VIEWPOINT

On the demand for agritourism: a cursory review of methodologies and practice

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\textbf{ABSTRACT}

During the last decades agritourism has expanded tremendously worldwide given visitors’ increased interest to appreciate the life in the countryside and farmers’ need to enhance their revenues from different economic activities. Despite such enlarged agritourism development, scant information is available on the state of its demand at both national and international levels. Given such a need, we cursorily reviewed the range of econometric methods employed to evaluate the demand of agritourism, summarizing the salient findings in their application. Our assessment shows that current studies provide a limited characterization of the agritourism demand, especially in terms of methods utilized and information compiled. We suggest that a broader set of economic approaches are needed to control for existing bias and model flaws, and to isolate the features and amenities pulling visitors to agritourism destinations. We also suggest expanding economic studies to fully capture the impact of increased agritourism demand in surrounding communities.

\textbf{KEYWORDS}

Agritourism; demand; stated preference; revealed preference; tourism flow

\textbf{Introduction}

Agritourism is broadly defined as visiting a working agricultural setting—usually a farm or ranch—for leisure, recreation or educational purposes (Gil Arroyo, Barbieri, & Rozier Rich, 2013; Tew & Barbieri, 2012). Such definitional broadness fosters a diverse agritourism offer, including farm-based recreational activities (e.g. self-harvesting, corn mazes) and hospitality services (e.g. harvest festivals, bed and breakfast, private events), agricultural education (e.g. workshops) with an emphasis on hands-on activities, and a variety of extractive (e.g. hunting) and non-extractive (e.g. nature observation) outdoor recreation opportunities (Barbieri, 2014).

Although agritourism is not a new phenomenon, changes in the way agriculture is produced and marketed (e.g. technology driven, increased monoculture, increased commodity subsidies, economy of scale) have spurred its supply and demand in the last decades worldwide (Lane, 2009). In the USA, for example, national statistics show over US$600 million increase in the total agritourism-related receipts between 2002 and 2012 (USDA: NASS, 2014, 2009). China reports a similar growth trend; the few agritourism initiatives
developed in Shanghai during the 1990s have multiplied to currently cater millions of visitors on an annual basis (Liu, 2006; Ma, Ma, Zhang, Yu, & Zhang, 2011; People, 2010). Importantly, evidence suggests that such growth will be sustained in the future, most likely due to consumers’ increased concern with how food is produced and their nostalgic desire to reconnect with rural lifestyles (Carpio, Wohlgenant, & Boonsaeng, 2008; Che, Veeck, & Veeck, 2005; Cordell, 2004; Nilsson, 2002).

Despite the aforementioned development in the practice of agritourism, scant information is available on its demand side. Existing agritourism studies predominantly focus on the characteristics of the supply, either profiling the product offered (e.g. types of activities, seasonality) or examining the entrepreneurial motivations and levels of satisfaction of their providers (McGehee & Kim, 2004; Ollenburg & Buckley, 2007; Tew & Barbieri, 2012). Although a growing number of studies on the demand for agritourism are gaining space in the international scientific platform (e.g. Carpio et al., 2008; Ohe & Ciani, 2011; Santeramo, 2015), such information is scattered. The scant and dispersed literature on agritourism demand, coupled with a steady growth in its supply and an increasing interest in promoting this alternative form of tourism (Gil Arroyo et al., 2013), calls for the integration of the existing information to shed light on future research directions.

This paper responds to such a call by performing a cursory review of econometric methods employed to evaluate the demand of agritourism as well as salient findings in their application. In doing so, this paper identifies topic areas that need further exploration, which aims to pave the road for an orchestrated agritourism development. Such an effort is critical for rural well-being taking into consideration the benefits of agritourism in terms of increasing the economic viability of family farms, preserving natural and cultural resources in rural settings, smoothing intergenerational farm succession, beautifying the surrounding landscape and fostering the economic revitalization of rural communities, among others (Barbieri, 2013; Che et al., 2005; LaPan & Barbieri, 2014; Schilling, Sullivan, & Komar, 2012; Yang, 2012).

