, appropriate building types, and materials. Moreover, it is necessary to involve local authorities and stakeholders in order to determine a sound economic development in secluded areas. The related initiatives should also be coordinated with other similar ones in order to deploy efficient networks that are able to attract national and international tourists. The Osini’s case study concludes that the AD project should take into consideration all the relevant urban, technological, institutional, social and political themes. The notion of all involved stakeholders has also been analyzed by Cucari et al. (2019). Apparently, ADs can generate gains for all involved stakeholders as they determine a rejuvenation of specific tourism destinations (mainly in rural and mountain areas) and an improvement of the overall landscape. Consequently, an AD investment project must take into account the territory, the culture and the community where it is deployed.

The international spread of AD is described by Cosentino and Iannone (2021), who mention the use of this accommodation model to refurbish and rejuvenate the hamlets in Croatia, Switzerland, Slovenia, and Japan. The authors consider that focusing on the peculiar business model of ADs may represent an interesting opportunity as it includes the following concepts: (a) conservation, valorization, and promotion of abandoned places, and (b) valorization of the cultural, rural, and social heritage.

The analysis of the demand side of ADs market niche leads to considering that these facilities represent an important option for those niches of tourists who desire to live peculiar experiences that include enogastronomy, historical and artistic heritage of

the region and a rich local demo-ethnic-anthropological culture (Paniccia 2012).

In general, the demand is constituted by people aiming at establishing contacts with locals and at staying in accommodation facilities that provide the same degree of comfort and services as traditional hotels.

In general, ADs can represent an important element of the road-map for 2050 towards a sustainable and resilient European tourism ecosystem, as envisaged by the European Tourism Agenda 2050 (European Tourism Convention, 2020).

## 2.2 | The Role of Transport for Sustainable Tourism in Rural Areas

According to the previous subsection, several papers have proposed substantial and significant contributions to the notion of AD and to its relevance for sustainability. However, few studies have jointly analyzed transport and tourism in rural areas, trying to elicit which strategies can be implemented to reduce the impact generated by the use of private cars and to increase the use of alternative transport modes to reach these destinations and to mobilize within them (Morena et al. 2017; Scuttari and Isetti 2019).

As reported by Hopkins (2020), tourism and transport are symbiotic, and researchers should devote more attention to the role of this relationship to enhance the sustainability of tourism. The achievement of sustainable tourism entails a continuous process of innovation and amelioration to face new needs. For instance, Covid-19 led tourists to rethink their interests in tourism and to reevaluate their plans. Fermani et al. (2020) think that structures immersed in nature could play a fundamental role in satisfying latent and explicit demands of customers. In this context, Tomej and Liburd (2020) have analyzed the critical role that public transport plays with respect to environmentally friendly mobility for sustainable tourism development in rural destinations.

Moreover, Fermani et al. (2020) argue that transport is one of the main factors that determines the local and national ecological footprint. The need for decarbonization and for reducing energy consumption is crucial. In rural and less productive regions, transport can play a pivotal role in sustainability (in all the dimensions established by the Bruntland Commission, i.e., economic, environmental, and social), and in the prevention of loss of community values and linkages. The aim of this study was to measure the degree to which tourists prefer accommodation according to sustainable characteristics by developing the Sustainable Tourist Stay Scale (STSS) using factor analysis on a sample of tourists. The results revealed a three-factor structure that also elicits the crucial role of transport in tourism sustainability, especially in the Covid era. In turn, many tourist destinations are entirely dependent on sustainable transport for their development, considering the link between the origin markets and the host destination, mobility within the destination, mobility and access to tourist attractions. Another study (Więckowski 2021) has identified three pillars of transport sustainability in the tourism sector:

- Proximity: as the distance between tourists' residential areas and destinations, the shorter the stay, the shorter the travel route should be;
- low-speed and reduced-energy travel;
- green transport by increasing the use of soft mobility (walking, cycling or kayaking).

The author shows a virtuous circle from less sustainable to more sustainable ways of transport, distinguishing short and long distance in reaching the destination and transport within the destination.

When the Italian rural tourism destinations are considered, it is important to note that while the international connections of the main Italian cities have been swiftly rising in the last decades, especially thanks to airline routes, the links from the main Italian transport hubs to rural areas and to small hamlets are still scarce and slow. Consequently, private motorized transport means emerge as the most chosen option for these specific travel needs. Domestic tourists use their own transport means, while international tourists, reaching Italy mainly by plane, need to rent a car to arrive at their rural destinations in most parts of Italy.

## 3 | The Methodology

The previous section has demonstrated that ADs are a good example of sustainability for many issues. However, they are mainly located in rural areas, not easy to reach for geographical reasons (mountains, hills) and for the lack of integrated transportation systems. The goal of this study was to carry out an analysis of the basic concepts of sustainability related to ADs. The main aim was to ascertain how this kind of accommodation facilities may impact social, economic, cultural, and environmental sustainability.

In this context, a questionnaire has been proposed to the owners of the large majority of certified ADs in Italy. In order to gain the largest possible representativeness of the data, facilities' owners or managers were interviewed and were asked to report on key elements useful for our study. The certified ADs population is well identified on the official website of the Italian association All ADs were contacted, and the response rate was 88%. Specifically, the survey was conducted on 63 ADs and on 63 other similar accommodation facilities (group of control) located in the same hamlets/towns as each AD. It was carried out using a structured questionnaire between May 2022 and September 2023. The use of the control group has been used to verify that the data derived from the experimental group are actually due to the variable being tested and not to unknown external influences. All 126 interviews have been carried out by the authors by telephone. As mentioned above, the respondents have been identified through the Association of scattered hotels and the group of control through maps and online travel agencies.

