

The Role of the Firm and Owner Characteristics on the Performance of Agritourism Farms

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Abstract

This article investigates the role of firm and owner characteristics on the gross income of farms engaged in agritourism. The findings indicate that the length of time in business, the number of employees and the farm acreage have a positive impact on performance in terms of annual gross sales of agritourism farms. Owners of farms with greater annual gross sales than the rest are male or white or their main occupation is farming. The age of the farmer has an inverse relationship on gross sales. Other characteristics including location, if it is a working farm, whether the operator had business and marketing plans, sources of start-up capital and the entrepreneur's education level did not have a significant relationship on the performance of these farms.

Introduction

The world of agriculture is currently undergoing many changes including the number, size and characteristics of farms and ranches. A growing number of farmers, especially small-scale farmers, are moving away from the traditional methods and scale of crop and livestock production as this has become unprofitable. Instead, they are increasing their household incomes by incorporating non-agricultural enterprises into their farms or through off-farm employment, as has been reported (Jóhannesson *et al.* 2003). The development of on-farm diversified enterprises is, in turn, encouraged by visits to rural areas in developed countries, which, although this is not a new phenomenon, has significantly increased since the 1970s (Yagüe Perales 2002). In the USA in particular, changing lifestyles and population demographics are creating new markets and opportunities for farmers to diversify and increase their revenues because many urban residents are taking refuge from the rigours of city life and seeking a farm experience that is perceived to be relaxing. As a case in point, Bernardo *et al.* (2004) report that

most adults in the USA (62%) had made a trip to rural areas in the past three years.

The rural areas in the USA still depend largely on farming, even though many small and medium-sized farms are encountering financial difficulties due to rising input costs, low commodity prices and global trends towards concentration. Furthermore, industrialisation, globalisation and development encroachment are threatening small farms. Many family farms have to look for new ways to survive and thrive for future generations or are forced to find jobs outside the farm which are often not forthcoming. One way to do this is through agritourism, which offers some farmers the potential for higher profit margins and on-farm sales of value-added products. Agritourism presents an alternative use of farm resources that can bring several economic benefits to farmers and ranchers, including increased farm gross income (Nilson 2002), the generation of cash flow throughout the year (Ventura and Milone 2000), financial support to maintain traditional agricultural activities and lifestyles (Fleischer and Pizam 1997; Busby and Rendle 2000) and the creation of employment opportunities for family members, especially farmers' wives (Oppermann 1995). In addition, it allows farmers to enjoy various intrinsic values, including pursuing personal challenges and hobbies, fostering interaction with customers and improving the quality of life of the family (Barbieri 2006).

Governments and economic and community development agencies throughout the world are searching for ways to promote sustainable rural development through locally created wealth and a diversity of profitable enterprises that are less affected by the cyclical nature of the economy. Agritourism is one way to accomplish this, since it is incremental, uses existing resources, is unobtrusive and is typically environmental friendly. Agritourism also has other benefits that extend beyond the farm, including strengthening local networks, culture and traditions (Ventura and Milone 2000), providing economic gains to local businesses, because visitors usually engage in recreational and shopping activities in surrounding communities (Fleischer and Pizam 1997; Busby and Rendle 2000), developing local communities in sociocultural ways (such as by repopulation and improving public services) and protecting and improving the natural and built environment (Sharpley 2002). As Wicks and Merrett (2003) suggest, agritourism development can be successfully integrated into local economies, environments and rural lifestyles without a significant negative disruption.

Unfortunately, the existing literature on agritourism is fragmented and scarce. Much of it focuses on the characteristics of the farm and their operators (Busby and Rendle 2000), the farmers' start-up motivations (Getz and Carlsen 2000; Nickerson *et al.* 2001; McGehee and Kim 2004) and even the economic impacts of agritourism (Fleischer and Pizam 1997; Nilson 2002; Sharpley 2002). However, little has been reported regarding the characteristics of both the farm and farmer that may influence performance in these types of operations. A better understanding of owner characteristics and the financial, physical, human, marketing and natural resources that are positively related to performance of agritourism firms will help them to achieve greater success.

