Economics of agritourism development: An Iranian experience

Mohammad Hossein Askarpour[1], Amir Mohammadinejad[2*], Reza Moghaddasi[3]

[1] Department of Agricultural Economics, Science and Research Branch, Islamic Azad University, Tehran, Iran

[2,3] Assistant Professor, Department of Agricultural Economics, Science and Research Branch, Islamic Azad University, Tehran, Iran

[*] Corresponding author: amnejad88@gmail.com

Article Info	Abstract
	Agritourism is known as a means of identification and realization of various on-farm and off-farm attractions existing in rural areas. This study aims at exploring the main determinants of agritourism development in Iran. Data were obtained via field survey and interview with 115 sample farmers from areas currently presenting agritourism services. By using a multinomial logit model, the impacts of theoretically expected variables were estimated. **Findings/Originality**: Education is the main driver of agritourism development. The programs aiming at increasing the knowledge of farmers regarding different advantages of agritourism should be paid special attention by the government. The result also indicates direct effect of diversified crops and services on probability to get involved in agritourism business. Provision of more crops and services on the farm generates more attraction for tourists and can lead to development of agritourism. Likewise, farm size revealed the same association, while the age of farmers has an adverse effect on provision of agritourism.

Introduction

Agritourism has been developed considerably both in developing and developed countries over the last three decades mainly due to higher interests of people in living in the countryside on the one hand and farmers' need to find new sources of off-farm income on the other. Despite such fact, little information is available on the drivers of agritourism development especially for the economies in transition. In a broad definition agritourism is visiting an active agricultural holding (a farm or ranch) for leisure, recreation or even educational programs (Gil Arroyo, Barbieri, & Rozier Rich, 2013; McGehee & Kim, 2004; Tew & Barbieri, 2012). Such definition implies that agritourism may provide a broad range of services, including farm-based recreational activities (for instance self-harvesting lettuce) and hospitality services (harvest festivals, bed and breakfast, private events), agricultural education and training workshops with an emphasis on personal field experiences, and a variety of extractive (e.g., hunting) and non-extractive (e.g., nature observation) farm recreation activities (Barbieri & Mshenga, 2008).

Agritourism development is known as a source of economic growth, foreign earning, job creation, and rural poverty mitigation (Harcombe, 1999; Kumar, Hussain, & Kannan, 2015; Patterson, 2014). Agritourism includes a range of activities, services and amenities provided by farmers and rural people to attract tourists to their area in order to generate extra income for their businesses (Gannon, 1994).

Development of Agritourism reduces income risk for farmers (Schilling, Attavanich, & Jin, 2014), improves farm productivity(Ashley, De Brine, Lehr, & Wilde, 2007), decreases villagers' immigration (Tew & Barbieri, 2012), increases social participation and optimal utilization of natural resources (Baum, Weingarten, & Banski, 2004; A. R. Eftekhari & Ghaderi, 2002), provides small family business opportunities (Tanrivermis, H., & Sanli, 2007), creates diversity and stability in rural employment, creates new markets for selling agricultural products, develops regional economy, and educates tourists and local people about sustainable agriculture (Hamilpurka, 2012).

Although agritourism has historical background, substantial transformation in agricultural production techniques, improvement in related technologies, increased dependence of countries on agricultural world markets, creation of World Trade Organization (WTO) and rapid growth of globalization, and increased farm public subsidies especially in rich countries have spurred agricultural supply and demand worldwide in the last decades (Lane, 2009). In the United States of America (USA) for example, aggregate statistics from Department of Agriculture (USDA) show more than US$600 million rise in the total agritourism-related revenues between 2002 and 2012 (USDA, 2009, 2014). Similar data reveals the same increasing trend in China; the few agritourism programs developed in Shanghai during the nineties have led to dramatic increase in the absolute number of millions of visitors on an annual basis (Liu, 2006; Ma, Ma, Zhang, Yu, & Zhang, 2011; People, 2010). Importantly, it is expected that such growth will be sustained in the future, most likely due to consumers' increased concern on the ways and methods of food production and their nostalgic desire to reconnect with rural lifestyles (Åke Nilsson, 2002; Carpio, Wohlgenant, & Boonsaeng, 2008; Che, Veeck, & Veeck, 2005; Cordell, 2004).