The questionnaire was structured in four main sections. The first one was related to the characteristics of tourists. In particular, the first three questions intend to determine the tourists'

profiles: (a) the origin of the tourist (regional/national/international); (b) the travel group (alone, in couple, with the family or in groups); (c) the age, partitioned in ranges. The fourth question considers the trip purpose, with several dummies for each of the following possible motivations: events, thermal, culture, enogastronomy, shopping, sea, mountain, or active vacation.

The second part of the questionnaire pertained to mobility, both in terms of transport means used to reach the destination and with respect to the mobility options while staying in these facilities. This part of the questionnaire was structured coherently with the approach used in a recent study focusing on sustainable transport in tourism (Więckowski 2021). Specifically, the fifth question asked about the means of transport used by tourists to reach the accommodation facility (car, bike, bus, train, airplane, boat, on foot) in percentage terms. Question 6 was related to the percentage of tourists that have rented a means of transport during the stay (taxi, bike, motorcycle, car). Questions 7 and 8 aimed at ascertaining whether the hotel provides driving directions (dummy) and parking facilities (dummy). Question 9 analyses the attractions and services that are reachable on foot (dummies) and Question 10 is related to the relative amount of time that tourists spend on the various transport modes for their mobility while on vacation (on foot, driving, biking, by bus).

The third part of the questionnaire was related to the availability of transport infrastructures and services for sustainable mobility in the area where the accommodation facility is located. Question 11 consists of statements, rated on a 5-point Likert scale, with 5 indicating a strong need to intervene to improve such a service, and 1 indicating a situation in which the service is efficiently provided. The statements were outlined to reflect the owners' opinions on urban transport, extra-urban transport, public order and security, network of local products, tourism information points, municipal waste management, tourism integrated products, destination attractions, and animation. The 12th question concerns the involvement of public authorities in sustainable local transport (with 1 for low involvement and 5 for high involvement). The reliability of these two questions is examined with Cronbach's  $\alpha$ . They were proposed under the assumption that, combined, they could give a measure of the overall hotel owners' opinion on public-private services provided at the local level. Cronbach's  $\alpha$  value is higher than 0.8691; it is considered very high, and it shows that such items are highly correlated. It also demonstrates the reliability of each indicator.

Finally, the fourth section was used to identify other aspects concerning the territory and specific characteristics of the surveyed structures. Three questions concerned the degree of seasonality of the hotel, the average length of vacation, and the average room fee. The final question focused the attention on the perception of the hotel owner about the aim of investing in hotels in rural areas.

The answers to the questionnaires were complemented by some data about elements related to the municipality where hotels are located, that is, the level of ruralization,<sup>3</sup> number of inhabitants, altimetric zone,<sup>4</sup> and coastal area.<sup>5</sup>

The final dataset is constituted of more than 60 variables, many of them qualitative, coded, and adapted for STATA software.

The questionnaire includes several items concerning sustainability that could be grouped by using factor analysis in order to draw some conclusions that may be useful for future research and policies. Policy makers could develop strategies to optimize these factors for the growth of tourism sustainability.

The analysis of the data obtained through the survey has been threefold: a description of the data, a factor analysis, and a logit regression.

The first section of the analysis describes the characteristics of tourists and of the rural context where ADs are located. The fundamental aim of this first part of the analysis is that by considering the statistical results coming from the interviews, it is possible to describe the tourists that choose these facilities. The second fundamental aim is to provide a description of the territory and of the services provided by public and private stakeholders.

The second section presents factor analysis as a technique particularly suitable to extract a few factors from the large number of related variables of our dataset, prior to using them in the logit regression. The literature has considered the possibility to interpret the questionnaire using factor (Shrestha 2021) or principal component analysis (Suhr 2005), testing both dimensionality reduction techniques for extracting information from a high-dimensional space by projecting it into a lower-dimensional subspace in order to choose the most suitable ones.

The authors have executed several attempts using both EFA and PCA before choosing the technique and proceeding with factor extraction. Exploratory factor analysis helps to identify the number and nature of latent factors. It assumes that the covariation in the observed variables is due to the presence of one or more latent variables (factors) that exert causal influence on these observed variables. These factors are latent in the sense that they are assumed to actually exist and exert an influence on the respondents' sensitivity to the items that constitute sustainability. However, they cannot be measured directly. In this study, the Kaiser–Meyer–Olkin measure of sampling adequacy is used to assess the factorability of the data. Kaiser's Criterion (an eigenvalue greater than one is considered to be significant) and the Scree test (factor extraction should be stopped at the point where there is a leveling of the plot) are used to determine the optimal number of factors to be extracted. The Varimax orthogonal factor rotation method is applied to minimize the number of variables that have high loadings on each factor and interpret the results. As mentioned above, the internal consistency of questions based on the Likert scale is confirmed by calculating Cronbach's  $\alpha$  to test the instrument's accuracy. The factor analysis may cluster these variables into different factors where each factor measures some dimensions of the survey. The significant factors are extracted to explain the maximum variability of the group under study.