Literature review

Agritourism

Although agritourism is not a new concept, there is still ambiguity about its meaning and scope (Page and Getz 1997; Caballé 1999). Agritourism can be found in the literature as synonym for rural tourism or farm tourism, mostly depending on the geographic location and the theoretical framework used. One group of authors employs agritourism and rural tourism interchangeably to portray recreational activities linked to the mode or setting of agrarian production (Hegarty and Przezbórska 2005). This group defines any recreational activity in the rural setting as agritourism, including that provided both on-farm and off-farm. Another group of authors distinguishes between these terms, defining agritourism (or farm tourism) as any recreation or leisure activity developed on any agricultural operation such as a working farm or ranch (Caballé 1999; Przezbórska 2003; Che *et al.* 2005; Ollenburg and Buckley 2007). This study uses the second approach, understanding agritourism as any practice developed on a working farm with the purpose of attracting visitors (Blacka *et al.* 2001). Thus, agritourism includes a wide variety of activities (for example, tours, overnight stays, special events and festivals, on-farm stores, fee fishing and hunting, corn mazes, bird-watching, hiking, cross-country skiing, horse-riding, self-recreational harvesting), excluding those developed in a non-working farm using a staged farmland setting.

Research on agritourism has mostly focused on reasons for its entrepreneurial development, identifying different motives for this including fluctuations in agricultural income, additional income, tax incentives, employment for family members, reduction in government agricultural programmes, the social benefits of meeting a variety of people, the better use of additional farm resources and the further development of a hobby (Murphy 1985; Evans and Ilbery 1989; Strevens 1994; Oppermann 1995; Nickerson *et al.* 2001; McGehee and Kim 2004; Ollenburg and Buckley 2007). Most studies have highlighted the multiple benefits that agritourism brings to the farm, local communities, agriculture heritage and natural resources (Fleischer and Pizam 1997; Busby and Rendle 2000; Ventura and Milone 2000; Sharpley 2002; Wicks and Merrett 2003; Hegarty and Przezbórska 2005). Agritourism is both a source of revenue and a marketing medium (Mahoney and Barbieri 2007). For example, visitors to wineries often ask their local wine retailers to carry wines from the wineries they visit. Tours of farm orchards can increase the direct sales of other farm products (such as apple pies), encourage repeat visits during non-growing seasons and develop and promote the farm brand. Agritourism can also be an effective way of educating visitors about the value and issues confronting farmers as well as what they are doing in the areas of sustainability.

Evans and Ilbery (1989) examined internal and external farm environmental factors associated with farm-based accommodation. The external environment is composed of the institutions and organisations that influence farm activities. Conversely, the internal farm environment is the structure of the individual farm business with respect to capital, land and labour relations in the farm holding.

They explain that the internal environment is unique to a particular farm but it is influenced by the diverse and ever-changing factors that comprise its external environment. Individual farmers cannot influence the external environment but it affects market composition and behaviour, access to capital and other aspects of the farm. Although this study concludes that different internal attributes (such as farm size, tenure, gender relations in the family, the stage in the family life cycle, succession and the educational and occupational experiences of the family members) can influence the pathways of business development, its influence on business performance has not been determined. Che *et al.* (2005) examines the role of networks (that is, the links among farmers) in agritourism performance, concluding that developers who have partners perform better than those that opt to offer their products individually.

Since specific information concerning the characteristics and performance of agritourism firms is generally not available, this article uses more general business and entrepreneurial theoretical frameworks to understand the influence of internal farm characteristics on performance.

Firm characteristics influencing business performance

The resource-based theory of business performance holds that the nature and extend of a firm's resources affect its competitive advantage and, as a result, its performance (Lee *et al.* 2001). For various reasons (like the length of time in business, the location of the business and the relationships it has with other) firms have different access to resources and different skills and capabilities. The resources that give a firm a durable competitive advantage are those that are scarce either because they are imperfectly mobile or inimitable. Resources are imperfectly mobile when they cannot be sold to the highest bidder (that is, non-tradeable resources). They include, for example, knowledge acquired by an organisation through cumulative experience, or a firm's reputation for toughness (Bensako *et al.* 2004). Inimitability is defined by impediments to replication that are often protected by law. This enables an organisation to differentiate itself from its competitors (Bensako *et al.* 2004) through impediments such as legal restrictions and intangible barriers, as well as superior access to inputs, resources and customers. The latter are impediments to firms that do not have them, as they cannot be imitated. Legal restrictions include patents, copyrights and trademarks as well as governmental control over entry into markets through licensing, certification or quotas on operating rights.