Methodological approaches to examine the agritourism demand

A literature review performed using the words “demand” and “agritourism” reveals that the methodologies currently adopted to evaluate the demand of agritourism can be classified into two main categories: Stated and Revealed Preference methods. Stated Preference techniques have a broad application to measure preferences for both market and non-market goods and enable the exploration of new policy tools, or non-observable scenarios (Haab & McConnell, 2002; Whitehead, Haab, & Huang, 2012). This method relies on respondents making choices (usually stated as choosing the “best” alternative) among a set of hypothetical scenarios, which are described in detail through a combination of attributes generated from an experimental design. Conversely, Revealed Preference techniques use observations on actual choices people made to measure their preferences.

The strengths and weaknesses of Stated and Revealed Preferences are specular. As Revealed Preference relies on actual choices, it reduces problems associated with accurately portraying hypothetical scenarios (e.g. strategic or irrational responses) or the failure to properly capture behavioral constraints, which are major weaknesses of Stated Preference methods. Conversely, Stated Preference methods are capable of quantifying
preferences among attributes’ variations that are non-existent or not easily observable, which is a major weakness of Revealed Preference methods (Haab & McConnell, 2002).

Among the Revealed Preferences methods that have been applied to the study agri-tourism demand, the Gravity Model is worth mentioning because of its suitability to use with secondary data. The model assumes that the bilateral volume of flows among countries is proportional to the “mass” of the countries (measured by its Gross Domestic Product (GDP) per capita, population or a combination of those variables), and inversely related to their respective geographic distance:

\[ X_{ijt} = G Y_{it}^{\alpha} Y_{jt}^{\beta} D_{ij}^{\delta}, \]  

where \( X_{ij} \) represents the trade (or migration flow) from \( i \) to \( j \), \( G \) is a scale factor, \( Y_i \) and \( Y_j \) proxy the economic masses of country of origin (\( i \)) and country of destination (\( j \)), and \( D_{ij} \) is the distance between the two countries. More recently, the Gravity Model is being used to study tourism flows (e.g. Arita, Edmonds, La Croix, & Mak, 2011; Eryiğit, Kotil, & Eryiğit, 2010; Fourie & Santana-Gallego, 2011; Gil-Pareja, Llorca-Vivero, & Martínez-Serrano, 2007; Santeramo, 2015) especially to calculate the increase in inbound tourists associated with mega-events (e.g. Olympic Games, World Cup).

Specifically evaluating the agritourism demand, Santeramo (2015) used the Gravity Model to capture the dynamics of tourists’ decision-making process by including the lagged dependent variable as regressor. That is, they modeled the number of visits at a current time (\( t \)) as function of the number of visits at a previous time (\( t-1 \)) based on the number of arrivals in agritourism, number of structures and control variables (e.g. GDP, population, distance). Santeramo (2015) concluded that the agritourism demand shows persistence or inertia, meaning that the higher the visits in the current year, the higher the visits will be in the subsequent year. Therefore, entrepreneurs and policymakers should devote their marketing efforts to retain or increase visitation in regions of origin of actual tourists. However, the Gravity Model does not provide information on the potential to expand the demand in new markets, as only actual visitors are captured. Capturing tourists’ dynamics also controls for potential endogeneity in demand estimations (Green, 2008), which is positive because it reduces bias in estimations (e.g. correct for potential distortions in estimates due to correlation among dependent variable and regressors).

A second Revealed Preferences method consists in modeling the relationship among trips or visits to farms visits and explanatory variables, such as explicit costs, visitors’ income and preferences, and site characteristics. This framework is consistent with the theory of Travel Costs, largely adopted in environmental economics. In a nutshell it postulates that the number of trips or visits (\( T_{ijt} \)) is a function of travel costs and other explicit costs (\( P_{ijt} \)), visitors’ income and preferences (\( V_{ijt} \)) and site characteristics (\( S_{ijt} \)), as follows:

\[ T_{ijt} = f(P_{ijt}, V_{ijt}, S_{ijt}). \]  

Carpio et al. (2008) followed this approach to model the number of agritourism trips as a function of trip costs, household income, demographic characteristics and site peculiarities. Blekesaune, Brandth, and Haugen (2010) applied a similar method to investigate the demand of farm visits in Norway by isolating a dozen of visitors’ cultural, social and economic characteristics that are likely to determine rural tourism and agritourism in
particular. The Hedonic model, which uses price indicators to estimate the implicit demand (price as a function of quantity) of a given activity, has also been used to calculate the agritourism demand by modeling agritourism rates (price per night) in terms of facility-based services, activities and local public goods.