Finally, a logit regression where the dependent variable is scattered `_hotel`<sup>6</sup> explores the role of some significant variables that have emerged from the factor analysis.

#### 4 | Descriptive Statistics of Surveyed Accommodation Facilities

The survey allowed obtaining data related to most of the certified ADs in Italy (63 out of 72) and to an equal number of similar accommodation facilities in the same towns of the ADs for a total of 126 questionnaires. From a geographical viewpoint, the surveyed ADs are located in municipalities representing 22 different Italian EcoRegions Sub-Sections<sup>7</sup> with these characteristics:

- 60% in the Center-North of Italy;
- 40% in mountain areas<sup>8</sup> and 50% in hilly areas with an average altitude of the municipality of 326mt;
- one third in coastal areas;
- 44% of the municipalities have less than 2000<sup>9</sup> inhabitants and 20% of the municipalities have an area less than 20km<sup>2</sup> with a population density of less than 50 people per square kilometer;
- 65% of the municipalities are considered rural areas or towns with a very low level of urbanization/population density, and 5 of them are hamlets, sometimes relatively far from the main related town (e.g., Roccalvecce is 22 km far from the centre of Viterbo).

One of the main differences between owners/managers of ADs and those of traditional accommodation facilities lies in their consideration of the importance of restoring old buildings (60% of positive replies for ADs vs. 33% in the control group).

The characteristics of the tourists are similar in both subgroups:

- less than 20% come from the same Italian NUTS2 region, the rest is almost equally distributed between the rest of Italy and foreign countries;
- more than 60% of tourists are 35-64 years old, slightly less than 30% are under 35, and more than 10% are over 64;
- more than 50% are couples, around 20% travel with friends and another 20% with families, whereas about 10% travel alone;
- business travelers represent 2% of guests in ADs and 7% in the other subgroup;
- the average length of stay is 3.5 nights;
- the average double room rate per night is €108.00 in ADs and €123.00 in the other subgroup.

Concerning trip purpose, ADs' guests are motivated in 81% of the cases by cultural reasons (vs. 54% of the control group guests), 75% of them do an active vacation (vs. 41% of the other subgroup guests) and 63% do mountain tourism (against 24% of tourists choosing the control group facilities). There is no difference when the purpose of the trip is the sea, sun, and sand vacation. One third of the municipalities are in the coastal areas, and 49% of tourists choosing ADs are motivated by this trip purpose versus 44% of the control group. However, if we combine the two motivations—culture and sea—the difference becomes relevant

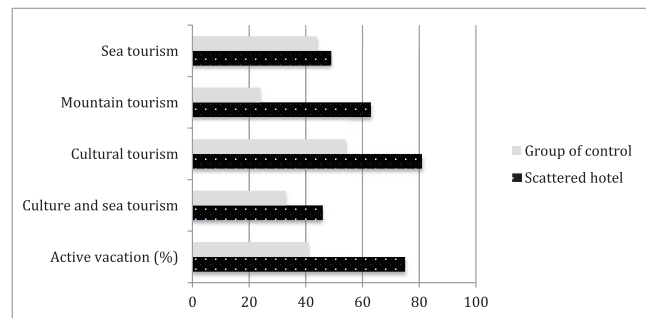


FIGURE 1 | Activities performed by tourists (%).

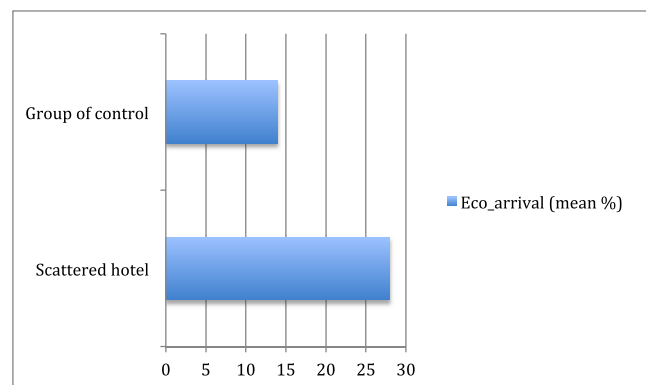


FIGURE 2 | Mean of tourists arriving by public transport, bike, or on foot.

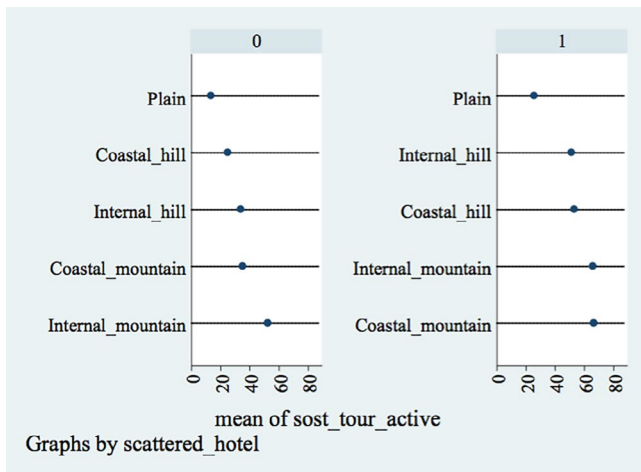
because guests in scattered hotels represent 46% versus 33% of the control group control (Figure 1).