A firm has superior access to inputs when it is able to secure better quality inputs (like raw materials, employees and information) on more favourable terms than its competitors. Superior access to capital and human resources translates into cost advantages combined with the ability to produce higher quality services and products and to exploit market niches more effectively (Lee *et al.* 2001). Better access to the most effective and efficient distribution channels and marketing communication media can also give these firms important advantages.

There are also various intangible barriers that can impede imitation, such as economies of scale, tacit knowledge and social complexity (Bensako *et al.* 2004). Scale-based barriers are powerful in markets for specialised products or services

where the demand is high enough to support one large firm that cannot be replicated without difficulty. This is very rarely the case when it comes to agritourism. Tacit knowledge and special skills that cannot be articulated as an algorithm, formula, or set of rules, along with organisational culture and history can also give some firms a real competitive advantage. The nature and quality of the interpersonal relations of managers in a firm and their relationship to other stakeholders like customers and suppliers are also reasons for the differences in performance among firms.

Entrepreneurial characteristics influencing business performance

The literature on entrepreneurship suggests that the business owners' characteristics are appropriate predictors of the size and performance of a small enterprise. A study by Brüderl and Preisendörfer (2000) concluded that the founder's management experience significantly influences performance. The role of the founder and the attributes of the top management team, including number of top managers, level of joint work experience and member functional heterogeneity were found to influence size and technical innovation (Eisenhardt and Schoonhoven 1990). Managerial ability was also found to influence business performance. According to Patrick and Eisgruber (1968), businesses with the same level of operating expenses can be differentiated from each other as better managers are able to make more debt and interest payments and save more than the average manager. They found that farmers with above average managerial abilities increased their net worth by \$2,000 per year compared with those with average managerial ability.

Lee *et al.* (2001) suggest that entrepreneurial orientation significantly influences the performance of a small business. Entrepreneurial orientation, defined as innovativeness, risk-taking and proactiveness, is a primary and critical resource that influences venture performance (Lumpkin and Dess 1996). Innovativeness is the firm's ability to create new ideas and undertake research and development to design new products and processes (Lumpkin and Dess 1996). This is especially important in agritourism farms because success depends on continuously introducing new programmes and products in response to market demands and competitors' offerings. Business proactiveness relates to how a firm approaches market opportunities, including market research and first-responder actions. Early responder advantages include the effect of the learning curve, reputation and buyer uncertainty, buyer switching costs and network effects. A firm with experience and a good reputation becomes better at undertaking an activity, as their loyal consumers will be reluctant to switch to competing brands. Furthermore, a business can design its products and services to increase switching costs from using sales promotional techniques, such as coupons and frequent customer discounts, to completing a series of transactions with customers. Another early mover advantage is the subsequent network effects since customers place a higher value on a product if other consumers also use it. Synergies and networks built at different levels (within farm economic units or among farmers) can not only increase the firm's profits but also enable rural development (Knickel and Renting 2000). The presence of networks is especially important in rural tourism development because these foster connections among several tourism actors, making the attraction more accessible to customers, hence affecting performance

(Jóhannesson *et al.* 2003; Che *et al.* 2005). Mintzberg and Waters (1982) include an intimate knowledge of the business as an entrepreneurial characteristic that influences business performance.

Farms, like any other business, are influenced by their internal characteristics. The physical attributes of the land as well as farm household composition appear to influence pathways of business development including tourism and recreational activities on the farm (Ilbery *et al.* 1998). While it is somewhat obvious that the internal characteristics of firms affect performance, there is a lack of scientific information concerning the specific characteristics of agritourism farms that most influence their performance, especially their gross sales. This study attempts to create a better understanding of the relationship between a number of different internal characteristics and the performance of agritourism farms.

Objectives and hypotheses

The objective of this study is to determine which internal firm and owner characteristics affect the performance of agritourism farms. Business performance is defined as the annual gross sales earned from all farm resources in 2004. Since the economic results of agritourism can be both direct (such as revenues from agritourism) and indirect (such as cross-marketing and branding), as suggested by Mahoney and Barbieri (2007), the total gross farm income, rather than the revenues generated only from agritourism products and services, is used as the measure of performance.

Based on the general business literature, it is hypothesised that the farm acreage, number of employees, whether the firm is a working farm as well as the location of the farm positively influence annual gross sales. This is based on the assumption that these attributes can provide the firm with superior access to resources and customers (that is, its inimitable resources). Larger agritourism farms in terms of acreage and on-farm resources and those with more employees enable firms to offer a greater variety of tourism products and services leading to greater revenues. It is also hypothesised that working farms (as opposed to fantasy or staged farms) have a competitive advantage because they offer more authentic experiences that appeal to a growing number of tourists. Similarly, proximity to an urban cluster¹ offers the farm access to customers that more rural areas, where competition is often greater, do not have.