As compared to Revealed Preferences, fewer studies have used different Stated Preferences approaches to investigate the demand of agritourism. Topole (2009) used a Strengths, Weaknesses, Opportunities and Threats analysis to examine the potential demand of rural tourism in Poland given that the suitability of this method for destination planning when data are scarce (Sznajder, Przezbórska, & Scrimgeour, 2009). Sánchez Rivero, Sánchez Martín, and Rengifo Gallego (2014) applied the Item Response theory, commonly used in mathematical models as logistic distribution function of abilities, attitudes or preferences, to rank 320 population centers and rural destinations based on the discrimination effect of each site attributes. Using a Stated Preference approach, Aguilar and Barbieri (2011) concluded that the effect of travel distance is less evident among older agritourists and more influential among females.

Using data collected from residents collected across different states in the USA (e.g. California, Missouri, Pennsylvania, Texas), several studies have examined the characteristics of either the actual or potential agritourism demand in terms of visitors’ motivations (Jolly & Reynolds, 2005; Sotomayor, Barbieri, Wilhelm Stanis, Aguilar, & Smith, 2014), preferred activities (Barbieri, 2014), and preferences for landscape attributes (Gao, Barbieri, & Valdivia, 2014). These studies have been useful to identify the needs and wants of the typical agritourist, mainly seeking to reconnect with agriculture and local farmers. In parallel, these studies have reinforced the need to further our knowledge of the agritourism demand, as farm visitors are not a homogenous group. Evidence indicates that different types of agritourists exist, which significantly differ on their socio-demographic composition as well as their past and current participation in different types of agritourism-related activities (Barbieri, 2014). For example, actively fit young male individuals are most likely to prefer physically demanding activities (e.g. hiking) as compared to older individuals, predominantly females, who prefer contemplation-related (e.g. tours) activities (Aguilar & Barbieri, 2011). However, the effect of travel distance is less evident among older individuals and more influential among females.

The state of agritourism demand: opportunities and challenges

As aforementioned, the agritourism demand, at both national and international levels, has been evaluated to some extent using several economic models. Worldwide, evidence suggests that the demand for tourism—and for agritourism in particular—is fast growing driven by globalization and decline in travel costs (e.g. Choo, 2012; Tchetchik, Fleischer, & Finkelshtain, 2008) and the increased public interest in farm activities and rural lifestyles (Carpio et al., 2008; Che et al., 2005; Cordell, 2004; Nilsson, 2002). However, the growth of agritourism demand seems to be mainly supply driven, stimulated by farmers’ necessity to find alternative sources of income to compensate lower agricultural revenues (Barbieri & Mshenga, 2008; Butler, Hall, & Jenkins, 1998; Santeramo, 2015; Serra, Goodwin, & Featherstone, 2005; Tchetchik et al., 2008). Thus, agritourism has emerged as a supply-driven niche, in which richer and GDP-growing countries are
becoming desired markets (Santeramo, 2015) especially for visitors coming from highly developed and urbanized countries (Santeramo & Morelli, 2015).

Certainly, a supply-driven agritourism development has been positive for the revitalization of rural areas. But the current challenge is to match such an offer with the motivations, needs and wants driving the agritourism demand. It has been attested in several studies, that the agritourism demand is mainly to urban dwellers with high incomes (Che et al., 2005; Gascoigne, Sullins, & McFadden, 2008; Nilsson, 2002; Wilson, Thilmany, & Watson, 2006). But, a more thorough examination to identify other characteristics and preferences of the agritourist is still missing (Gao et al., 2014).