The use of sustainable transport options to reach the accommodation facility is much higher in ADs, where 28% of the guests use bikes, public transport, or arrive on foot, than in the other subgroup facilities, where the percentage is 14% (see Figure 2).

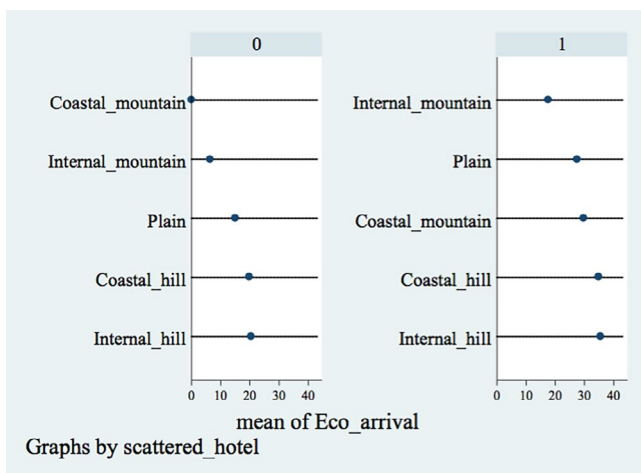
Even if we partition the sample in subgroups depending on the altimetric zone of the municipality, the mean of tourists that choose environmentally friendly means of transport is higher in ADs than in the control group facilities, both to reach the destination and to mobilize while on vacation (see Figures 3 and 4). Figure 3 shows that tourists choosing mountain or hilly areas opt for a more active vacation style than those going to coastal destinations.

Figure 4 provides evidence that the tourists choosing ADs use more sustainable means of transport to reach the destination in all considered altimetric zones. This is also the case in coastal-mountain areas and internal mountain ones where the percentage of tourists arriving by car is very high in the control group, while in the case of ADs, the share is much lower.

Figure 5 shows the average of soft mobility and eco\_arrival by Sub-Regions. This figure provides further evidence that the ADs tourists are more inclined to use environmentally friendly mobility options and to adopt a more sustainable lifestyle while on vacation. Figure 5 compares, for each subregion, the average of tourists preferring means with a low environmental impact to reach the destination and using soft mobility means during their



**FIGURE 3** | Mean of tourists who use sustainable means of transport and practice active vacation by altimetric zone.



**FIGURE 4** | Mean of tourists reaching the destination by sustainable means of transport.

stay in the scattered hotels versus tourists who choose other facilities.

It was evident that the peripherality of ADs forced many tourists to recur to private motorized transport options to reach the destination. The obtained data were also useful to determine how the tourists divide their mobility time once at the destination. From the interviews, the higher use of sustainable transport modes in hotels with higher shares of foreign tourists, especially in central–northern Italian destinations, also emerged. Finally, a low involvement of public authorities in the provision of sustainable transport options has generally been declared.

Finally, the sensitivity of ADs owners is much higher for the local services that can improve sustainable tourism and can promote a destination where tourists can find attractions and attractiveness:

- 75% of ADs reply that there is a high need to improve extra-urban transport against 57% of the control group;
- 56% of ADs consider that there is a high need to improve urban transport against 48% of the control group;

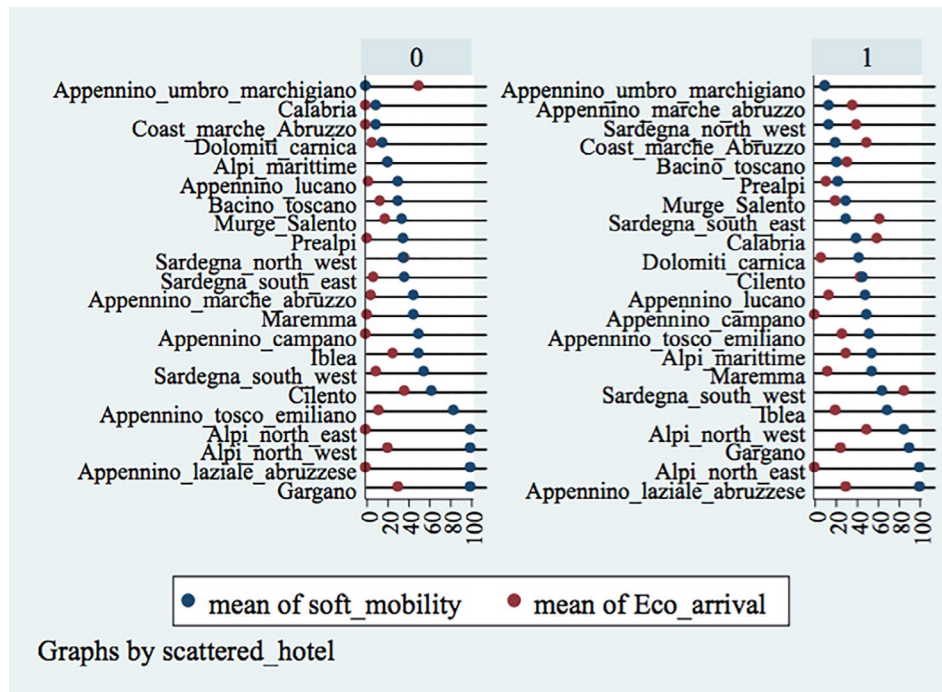
- 57% of ADs deem that there is a high need to improve municipal waste management against 10% of the control group;
- only 11% of ADs reply that there is a good involvement of public authorities in green transport against 5% of the control group;
- 52% of ADs affirm that there is a high need to improve tourism services integration against 17% of the control group;
- 57% of ADs consider that there is a high need to improve the local products network against 13% of the group of control;
- 73% of ADs reply that there is a high need to improve tourism infopoints against 17% of the group of control;
- 78% of ADs state that there is a high need to improve tourism attractions and animation against 14% of the group of control;
- 38% of ADs consider that there is a high need to improve tourism infopoint against 10% of the group of control.