Agritourism farms, like other tourism businesses, need to upgrade continuously and differentiate their experience and products from that offered by others, communicating all this effectively to their target markets. To do so effectively they must have up-to-date business plans and use different marketing strategies, including non-traditional techniques such as web marketing. Hence, it is hypothesised that agritourism farms with written business and marketing plans along with access to adequate capital perform better, since these resources enable the development of new products and the use of various non-traditional communications methods and marketing strategies. The number of years in business is hypothesised to have a positive impact on business performance, because skills are acquired as the business acquires greater experience. The longer a business is in operation the greater the chance is that it has acquired valuable tacit knowledge.

Owner experience, the innovativeness and proactiveness of the managers and an intimate knowledge of the business also influence a firm's performance and sustainability. These characteristics are assumed to be related to the age and level of education of the owner/manager and, in the case of agritourism farms, to their principal occupation (that is, whether it is farming or non-farming). Farming and ranching have traditionally been dominated in the USA by white male operators. Hence, it is hypothesised that farms with male or white operators perform better since they have larger and more established networks. Similarly, it is assumed that owner membership(s) in different business and marketing organisations also influence business performance.

Data and methods

Data collection

Data were collected from farms and ranches with diversified operations in North America using a web-based survey. This includes any working farm that has incorporated any activity capable of generating additional income or adding value to the farm, such as value-added processing, direct marketing, historic preservation or contracting (Barbieri and Mahoney 2008). Information was collected regarding the characteristics of the farm and the operator; the products, services and enterprises that generate the farm revenues, including agritourism; the gross value of farm sales, and management, financial and marketing practices.

Since the population of diversified farms and ranches in USA is not known or available in any directory, this study could not use probability (random) sampling. Instead, the member list of the North American Farmers' Direct Market Association (NAFDMA) was used as a purposive or judgmental sampling, defined as a sample that best serves the purposes of the study (Monette *et al.* 1994). Similarly, Getz and Carlsen (2000) reported using a non-random sample to study family rural businesses in tourism and hospitality in Western Australia due to the lack of an adequate databases or sampling frames. The list provided by NAFDMA contained contact information for 853 members, including 423 farms engaged in agritourism activities or direct marketing and 430 non-farmers members (such as farmers' markets managers and extension personnel).

The survey announcement was e-mailed in July 2005 to all 853 NAFDMA members. This e-mail invited farmers to take part in the survey and asked non-farmers (such as extension personnel) to forward the invitation to any diversified farmers of whom they might be aware (that is, using the snowball sampling technique). One mail postcard and four reminder e-mails were sent to non-respondents. The survey was closed in September 2005, after having been open for 42 days. This falls in the one-to-two month standard time range for online surveys (Ilieva *et al.* 2002). The survey produced 1,241 completed answers and 45.4 per cent ($n = 192$) of the farms originally invited completed the survey. Only the farms and ranches engaged in agritourism activities in the USA were used for this study. This screening produced 449 agritourism farms that were included in the analysis.

Independent and dependent variables

The independent variables used in the analysis included farm business and owner characteristics assumed to be related to business performance. The characteristics of agritourism farms that were examined include the total number of acres owned that were farmed, the distance of the farm from an urban cluster, whether or not it was a working farm that produced or sold agricultural products, the number of persons employed, and the number of years the farm had been in business. Marketing and business resources were measured in terms of whether the business had a written marketing or business plan and the sources of start-up capital. The two different sources of business capital examined included internal sources, defined as farmer or family capital, and external sources, defined as capital supplied by banks and other investors. The amount of start-up capital was not available.

Data on entrepreneur² characteristics included whether the owner was the primary business decision-maker, their gender, race, age and education level, and whether or not the owner's principal occupation was farming. The extent of the owner's external linkages was measured by their membership to different agricultural and other business-related associations.

The performance of the agritourism farms was measured in terms of their total gross annual income in dollars. This included all the farm income earned in 2004 from different farming and other on-farm entrepreneurial activities, such as crops and livestock, recreational activities and value-added products. The reason for including all revenues is that agritourism can contribute to other farm revenues through cross-marketing and promoting the farm brand. In an effort to reduce reporting anxiety and increase response rates, gross income data was collected in mutually exclusive categories: namely income <\$10,000, \$10,000–\$49,999, \$50,000–\$249,999 and >\$250,000.