Another source of interest in getting involved in agritourism activities may come from the farmers themselves, who have in recent years been trying to identify the possibilities for development of such activities on their farms. A research conducted by the Organization for Economic Cooperation and Development (OECD) showed that agritourism businesses involved more than 5 percent of farm households in some European countries like the United Kingdom, Austria, and Norway (OECD, 2009). On the other hand, agritourism is generally less well developed in the United States than in Europe. According to the USDA National Agricultural Statistics Service's (NASS's) 2007 Census of Agriculture, only about 1 percent of U.S. farms had gain from agritourism (USDA, 2009). Considering the U.S. agricultural sector size, this figure suggests the existence of great capacity for growth in that industry in the United States (Moss, Kuethe, & Morehart, 2012).

In the last decade of the twentieth century, many socioeconomic planners in different countries have introduced tourism as a confident way with a clear vision for the development of rural areas; especially the most deprived ones (Baum et al., 2004; A. R. Eftekhari & Ghaderi, 2002; Tew & Barbieri, 2012). In agritourism, cultural, natural and historical resources of rural areas can be supplied as cultural products (Matei (Titilina), 2015). Agritourism is a kind of tourism in which tourists are not just watching the views of villages and natural areas, but also the one in which tourists experience first-hand and get involved in the process of living and almost all the activities that the villagers are doing (Okech, Haghiri, & George, 2012); activities such as waking up early in the morning, eating organic food, various activities related to agriculture including planting, growing, harvesting, grazing animals, milking and participation in rural customs such as marriage ceremonies, ritual festivals, mourning and other events that happen in a village (Mahaliyanaarachchi, 2015).

By getting involved in agritourism business, the farm nature will change in such a way to operate as a supplementary, complementary or primary enterprise (Blacka et al., 2001). All these agritourism enterprises are absolutely designed to conserve the environment and they are

supposed to be beneficial to the farm business as they are promoting sustainable consumption and production of agricultural products in the societies.

Moreover, as a complementary enterprise, agritourism activities would have the same share with other enterprises in the farm product portfolio. In other words, a complement agritourism activity provides the same profit as other enterprises in the farm product portfolio (Blacka et al., 2001). For an example of this type of agritourism enterprises consider a tomato producer who sells half of 500 kilograms of his produce to a middleman (who, in turn, supplies at different markets) and the remainder to paying visitors through pick-your-own operation (it is an activity where the commodity buyers harvest the crops of their own choice). Sometimes consumers prefer this way of buying as their preferences are diverse in nature. The two enterprises (selling to middleman and the direct selling) would be complementary enterprises because they are expected to share an equal amount of business.

The last situation is when the agritourism enterprise serves as the primary source of farmer's income and, thus, is recognized as the main job on the farm. For instance, a grape producer may have a winery on his (her) farm and hosts visitors who are willing to spend the day or the weekend tasting wine. Although wine tasting is the main factor influencing visitor attraction, the farmer may also offer some extra services including overnight lodging in a cottage on his property. However, since agritourism would be the main part of his (her) farm product portfolio, therefore, agritourism will be recognized as a primary activity. Here the farmer will gain more from both additional revenues and increased public exposure.

For Iranian economy, agriculture is considered as a key sector. Though its contribution in GDP has declined during last four decades (due to transition of the economy into the industrial stage), it still accounts for nearly 10 percent of GDP and provides direct job opportunities for almost 18.5 percent of the population. This would be higher if one considers indirect employment created in agriculture related industries. Moreover, its share in non-oil export earnings is reported at 18 percent (CBI, 2018) Table 1 provides more information.