## 5 | Exploratory Factor Analysis

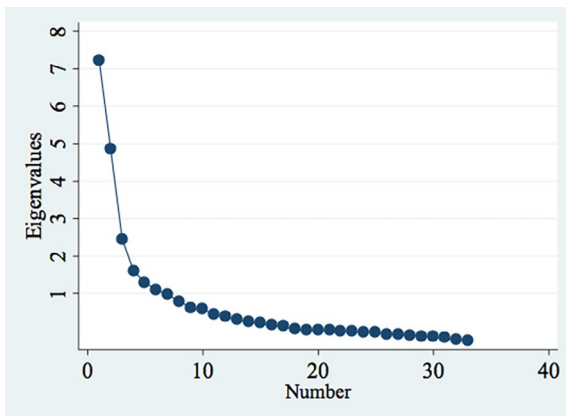
The factor analysis was used to determine the latent factors that exert an influence on the items that can enhance sustainability. Out of the original set of variables, 31 have been selected to explore the items of this research. Firstly, the trip purpose emerged as extremely important in the analysis. For what concerns means of transport, the variable named eco\_arrival summarizes all the environmentally friendly ones (footing, biking, public transport, etc.) to reach the destination. The variable EF\_mobility considers the same means of transport while mobilizing within it. Furthermore, a quantitative variable (number of spots reachable on foot) accounts for the number of attractions/services that can be reached on foot. Moreover, the variables concerning the rental of a means of transport during the stay and the quality of local services have been included, jointly with the philosophy of such destinations and the classification of the municipalities provided by Istat (altimetric zone, seaside zone, coastal area, ruralization degree).

Before the extraction, 17 linear components have been identified by the STATA software within the abovementioned selected 31 variables. After the extraction and the rotation, four distinct linear factors displayed an eigenvalue higher than 1, and they accounted for a combined 79.62% of the total variance. A Kaiser Meyer Olkin test has been performed, and it provided a value of 0.80, which is satisfactory. The first factor explained 33.64% of the total variance with an eigenvalue of 6.04. The second one accounted for 24.04% of the variance with an eigenvalue of 4.32. The third one explained 14.75% of the variance with an eigenvalue of 2.65. The fourth factor accounted for 12.40% of the total variance with an eigenvalue of 1.29.

Figure 6 proposes the results of the scree test. They confirm that there are four factors whose eigenvalue is greater than one and which account for most of the total variability in the data. Consequently, Table 1 shows the variables which have a loading higher than 0.29 for each factor. The variable AD emerges



**FIGURE 5** | Mean of tourists reaching the destination by public transport, by bike, or on foot and mean of tourists choosing soft mobility at the destination.



**FIGURE 6** | Scree plot of eigenvalues after factor analysis.

for all considered factors. Some other variables have significant loadings on multiple factors (i.e., cultural tourism and events tourism).

The variables related to the ADs owners' perception about the quality of services provided in the local area, especially tourism services, waste management, and public order appear as the most relevant for Factor 1. A second tier of variables includes the enogastronomic trip purpose and bike rental during the stay. Finally, other variables, such as mountain, active vacation, event and cultural tourism, and the desire of the respondents to improve urban and extra-urban transport, have values in the range 0.30–0.36. In summary, this first factor includes a certain sensitivity of the respondents towards items considered important for sustainable tourism and the particular interest of their guests in doing a vacation characterized by the natural environment and healthy and cultural goals.

The second factor mainly describes a plain coastal area with an interest in sea tourism. These elements characterize a destination completely different from the one identified by the first factor.

The third and fourth factors display less variance. It is, however, interesting to interpret them. The third factor is characterized by the use of transfers and by the rental of a means of transport during the vacation (taxi, car, motorbike, or bike). The presence of the *eco\_arrival* variable suggests that this factor is linked to the share of tourists who reach their destinations with sustainable transport modes. The fourth factor is influenced by variables (*EF\_mobility*, local policies for green transport, the number of spots reachable on foot, and improvement of urban and extra urban transport) connected to tourists who are concerned with the sustainability of transport activities within the destination. On the basis of these results, the next section presents the logit regressions related to the identified factors.

## 6 | Logistic Regression Analysis

The aim of this subsection is to quantify the influence of some variables emerging from the factor analysis. The logit regressions have ADs as the dependent variable<sup>10</sup> and include as independent variables those with significant loading values in Factors 1–3 (see Table 2).

The logit regression based on the variables emerging from Factor 1 displays bike rental and mountain tourism as the most significant ones, followed by the opinion on services such as attractions and animation, tourism infopoint, and integration of tourism products.