Survey respondents

Over a third (35.8%) of the agritourism farms and ranches included in this study had a annual gross income of less than \$50,000 in 2004, almost one-third (32.2%) had a annual gross income of \$50,000–\$249,999 and another third (32.0%) earned above \$250,000. The average acreage of the farms was 225.86 acres. Almost all the participating farms (94.8%) were located less than 5 miles from a highway. The proximity to a highway suggests good accessibility to the farm, indicating superior access for visitors. The number of visitors in 2004 to the farms ranged between 1 and 750,000 and averaged 17,611.

The average operating age of the farms was 22 years and the number of full-time employees per farm was three employees. Most of the owners (72.4%) were men. Almost two-thirds (64.7%) of the operators were aged between 45 and 64 years and over two-thirds (67.6%) had at least some college education. Almost three-quarters (72.8%) reported that farming and ranching was their main occupation. Most the farmers belonged to at least three membership organisations. Of all respondents, 63 per cent had written business and marketing plans.

Table 1: *Number of farms offering different types of agritourism activities*

Agritourism activity	Farms (no.; n = 449)	Percentage
Tours	342	76.2
Outdoor activities	258	57.5
Events	243	54.1
Hayrides	218	48.6
Recreational self-harvesting (e.g., u-pick)	209	46.6
Animal-related attractions	207	46.1
Other recreation activities	200	44.5
Mazes	158	35.2
Nature-related recreation	101	22.5
Horse or pony rides	74	16.5
Haunted houses	68	15.2
Tasting room	55	12.3
Cider mill	38	8.5
Cowboy/rodeo-related activities	13	2.9

Table 1 shows the agritourism activities at the participating farms, including those that were offered both at no charge or for a fee. Tours, including school and senior tours, were found to be the most popular activities (76.2%). More than half (57.5%) of the farms offered outdoor activities, while just over half (54.1%) organised festivals and special events such as weddings and private parties. Hay rides, including motorised vehicles (like tractors and trains) and animal traction rides, recreational self-harvesting (for example, u-pick vegetables and u-cut Christmas trees), and animal-related attractions (such as petting zoos and animal shows) were also offered in almost half the farms and ranches.

Analysis

An econometric model was used to evaluate the impact of internal business characteristics on farm performance. An interval regression model was employed, given that the dependent variable, annual gross income, is an interval. This interval regression model is written as:

$$y_i^* = x_i' \beta + \mu_i \text{ where } \mu_i \sim N(0, \sigma^2) \quad (1)$$

where y_i^* is never observed, but the range that it falls into the data are interval coded. It is assumed y_i^* is related to the observable variable y_i as follows:

$$0 < y_i^* < a_1$$

$$a_1 < y_i^* < a_2$$

$$a_2 < y_i^* < a_3$$

$$a_3 < y_i^* < +\infty$$

where a_j for $j = 1, \dots, 4$ denote the interval boundaries. As Stewart (1983) suggests, the last interval is treated as open for $j = 4$, $\Phi(+\infty) = 1$, where $\Phi(\cdot)$ denotes the cumulative density function for standard normal. Lecluyse and Cleemput (2006) contend that when upper and lower limits of the intervals are known, an interval regression can be used to make the categorical variable continuous. The threshold a_j is estimated by calculating the cumulative frequency of observations for each category of income and then compute

$$\mu_i = F^{-1}(G_i) \quad (2)$$

where $F^{-1}(\cdot)$ is the inverse of the empirical distribution function (EDF) of the external data and G_i is the cumulative frequency of observations for category i of income. With the thresholds, the unconditional prediction of the linear $x_i\beta$ is computed. An alternative way of computing the predicted values from interval regression model is using the expected value of the linear index, conditional on the individual's observed category

$$E(y^*i | x_i, \mu_{i-1} < y^*i \leq \mu_i) = x_i\beta + \sigma \{ \Phi(\mu_{i-1} - x_i\beta)/\sigma) - \Phi(\mu_i - x_i\beta)/\sigma) \} / \{ \Phi(\mu_i - x_i\beta)/\sigma) - \Phi(\mu_{i-1} - x_i\beta)/\sigma) \} \quad (3)$$

This gives the level of income that would be predicted knowing both x and the category of income that the individual reports. Comparing these conditional predictions to the actual data on gross farm income is a useful way of assessing the reliability of the interval regression method.

