Exploring the features of agritourism and its contribution to rural development in Italy

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ABSTRACT

This paper studies the features of Italian agritourism farms (agritourisms) by analysing their economic, structural and localization features, in order to examine the relations of agritourism with rural development and land use policy. The empirical analysis is based on a sample of about 11,000 farms from the Italian Farm Accountancy Data Network (FADN) dataset. Given that agritourisms represent a minority among farms, the sample is strongly imbalanced towards farms without agritourism activities. In order to avoid the difficulties arising when analyzing imbalanced samples, we use the Random Over-Sampling Examples (ROSE) approach that has been recently proposed in the statistical literature to obtain representative balanced samples from imbalanced ones. The empirical results show that landscape and environmental variables are important in shaping the probability that a farm runs agritourism activities. This results, together with others related to the economic dimension of the farm, its specialization, and the characteristics of the farmer make it possible to argue that there are areas of the country that can offer potential to agritourism, and that agritourism in turn can open new horizons in rural development with possible beneficial effects on the environment, the landscape, and the reduction of depopulation.

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1. Introduction

This paper presents the results of a research regarding the features of Italian agritourism farms (agritourisms) and their relations with rural development and land use policy.

Agritourism is generally considered a subset of rural tourism (Phillip et al., 2010) which is based on the use of the resources present in the countryside (Roberts and Hall, 2001; Hall et al., 2003; Cawley and Gillmor, 2008). However, agritourism is a complex and vastly differentiated phenomenon (Frochot, 2005) whose socio-economic and landscape impacts depend on the characteristics of each individual territory: particularly important are the actions and the relationships between public and private actors who define the connections between tourism products and local resources (Pacciani, 2011).

Empirical analyses, mostly case studies, highlight that the various forms of rural tourism can produce both positive and negative effects on the environment (Daugstad et al., 2002; Frey and Zimmermann, 2005; Giaccio and Mastronardi, 2011; Mastronardi et al., 2015a) and on the socio-economic context in which it is developed (McGehee et al., 2007; Tew and Barbieri, 2012; Vogt, 2013; Srisomyong and Meyer, 2015). Nevertheless it is mostly agreed that agritourism represents a key factor for local development (Slee et al., 1997; European Commission, 2006; Saxena et al., 2007; Flanigan et al., 2015), in particular for rural marginal areas (Dimara and Skuras, 1999; Mastronardi and Cipollina, 2009; Belletti, 2010), or where the environmental and cultural heritage are strongly appreciated by tourists (Garrod et al., 2006; Mastronardi et al., 2015b).

Even if agritourism is a worldwide phenomenon (van Huylenbroeck et al., 2006), in Italy it has taken a substantial economic and social relevance, with an increasing diffusion in all the Italian regions (Esposti, 2006) and representing probably the most radical product innovation that has ever concerned the national agriculture (Esposti, 2012).

On a normative level, the European Union (EU) makes generic reference to agritourism as a form of holiday which is carried

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out in rural areas. In fact, most Eu countries equate agritourism with generic forms of rural tourism (Marcotte et al., 2006) and this has produced a limited increase of the phenomenon in the Eu (Oppermann, 1996; Fleischer and Pizam, 1997; Vogt, 2013), especially in areas with a long tradition of rural tourism (Lesauvage, 1995). At the same time, the generic reference to rural tourism implies a scarce involvement of farms and the creation mainly of tourism firms in rural environments that do not carry out agriculture.

On the other hand, Italian national legislation regulates agritourism in a different manner with respect to other forms of rural tourism, in this way representing an *unicum* in the international scene (Santucci, 2013). In fact, in Italy agritourism can only be performed by the farmer and his family members (Law n. 96/2006). Moreover, the tourism activities of the farm must be connected to agriculture, which remains the fundamental enterprise of the farm (Sidali, 2011). This predominance of agricultural activity is fixed in terms of working hours and not in terms of income. Therefore, in Italy agritourism cannot exist without farming, where the farmer is forced to dedicate himself mainly to agricultural practices.

The rationale of Italian legislation is fourfold, pursuing ambitious goals related to (i) economic issues, by integrating farmers' revenues and by promoting local products; (ii) socio-cultural issues, by consolidating the relations between the city and the countryside, and by preserving local traditions; (iii) environmental issues, by protecting the environment and the landscape; (iv) occupational issues, by creating new job opportunities, especially in the marginal areas, with the aim of limiting the exodus in particular of young and female labour force.