**TABLE 1** | Most significant rotate factor loadings.

| Factors                                             | Factor loading |
|-----------------------------------------------------|----------------|
| <i>Factor 1</i>                                     |                |
| To improve tourism attractions and animation        | 0.88           |
| To improve tourism infopoint                        | 0.83           |
| To improve municipal waste management               | 0.81           |
| To improve network of local products                | 0.81           |
| To improve the integration of tourism products      | 0.80           |
| To improve public order                             | 0.73           |
| Scattered hotel (AD)                                | 0.68           |
| Enogastronomy tourism                               | 0.53           |
| Bike rental                                         | 0.47           |
| Mountain tourism                                    | 0.36           |
| Active vacation                                     | 0.35           |
| To improve extra urban transport                    | 0.34           |
| Cultural tourism                                    | 0.33           |
| Events' tourism                                     | 0.32           |
| To improve urban transport                          | 0.30           |
| <i>Factor 2</i>                                     |                |
| Altimetric zone (from mountains to plains)          | 0.85           |
| Coastal area                                        | 0.85           |
| Seaside area                                        | 0.83           |
| Sea, sun and sand tourism                           | 0.67           |
| Cultural tourism                                    | 0.37           |
| To improve extra urban transport                    | 0.31           |
| Scattered hotel (AD)                                | −0.11          |
| Mountain tourism                                    | −0.54          |
| Active vacation                                     | −0.57          |
| Ruralization degree (from urban area to rural area) | −0.70          |
| <i>Factor 3</i>                                     |                |
| Transfer airport required                           | 0.61           |
| Transfer station required                           | 0.59           |
| Taxi for excursions required                        | 0.59           |
| Car rental                                          | 0.52           |
| Motorbike rental                                    | 0.47           |
| Eco_arrival                                         | 0.45           |

(Continues)

**TABLE 1** | (Continued)

| Factors                            | Factor loading |
|------------------------------------|----------------|
| Bike rental                        | 0.35           |
| Scattered hotel (AD)               | 0.34           |
| Enogastronomy tourism              | 0.33           |
| Events' tourism                    | 0.30           |
| <i>Factor 4</i>                    |                |
| EF mobility                        | 0.33           |
| Local policies for green transport | 0.33           |
| Number of spots reachable on foot  | 0.33           |
| Scattered hotel (AD)               | 0.11           |
| To improve urban transport         | −0.51          |
| To improve extra urban transport   | −0.54          |

Factor 2 logit regression confirms the high coefficient for mountain tourism and shows that active vacation and cultural tourism are also relevant. The improvement of extra-urban transport has a lower positive coefficient, while sea tourism is characterized by a negative one.

Factor 3 logit regression shows positive and significant coefficients for enogastronomy tourism and for two items concerning mobility inside the destination: bike rental and the use of taxi for excursions.

Factor 4 logit regression was performed, but the results are not commented given that the R<sup>2</sup> was lower than 35%. This threshold value was chosen according to the literature that considers it to be satisfactory in the social sciences (Ozili 2023).

Finally, a logit regression was performed with the aim of exploring the main variables that influence the preference of tourists for Ads (see Table 3). They include the following ones: active vacation focusing on sports activities, soft means of transport, cycling, footing, trekking, cultural motivation, enogastronomy interests for visiting the area, mountain vacation, and sea vacation. The variable ruralization (ordinal variable) identifies the level of rural areas, not well urbanized and peripheral.

The results demonstrate that such determinants can be considered the main drivers of the choice of tourists for ADs. The regression coefficients associated with active vacation, mountain tourism, and enogastronomy tourism are large and significant. Active tourists, mountain visitors, enogastronomy tourists, and cultural visitors have, respectively, 2.7, 11.6, 4.8, and 5.8 times the odds of non-active tourists of choosing AD. Tourists motivated by the sun, sand, and beach (seaside) trip purpose do not display a particular preference for ADs. This is probably due to two reasons: only one third of the municipalities are in coastal areas, and tourists having this motivation do not show a particular preference for ADs. These results demonstrate that ADs have an identity, a perception of a place where it is possible to combine culture and active life, in a