As reported in Van Doorslaer and Jones (2003), the interval regression method is advantageous over other prediction methods. Firstly, using interval regression means that the decomposition analysis does not have to be based on the inappropriate use of ordinary least squares (OLS) to model a categorical dependent variable. Moreover, like the category means method but unlike the ordered, interval regression, the probit model allows for the incorporation of external information to scale the categorical observations of income. Furthermore, the thresholds used in the interval regression can be different for different groups of individuals. As the thresholds determine the scale of the latent variable, this is equivalent to allowing for heteroscedasticity in the latent variable specification.

For the empirical model, the statistical analysis included multicollinearity and heteroscedasticity tests. The White test was used to test for heteroscedasticity by regressing the squared residuals with the explanatory variables, their squares and cross products, as suggested by Gujarati (2003). The results revealed heteroscedasticity, which was corrected by using the White robust standard errors method and the generalised least squares (GLS) method (Gujarati 2003). The interval regression results were interpreted based on the GLS heteroscedasticity corrected model.

Results

The interval regression model predicting the business performance of agritourism farms from farm and owner characteristics is statistically significant ($\chi^2 = 468.83$,

Table 2: Results of interval regression corrected for heteroscedasticity (GLS) of internal characteristics and capabilities on performance of agritourism farms/ranches

Independent variables	Dependent variable: annual gross income	
	Coefficients	Standard error
Business/farm characteristics		
Acres owned and farmed	9.452*	1.69
Distance from an urban cluster (1 = >90 miles; 0 = otherwise)	-9,237.761	0.12
Working farm/ranch	7,339.470	0.47
Number of employees	23,748.723***	7.28
Business age	3,065.827***	5.94
Availability of business or marketing plans	-1,040.364	0.10
Finance: external sources	18,738.686	1.62
Finance: internal sources	-12,308.518	0.85
Entrepreneur characteristics		
Decision-maker (owner; otherwise)	-10,530.889	0.37
Gender (male; otherwise)	35,636.298***	3.42
Age (45-54 years; otherwise)	-26,623.419**	2.20
Age (55-64 years; otherwise)	-58,434.323***	4.16
Age (65+ years; otherwise)	-46,788.394**	2.29
Race (white; otherwise)	35,191.023*	1.87
Education (high school; otherwise)	38,966.278	0.49
Education (college; otherwise)	41,305.151	0.53
Principal occupation (farming; otherwise)	53,827.787***	4.96
Number of association memberships	21,937.678***	7.75
Constant	-109,266.349	1.24
Statistics summary		
Wald χ (18)	468.83	
Log-likelihood	-613.70325	
Prob > χ	0.0000	
Pseudo R^2	0.337	
Observations summary		
Number (n)	449	
Uncensored	0	
Left-censored	0	
Right-censored	146	
Interval	303	

* $p < 0.01$ ** $p < 0.005$ *** $p < 0.001$

df = 18, $p < 0.001$). The model reveals a statistically significant impact of various farm and owner characteristics on the gross farm income. The McKelvey and Zavoina pseudo- R^2 is 0.337, indicating that the predictors accounted for approximately 34% of the variability in the latent outcome variable (Table 2). Owner characteristics with significant impact on farm performance include business networking, principal occupation (that is farming or other occupation), age, gender and race. The length of time

in business, the number of acres owned and farmed and the number of employees are the farm characteristics that statistically influence the amount of gross farm income.

The degree to which owners of agritourism farms are involved with agriculture and business related associations is positively related to their gross income, confirming the importance of networks in affecting business performance, as previously reported (Dollinger 1985; Hansen 1995). Holding other factors constant, gross sales were higher by an average of \$21,937 for each additional association of which the owner was a member ($p < 0.001$). This is in part due to the fact that social and professional relations are important for gaining access to information. Moreover, information received from professional networking is often assumed to be more useful, reliable, and exclusive, and less redundant than information received from formal sources (Brüderl and Preisendörfer 1998). External contacts can also assist owners to procure capital and business assets, identify market and partnership opportunities and learn about new technology and methods. However, it may also be that successful owners have a greater proclivity and capacity (such as financial resources) to be members of associations.