In summary, Italian agritourism has distinctive characteristics within the European rural tourism scene due to the peculiar national legislation that regulates the matter. In 2011 there were slightly more than 20,000 Italian farms authorized to carry out agritourism activities (about 2% of the total). Amongst the services offered, overnight stays are the most important, as in the rest of Europe, followed by food service and product tasting. 20% of the agritourisms only offer lodging, while 36% combine overnight stays and food service and 50% of them offer, together with lodging, at least one service such as horseback riding, hiking, naturalistic observation, sports (mountain biking, trekking), educational activities.

In this context, this paper aims at highlighting typical elements of Italian agritourisms by analysing their economic, social, and structural features, as well as their location and landscape qualities, in order to understand how agritourism may support the development of rural areas and influence the design of appropriate land use policies. In fact, among agritourisms' structural features, geographical location and landscape characteristics are crucial in shaping the decision on the part of the farmers to transform a traditional farm into an agritourism.

The empirical analysis is based on the 2011 Italian Fadn (Farm Accountancy Data Network) dataset. The Fadn sample was created to represent farms' technical and economic operation in the Eu and is an instrument for evaluating the income of agricultural holdings and the impacts of the European Common Agricultural Policy.

However, given the relative scarcity of agritourisms in the population of farms, in the Fadn sample agritourisms are minimally represented. The sample itself is therefore strongly imbalanced towards farms without agritourism activities. For this reason, in order to cope with the difficulties given by imbalanced samples, we have modified the data structure to obtain a representative balanced sample using the Random OverSampling Examples (Rose) approach (Menardi and Torelli, 2014).

The rest of the paper is organized as follows: the next section illustrates the dataset and reports the main descriptive statistics relative to agritourisms as compared to conventional farms. The

bulk of the empirical analysis, the description of the empirical model and its evaluation, a brief discussion of the Rose approach used to cope with our imbalanced dataset are all contained in Section 3: technical details on the Rose method and a Monte Carlo analysis showing the advantages deriving from using this approach are reported in Appendix A, available as electronic supplementary material from the online version of the paper. Section 4 offers a reading of the empirical results in terms of their social, economic, and land policy implications. Appendix B, also available as electronic supplementary material, gives some details about the software used for the empirical analysis and the Monte Carlo simulations. The final section concludes.

2. Data

The Fadn sample represents the national agriculture in a statistically reliable way, as it considers the farm's production system and economic size. The explanatory variables that will be used in the empirical analysis are characteristics of the farm and its principal operator, which we refer to as the farmer. Twenty farms have been eliminated from the dataset, given that the farmer is not identifiable from the data. The final dataset is made of 11,009 observations, 357 corresponding to agritourisms (3.24% of the dataset).

Tables 1–3 report the main descriptive statistics comparing agritourisms with the other farms, for continuous, categorical, and regional variables, respectively. The tables report also the results of the tests on the differences between the subsample of agritourisms with that of the other farms: each test is performed separately from the others, thus the significance of results does not consider possible interactions among the variables.

The main differences among the features of agritourisms with respect to those of the other firms are found for the mean and the median of the variables related to the farmer's age (AGE_M), the total and utilized agricultural surface (TAA, UAA_TAA) and the total labour input (AWU), whereas the variances are more homogeneous overall (Table 1). The comparison among categorical (Table 2) and regional (Table 3) variables shows that altitude (Alt), type of farming, and region have significantly different distributions in the two subsamples, whereas farmer's gender and farm's economic size (ESU) seem to be approximately evenly distributed in both subsets. As far as the localization of farms (Region) is concerned, agritourisms are mainly located in Tuscany where they operate above all as bases for organizing visits to the surrounding area, especially to art cities (e.g., Florence and Siena).

3. Empirical analysis

Let y_i (with $i = 1, 2, \ldots, n$) be a dichotomous variable assuming value "1" if the *i*th farm operates as an agritourism and "0" otherwise. We model the probability that the *i*th farm operates as an agritourism using the logistic regression

$$Pr(y_i = 1|\mathbf{x}_i) = \Lambda\left(\mathbf{x}_i'\boldsymbol{\beta}\right)$$

where $\Lambda(\cdot)$ is the logistic cumulative distribution function and $\mathbf{x}_i$ is the vector of features characterizing the *i*th farm. In our application, the vector $\mathbf{x}_i$ contains the same variables illustrated in Tables 1–3, with the addition of the square of the farmer's age (AGE_M2). We exclude from the regression the reference level of each categorical variable, identified as the modal level in the sample.

As highlighted in Section 2, the sample is heavily imbalanced, giving rise to problems both in the specification as well as in the evaluation stage of the model (see, e.g., Cramer, 1999; King and Zeng, 2001; Oommen et al., 2011; Owen, 2007). In order to deal with the imbalanced sample issue, in this paper we adopt the Random OverSampling Examples (Rose) approach proposed in Menardi and