**TABLE 2** | Logistic regression results.

|                                                     | Coefficient | Odds ratio | Standard error | $p >  z $ |
|-----------------------------------------------------|-------------|------------|----------------|-----------|
| <i>Scattered hotel (comp. 1)</i>                    |             |            |                |           |
| To improve tourism attractions and animation        | 0.9600909*  | 2.611934   | 0.4966043      | 0.053     |
| To improve tourism infopoint                        | 0.6924327*  | 1.998572   | 0.3569099      | 0.052     |
| To improve municipal waste management               | 0.77025*    | 2.160306   | 0.4289058      | 0.073     |
| To improve network of local products                | −0.5776995  | 0.5611879  | 0.4128251      | 0.162     |
| To improve the integration of tourism products      | −0.9901852* | 0.3715079  | 0.5313449      | 0.062     |
| To improve public order                             | 0.220184    | 1.246306   | 0.444486       | 0.620     |
| Enogastronomy tourism                               | 0.243249    | 1.275386   | 0.7930952      | 0.759     |
| Rent bike                                           | 3.085077*** | 21.86914   | 0.9160534      | 0.001     |
| Mountain tourism                                    | 2.98079***  | 19.70338   | 1.042636       | 0.004     |
| Active vacation                                     | −0.9009925  | 0.4061663  | 0.9434568      | 0.340     |
| To improve extra urban transport                    | 0.2127718   | 1.237102   | 0.4129364      | 0.606     |
| Cultural tourism                                    | 0.6581746   | 1.931264   | 0.9023189      | 0.466     |
| Events tourism motivation                           | 0.7067091   | 2.027309   | 0.9136006      | 0.439     |
| To improve urban transport                          | −0.2590486  | 0.7717855  | 0.3298629      | 0.432     |
| Cons                                                | −5.504722   | 0.0040475  | 1.562177       | 0.000     |
| Number of obs.: 126                                 |             |            |                |           |
| Log likelihood: −30.935234                          |             |            |                |           |
| LR $\chi^2(14)$ : 112.80                            |             |            |                |           |
| Prob > $\chi^2$ : 0.0000                            |             |            |                |           |
| Pseudo $R^2$ : 0.6458                               |             |            |                |           |
| <i>Scattered hotel (comp. 2)</i>                    |             |            |                |           |
| Altimetric zone (from mountains to plains)          | 0.5979959   | 1.818471   | 0.4091362      | 0.144     |
| Costal area                                         | 0.8039375   | 2.234321   | 1.025958       | 0.433     |
| Seaside area                                        | 0.034703    | 1.035312   | 0.9682008      | 0.971     |
| Sea tourism                                         | −1.544957** | 0.213321   | 0.7893319      | 0.050     |
| Cultural tourism                                    | 2.39051***  | 10.91906   | 0.7103368      | 0.001     |
| To improve extra urban transport                    | 0.465436**  | 1.592708   | 0.2075455      | 0.025     |
| Mountain tourism                                    | 3.345558*** | 28.3764    | 0.8536622      | 0.000     |
| Active vacation                                     | 1.837113*** | 6.278385   | 0.6737997      | 0.006     |
| Ruralization degree (from urban area to rural area) | −0.3657     | 0.6937109  | 0.6275326      | 0.560     |
| Cons                                                | −6.121393** | 0.0021954  | 2.67396        | 0.022     |
| Number of obs.: 126                                 |             |            |                |           |
| Log likelihood: −56.76907                           |             |            |                |           |
| LR $\chi^2(9)$ : 61.13                              |             |            |                |           |
| Prob > $\chi^2$ : 0.0000                            |             |            |                |           |
| Pseudo $R^2$ : 0.3500                               |             |            |                |           |
| <i>Scattered hotel (comp. 3)</i>                    |             |            |                |           |
| Transfer airport required                           | 0.0957383   | 1.100471   | 0.7179575      | 0.894     |
| Transfer station required                           | −0.9802092  | 0.3752326  | 0.8006246      | 0.221     |

(Continues)

**TABLE 2** | (Continued)

|                              | Coefficient  | Odds ratio | Standard error | $p >  z $ |
|------------------------------|--------------|------------|----------------|-----------|
| Taxi for excursions required | 1.995948**   | 7.359174   | 0.7990603      | 0.012     |
| Car rent                     | 1.896422*    | 6.662013   | 1.101035       | 0.085     |
| Motorbike rent               | −0.337612    | 0.7134721  | 1.346803       | 0.802     |
| Eco_arrival                  | 0.102278     | 1.01028    | 0.0111556      | 0.359     |
| Rent bike                    | 3.134328***  | 22.9732    | 0.642376       | 0.000     |
| Enogastromony tourism        | 1.628308***  | 5.095247   | 0.5762741      | 0.005     |
| Events tourism               | −0.218336    | 0.8038553  | 0.6447681      | 0.735     |
| Cons                         | −2.483466*** | 0.0834534  | 0.5133255      | 0.000     |
| Number of obs.: 126          |              |            |                |           |
| Log likelihood: −47.359396   |              |            |                |           |
| LR $\chi^2(9)$ : 79.95       |              |            |                |           |
| Prob > $\chi^2$ : 0.0000     |              |            |                |           |
| Pseudo $R^2$ : 0.4577        |              |            |                |           |

\*\*\* $p < 0.01$ .\*\* $p < 0.05$ .\* $p < 0.1$ .**TABLE 3** | Logistic regression.

| Scattered_hotel            | Coefficient | Odds ratio | Standard error | $p >  z $ |
|----------------------------|-------------|------------|----------------|-----------|
| Active vacation            | 0.9939997*  | 2.70202    | 0.5917534      | 0.093     |
| Culture                    | 1.754605**  | 5.781163   | 0.6888773      | 0.011     |
| Enogastronomy              | 1.570943**  | 4.811184   | 0.503639       | 0.002     |
| Ruralization               | −1.28984**  | 0.2753138  | 0.5783994      | 0.026     |
| Mountain                   | 2.451198*** | 11.60224   | 0.6636737      | 0.000     |
| Seaside                    | −0.095033   | 0.9093427  | 0.5493252      | 0.863     |
| _Cons                      | −0.258683   | 0.7720674  | 1.514059       | 0.864     |
| Number of obs.: 126        |             |            |                |           |
| Log likelihood: −56.585411 |             |            |                |           |
| LR $\chi^2(6)$ : 61.50     |             |            |                |           |
| Prob > $\chi^2$ : 0.0000   |             |            |                |           |
| Pseudo $R^2$ : 0.3521      |             |            |                |           |

\*\*\* $p < 0.01$ .\*\* $p < 0.05$ .\* $p < 0.1$ .

rural and mountain context connected with good local food as a priority.