Whether the primary occupation of the owner of agritourism farms is farming, as opposed to a non-farming related primary occupation, is positively related to gross income. Owners whose primary occupation was farming or ranching earn an average of \$53,827 more than those who are engaged in other principal occupations ($p < 0.001$). Farming as principal occupation provides the owner with greater agricultural expertise that can be allocated to the farm business, confirming that a good and close understanding of the business influences their performance (Mintzberg and Waters 1982).

The results show that agritourism farms with male operators earn an average of \$35,623 more than ones operated by women ($p < 0.001$), confirming previous studies that determined the relationship between gender and business performance (Rosa *et al.* 1996). The lower gross income earned by women-operated agritourism farms is likely to be related to various factors that limit women's access to resources and disadvantage them in the business arena. This includes fewer linkages to networks that enable customer and partnership-building, reduced access to financial resources and the fact that many women must balance household and business obligations (Sexton and Robinson 1989; Riding and Swift 1990; Brush 1992; Cooper *et al.* 1994). The under-performance of agritourism farms operated by women in the USA confirms previous findings in the European literature of on-farm enterprise diversification. It is widely recognised that women have an important role in the development and management of alternative enterprises, including agritourism (Benjamin 1994; McNally 2001; Barbieri and Mahoney 2008, forthcoming). However, this should not be interpreted as a better performance. There is evidence that women in rural Europe encounter problems and obstacles restricting their opportunities and success in their entrepreneurial endeavours, including less access to subsidies, credits and professional networks (Little and Jones 2000; Bock 2004). Similar reasons (that is, less access to resources) may explain the finding that white operators of agritourism farms earn an average of \$35,191 more than non-white farmers ($p < 0.01$). However, the number of non-white farmers responding to the survey was very small.

Holding other factors constant, on average agritourism farms earn \$3,065 in additional income for every year in operation ($p < 0.001$). Farms that have been in operation longer often benefit from dynamic economies of scale through experience and from reputational effects. They also may have greater assets for investment. Farm human capital, in terms of number of employees, was also found to be significant, as already recognised by economic theory (Casson 1991; Campbell 1992) and empirical studies (Bates, 1990; Cressy 1996). The farms included in this study increased their gross income by \$23,748 for every additional employee ($p < 0.001$). As would be expected, farms with a greater acreage farmed have a greater farm gross income ($p < 0.01$), confirming that larger farms are more viable economically (Richardson and Condra 1981). However, these results need to be interpreted with prudence, because the performance indicator used in this model was the farm total gross sales, which included the entire annual production of all on-farm enterprises as well as agricultural production. Further studies are needed to assess the role of the farm size in the gross and net revenues derived exclusively from the recreational activities offered by the farm. Not having done so is a limitation of this study.

The farmers' age is inversely related to agritourism business performance. Agritourism farms whose owners are 45–54 years old earn on average \$26,623 less ($p < 0.05$) and those whose owners are 55–65 years old earn on average \$58,434 less ($p < 0.001$) than farms with owners in other age groups. These results confirm previous research suggesting that farms whose operators were over 50 years old earned less than younger farmers (Weiss 1999). In the case of agritourism farms it may be that younger farmers are more adaptable and willing to introduce new products and services. Younger farmers, especially those new to farming, may also be more entrepreneurial and willing to tolerate the risk associated with innovation because they are not restricted by previous investments in traditional farming assets.

Previous research indicates that the owner's level of education is a significant determinant of business performance (Bates 1990; Basu and Goswami 1999; Casson 1991). In the case of agritourism farms, although the level of education of the owner is positively related to the amount of the gross income earned, the strength of this relationship is not statistically significant. This finding might in part be due to the fact that only the level, and not the type (that is, the subject matter), of the education is considered in this analysis. Managing and marketing of agritourism farms requires skills different from that of traditional production and wholesale farming. While two operators may have the same level of education, one may have much more relevant business education than the other.

Whether agritourism farms have business or marketing plans does not have a significant relationship with the amount of farm gross income. This is consistent with the findings of previous studies conducted on other types of businesses. Tan (1996) and Robinson and Pearce (1984) found that formal strategic planning has little or no potential payoff for small firms because it is a high-level conceptual activity suited solely to large firms. This is not to say that business and marketing plans do not contribute to the success of small businesses but rather that measuring this contribution to gross income may not be the most appropriate way to assess their significance. A limitation of this study is that no information was available to assess the quality and effectiveness of the plans, or whether the plans were implemented.

Whether the owner was a primary decision-maker is also not statistically related to performance measured in terms of gross income. The sources – external or internal – of start-up capital used for the development of non-farm enterprises did not have a significant impact on business performance of these farms.