Evidence indicates a positive augury for the international demand of agritourism in terms of geographical distance, which is considered the main friction of tourism flows (Eryiğit et al., 2010; Keum, 2010; Santeramo, 2015). Using a data-set capturing the number of arrivals, days of stays for agritourism, number of structures and other control variables (e.g. GDP, population, distance), Santeramo and Morelli (2014, 2015) found that the reduction in tourism flows observed for distant countries of origin is less strong for agritourism with respect to conventional tourism. In addition, reduced cultural and economic distances proxy by shared political agreements (e.g. Schengen agreement, adoption of same currency) tend to facilitate tourism incoming (Santeramo & Morelli, 2014, 2015; Yang & Wong, 2012). These indications are important taking into consideration that the agritourism demand is price and income inelastic, with elasticities, respectively, close to between −0.4 and 0.2 (Carpio et al., 2008), meaning that visits would not decrease proportionally with price increase. Specifically, a 10% price increase would lead only to a 4% decrease in visits, while a 10% boost in visitors’ income would increase their agritourism visits only by 2%. Therefore, policy incentives (e.g. tax exonerations, price differentiation) that tend to boost other tourism sectors may not have the same effect for agritourism development.

In brief, although the demand of agritourism at both national and international levels has received some attention in the literature, its assessment is not conclusive and calls for further scrutiny in three areas. First, the limited research on agritourism demand is exacerbated by the lack of uniformed measurements and methods of analysis, which precludes comparisons across geopolitical areas and consequently drawing general conclusions. As a case in point, studies on stated motivations to visit agritourism farms divergently concluded that buying fresh/homemade products and buying from the farmer (Jolly & Reynolds, 2005) and do something with their family and viewing the scenic beauty (Sotomayor et al., 2014) were the prevalent drivers.

Second, the development stage of agritourism is not uniform and greatly varies across and within regions mainly due to different levels of government support (Gil Arroyo et al., 2013). More established agritourism destinations, mainly in western Europe, have an already satisfied demand as in the case of Italy (Ohe & Ciani, 2011). Other countries are not homogenously consolidated agritourism destinations. Within the USA for example, national agricultural statistics on the proportion of farms engaged in agritourism and agritourism-related farm income suggest that states can be catalogued as emergent, moderate or advanced agritourism destinations (Gao et al., 2014; Gil Arroyo et al., 2013). Third, evidence suggests that it is also important to take into consideration visitors’ determinants. In the USA, for example, where the agritourism flow is mostly composed by a domestic market (Che et al., 2005; Nilsson, 2002), the number of leisure trips to farms is
determined by residence location, gender and race (Carpio et al., 2008). Such composition may be different in agritourism markets catering to a non-local market.

**Some insights for future research**

The literature reviewed for this paper reveals that despite the abundance of econometric models available and applicable into tourism studies, only few Revealed (mainly Gravity and Hedonic models) or Stated Preference procedures have been used to estimate the agritourism demand. Although we recognize that a cursory review of the literature as developed in this paper may not include the full extent of studies on the topic, it is useful to navigate an emergent phenomenon and to identify areas that need further academic attention. In doing so, we have identified major flaws when both the Revealed and State Preference models were applied to calculate the agritourism demand, mainly because of their inability to infer information to new markets and to control for zero flows, which in turn can introduce estimation biases.

Our review suggests that a major omission in assessing the agritourism demand is the adoption of models that can control for competing tourism destination alternatives (e.g. Nested Logit Structured, Sequential Logit). The application of such methods can help to understand the attributes of a particular agritourism destination (e.g. landscape composition, agro-ecological region) or the types of amenities offered (e.g. recreational activities, accommodations) which may influence visitors’ decision-making processes.

Using a conjoint analysis framed within the random utility model, Aguilar and Barbieri (2011) controlled for different types of recreational activities and travel distance to two natural settings (public lands and private forests) competing with farms offering agritourism. They concluded that farms and private forests offering physically demanding or extractive recreational activities and located within a 30-mile travel distance from urban areas are better positioned to attract outdoor recreationists than state or national parks.