## 7 | Conclusions

The analysis carried out in the paper has allowed confirming some theoretical themes connected to the diffusion of the AD business model. The restoration of existing buildings in accordance with cultural and historical features, the fostering of local economic development of small rural destinations, while avoiding depopulation, and the creation of value for all stakeholders through the enhancement of the landscape and the development of tourism destinations are essential components. In the context of ADs

located in rural and/or mountain areas, tourism has witnessed robust growth thanks to the ecological environment and high-quality development that jointly create harmonious coexistence between people and nature. Tourists can enjoy beautiful landscapes while horseback riding, trekking, or bicycling.

In terms of transport towards the destination, since most ADs are located in small villages in rural areas, they are accessed by car in 90% of the cases. There is scarce use of bikes because of the hilly, mountainous morphological structure of the regions where most of the considered sample is located. In the case of a final destination characterized by low accessibility, tourists are often obliged to rent a car because the airport and the train station are not well connected with the hamlets where ADs are

located. With respect to intra-destination mobility, most tourists prefer to use private motorized transport means because they are more comfortable and give autonomy in traveling within the area. However, staying at ADs is normally connected with the opportunity to reach on foot or bike attractions located over short distances while enjoying the environment. Our analysis has highlighted the importance of active holidays connected to soft mobility in the rural and mountain areas where ADs are located, with a positive impact on the physical and mental health of tourists. The results can be interpreted in terms of the convenience and comfort of moving within a tourist destination where attractions are not far from the accommodation facility.

The results emerging from the analysis carried out in the paper allow us to draw some recommendations to stakeholders. These include the development of public transport, investments in bicycle and foot pathways, electric recharge stations, and electric car sharing. More emphasis should be placed on providing public transport to reach the destination and connect air and railway systems with local public transport.

The empirical results reported herein should be considered in light of some limitations; particularly, the respondents' ability to describe the behavior of the guests of their facilities and the limited number of surveyed hotels. Specifically, the possibility of social desirability bias (i.e., the tendency to propose responses that will be considered favorably; see, e.g., Smith 2007 and Zhu et al. 2024) or of confirmation bias (i.e., the attitude to consider new evidence as a confirmation of one's previous theories of beliefs; see, e.g., Karri and Dogra 2023) could be tested. Another limitation is the lack of data collection regarding the point of view of tourists. The results must then be interpreted with caution. Future research will consider the sustainability of ADs by directly surveying the tourists in order to complement the results obtained in this study. Moreover, it will also be important to take into consideration the extent to which ADs may attract a larger number of tourists. In this context, the role of local stakeholders to promote policies and strategies to support sustainable tourism practices should be carefully investigated.

## Disclosure

The authors hereby declare that the disclosed information is correct and that no other situation of real, potential, or apparent conflict of interest is known to them.

## Conflicts of Interest

The authors declare no conflicts of interest.

## Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

## Endnotes

- <sup>1</sup> In 2001, the Italian Constitutional Reform of Article 117 identified the region as the authority responsible for tourism. Each region introduced a specific regulation. Some of them at the end of '90s, other regions only in recent years. Only in 2017, "Albergo diffuso" regulation

was completed in all regions, fixing minimal requisites to be formally registered as "Albergo Diffuso."

Peculiar elements of "Albergo diffuso" regulation are:

- Unique management.
- Integration with the local culture and local inhabitants.
- Definition of the maximum distance of the accommodation from the main building offering services like reception, bar, and living room.
- Definition of services provided inhouse (booking, accommodation, reception).
- External services (restaurant, in some regions breakfast).
- Wide variety of accommodation types, such as:
  - Rural "Albergo diffuso."
  - Residence "Albergo diffuso."
  - "Paese Albergo," different "albergo diffuso" in the same village/town.

<sup>2</sup> Leonardo Zanier inspired the pilot project to restore buildings damaged by the earthquake in Carnia (Friuli Venezia Giulia) in 1976.

<sup>3</sup> Level 1 high density population, Level 2 small town, and Level 3 low level of density/rural areas.

<sup>4</sup> Level 1 internal mountain, Level 2 coastal mountain, Level 3 internal hill, Level 4 costal hill, and Level 5 plains.

<sup>5</sup> Dummy variable: coastal area 1 versus no-coastal area 0.

<sup>6</sup> Dummy with value 1 representing AD and value 0 other accommodation facilities.

<sup>7</sup> Istat distinguishes 33 Italian EcoRegion Sub-Sections characterized by several geographical, geological, climatic, biodiversity factors, such as altimetry, mountainousness, territorial surface, coastal nature, degree of urbanization, and so forth. The municipalities surveyed in this research belong to 22 subsections that include 75% of all Italian municipalities.

<sup>8</sup> Ten percent of ADs are in Alps eco-region, 10% in Prealpi, and more than 20% in Appennini eco-regions.

<sup>9</sup> Twenty-nine percent less than 1000 and only 24% of the municipalities have more than 10,000 inhabitants.

<sup>10</sup> Logit regression dependent variable is scattered \_hotel, as binary variable (1 scattered \_hotel; 0 other accommodation facilities).

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