Conclusion

Agritourism serves various social and economic goals benefiting local communities, agriculture heritage and the conservation of natural resources. It has a special relevance to farms and ranches, especially those struggling in the current agricultural context which is characterised by higher input costs and lower prices for agricultural products. The economic benefit that agritourism brings to farms and ranches includes direct revenues derived from fees for the recreational activities offered on the farm or indirectly through cross-marketing other farm products. Business performance is influenced by internal firm and entrepreneurial factors. As a type of entrepreneurial venture, the influence of the characteristics of the farm and their owners on the annual gross sales of agritourism farms was investigated.

This study concludes that agritourism farms that have been in business for longer, that have more employees or a larger acreage, or whose owners/operators are primarily dedicated to agriculture, or are male or white, or who are more involved with business associations, achieved significantly greater annual gross sales than the others, confirming the role of entrepreneurial orientation and superior access to resources on business performance. Entrepreneurial indicators (such as extensive participation in agriculture and tourism associations) can assist in mobilising external resources from third parties, such as access to technology, customers, financial resources and shared marketing. Similarly, greater internal resources (for example, a greater number of employees), provide the agritourism farm with better production resources to offer a greater variety of products and services to a larger and more diverse customer base. Given the challenging context that agriculture firms confront, identifying and improving conditions favouring superior access to marketing and financial resources seem to be important.

Agritourism is being largely promoted as a strategy to leverage farm incomes as the steadily growing American urban population is increasingly looking for an on-farm experience. This study shows the performance of agritourism farms is associated with their superior access to resources, suggesting that it is necessary to facilitate access to financial and marketing resources and a wider clientele. Moreover, results show that such access is even more necessary among groups that are not traditionally involved in agriculture in the USA, such as women and non-whites (African Americans, Hispanics and Asians) that statistics show are entering agriculture in larger and larger numbers.

The role of social networks in business performance suggested in this study has important implications for extension and development agencies and policymakers. Extension and development agents need to facilitate new and innovative channels to broaden agritourism farms and ranches' access to resources. Business and professional conferences and meetings appear to be good opportunities to stimulate social networks and facilitate synergies among actors involved in agriculture such as

producers, developers, tourism agencies and financial institutions. In addition, programmes and policies are needed to be developed and strengthened to encourage farmers to think more deeply about agritourism, and financial assistance (such as soft loans and tax relief) needs to be provided to those developing or expanding any type of recreational activity on the farm.

A deep understanding of the business acquired through time also appeared to be associated with business performance. However, this tacit knowledge can be replaced in younger firms by adequate technical transfer or incubation programmes for agritourism farm owners. University extension programmes should continue to develop and implement educational and technical assistance programmes designed to assist farmers and ranchers. The participation of other actors involved, especially other farmers already engaged in agritourism, would be beneficial in training programmes.

A first limitation encountered in the development of this study is related to the unavailability of data related to net farm income. This study showed that internal farm and entrepreneurial factors influence business performance, as measured by annual gross income, which includes the entire annual production of all on-farm enterprises as well as agricultural production. Certainly, increasing gross income is important, especially during non-growing seasons, because it generates the cash flow needed to pay continuing fixed costs (such as mortgages, taxes and equipment payments). However, it is necessary to investigate further the internal factors that influence profits (net income), since these sustain farms and ranches over time. Further research is needed to assess the role of the farm size in the gross and net revenues derived exclusively from recreational activities offered by the farm.

In addition, a more stringent effort should be made to develop a database of the farmers and ranchers who are involved in agritourism in the USA. There are more than 449 of these types of businesses, and it seems that the number is continuing to increase. Hence, we recommend that a national inventory of agritourism farms and ranches should be developed to serve as a continued two-way channel of communication between farmers and agriculture agencies to identify new trends and needs.

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Notes

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¹ An urban cluster is a densely settled area that has a census population of 2,500 to 49,999 (US Census Bureau 2001). This indicator of location was included in the econometric model – measured as >90 miles – because urban clusters have enough people to be drawn to agritourism farms. However, a preliminary analysis was conducted to confirm that farms located more than 90 miles away from a cluster centre were not close to an urbanised area with a population of at least 50,000.

- ² This article defines the entrepreneur as the owner of the agritourism farm since agritourism has been defined as entrepreneurial in nature by others (Nickerson *et al.* 2001).

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