With few exceptions (e.g. Blekesaune et al., 2010; Cai & Li, 2009; Carpio et al., 2008), the application of Travel Cost methods is another oversight among agritourism demand studies, use of which is critical to delimit the geographic location of the agritourism market. Taking into consideration that urban dwellers visit agritourism destinations to enjoy the rural landscapes and farming lifestyles it should be measured how far they are willing to travel for such experiences. Furthermore, incorporating information obtained from the application of the aforementioned methods, in terms of destination pulling features and willingness to pay and drive, can help to advance the scholarship and practice of agritourism.

Despite evidence indicates a steady growth of the agritourism demand worldwide during the last three decades, our cursory review suggests the need to better understand the demand of agritourism. Specifically, more thorough economic assessments are needed acknowledging the characteristics of the existing markets in a couple of ways. First, it is important to account for the actual supply–demand equilibrium within countries or regions. In Italy for example, where the agritourism demand is mostly satisfied by national visitors (Ohe & Ciani, 2011), efforts to pull international visitors may not be desirable as international visitors may have different needs as compared to national ones. Therefore, unless evidence suggests an increase in the agritourism supply, efforts attempting to increase the number of agritourists in well-satisfied markets should be advised with
caution, as it may negatively affect farmers (e.g. need to upscale their offerings in terms of services). Likewise, suggestions to increase the demand should also acknowledge farmers’ entrepreneurial motivations, as economic and market reasons are not unique drivers and are usually coupled with strong family and personal interests (Barbieri & Mahoney, 2009; McGehee & Kim, 2004; Ollenburg & Buckley, 2007). Thus, an increase in visitors’ volume may not be in line with those farmers who offer agritourism seeking for a certain lifestyle or to educate the public instead of profit maximization.

Second, it is also important to take into consideration visitors’ determinants in terms of their demographic and psychographic profile. In the USA, for example, where the agritourism flow is mostly composed of a domestic market (Che et al., 2005), the number of leisure trips is determined by residence location, gender and race (Carpio et al., 2008). Likewise, evidence indicates that agritourists have a complex set of motivations driving their visit to agritourism farms, and that those motivations differ across different agritourism settings (Jolly & Reynolds, 2005; Sotomayor et al., 2014).

More recently, Barbieri (2014) concluded that agritourists are not homogenous on their stated activity preferences, thus identifying different types of agritourists and calling for more in-depth investigation.

The aforementioned findings suggest that further research is needed to unveil the characteristics of the demand while controlling for different types of settings (e.g. crops farms, dude ranches), psychographic profiles (e.g. motivations), as well as tourism flows (e.g. local and international tourists). In doing so, it is critical to aim at developing standardized measurements (e.g. Travel Satellite Accounts) that can help to identify similarities and differences across different markets.

**Concluding remarks**

Our cursory review aimed at summarizing the methods previously used to estimate the demand of agritourism and the current state of the knowledge on this topic. In doing so, it was found that the information on the current demand of agritourism is limited mainly because of the few economic methods used in their examination. In particular, the existing literature has been curbed by a limited availability of data on such a niche of the tourism sector. Although data are collected at national levels (e.g. US Department of Agriculture), their scope is very limited (e.g. total farm gross sales), preventing a comprehensive demand assessment. A broader economic approach can help to isolate the features and amenities (e.g. activities, landscape composition) that pull visitors to agritourism destinations. Further research is also needed to compare preference for agritourism-specific features as compared to other tourism niches or sectors (e.g. on-farm lodging versus rural alternative accommodations) as available information only contrasts agritourism to total tourism demand (Santeramo & Morelli, 2015).

Although more information was found on the psychological profile of the demand (e.g. motivations, socio-demographic composition), such information is also inconclusive in terms of incongruences (e.g. visit motivations) and lacunas. The insufficient estimation of the agritourism demand calls for its more thorough scrutiny using a variety of economic models incorporating different variables given its forecasted growth in the supply and the many benefits this form of recreation brings to farmers and their surrounding communities. On this regard, it is also suggested that economic studies are conducted to
investigate the impact of increased agritourism demand in the economic development of surrounding communities, by calculating the multiplier effect on other economic sectors and quantifying the positive externalities.

**Disclosure statement**

No potential conflict of interest was reported by the authors.

**References**