Table 1. Macroeconomic indicators of Iran's agriculture (share percentage)

	2013	2014	2015	2016	2017
GDP	9.8	10	10.8	10	9.8
Employment	18.7	18.5	18.4	18.5	18.7

Source: CBI (Central Bank of Iran, 2018)

In Iran more than 400 rural accommodations existed in 2016. Most of these places are managed by a local family who engaged in agriculture. Different activities such as providing native food and drink, training and selling local handicrafts, traditional music, tours and other ecotourism activities are observed. The physical site of the accommodation is a kind of eco-museum given the architectural style, organic materials used in the buildings, interior design, and native furniture. The most important characteristic of these accommodations are the participation of host family members and local community in all tourism activities (Boruj, 2012; UNESCO, 2009).

No exact statistics were found on the status of agritourism in the world. According to World Tourism Organization of UN in 2016, the greatest growth of foreign tourism has occurred in Asia and Pacific Ocean with 9% growth of foreign tourism, followed by Africa and America with 8% and 3% growth, respectively. The most visited region of the world, i.e., Europe has registered 2% growth. France, U.S., Spain, and China still claimed the top ranks of foreign tourists (UNWTO, 2016).

Based on statistics provided by World Tourism Organization in 2010, Iran hosted about 3 million foreign tourists visited this country, which in 2015 increased to 5.237 million people,

indicating an annual growth of 12.3% (UNWTO, 2016). According to the statistics published by the Statistical Center of Iran, 54% of Iranian households have had domestic travel during the peak season (summer). The number of domestic tourists has raised from 157 million overnight in 2011 to 175 million overnight in 2014, showing an annual growth of 3.64 % (Statistical Center of Iran, 2011).

In this study, we try to identify the factors affecting the supply of agritourism services in Iran. The findings of this research can recognize villagers and farmers are more likely to enter the agritourism business. Thus, the research findings can be used by policy makers for planning agritourism development.

Various studies have considered the strengths and weaknesses of agritourism by SWOT matrix. In these papers, the potentials and limitations of agritourism development have been studied, and strategies as well as solutions have been provided for tourism development (Bahrami, Habibi, & Ghaderi, 2011; Demirbas Topcu, 2007; R. Eftekhari & Mahdavi, 2006; Malkanthi & Routry, 2011).

Some other studies have surveyed the factors affecting agritourism development. Che et al. (2005) surveyed 154 agritourism operations in eleven categories including animal-related firms, berry-based firms, Christmas focus, fall-harvest firms, farm experience, farm markets, honey/maple-based firms, nurseries, orchards, specialty crops/oils, and vineyards in Michigan. They analyzed the relationships between employment, advertising, and scale to gross sales per day by OLS multivariate regression. Their findings suggested that the economic impact of agritourism operations is great and growing in all their diversity. On the other hand, as the agritourism sector matures, more income is earned.

Amanor-Boadu (2013) surveyed diversification decisions in the field of agritourism in Kansas by logit model. The required data were gathered from participants in a tourism workshop. The findings showed that all demographic characteristics, except the gender, were statistically significant in decisions related to diversity, and training had the greatest positive effect on decisions made by farmers.

For better understanding of agritourism opportunities in Limpopo province in South Africa, Myer and de Crom (2013) gathered data mainly through field survey and interview with farmers, tourists, and owners of farms in Mopani district. The findings indicated that despite the positive view of all respondents to agritourism, still there are many unused capacities in this sector. Other results showed that, by planning farm activities, utilizing the brochure of information, establishing a network with existing tourism institutions, encouraging application of local and new products, farmers can develop agritourism business.

Bagi and Reeder (2012) surveyed 18907 questionnaires to analyze the factors affecting American farmers' participation in agritourism by logit model. The findings revealed that services including public access to the farm for recreation have the greatest positive impact. Also, characteristics such as distance to city center, farmers' college education, farmers' payment for farm advice, farms organized as partnerships/corporations, farms enrolled in conservation programs, and farmers with access to the internet can increase the success of agritourism promotion.

Brandth and Haugen (2011) analyzed the effect of agricultural diversity on tourism. For this, 19 active farms in the field of tourism in Norway were selected and the data were gathered via interview. The findings suggested that the host identity which has roots in agricultural products' diversity and service provision has a considerable role for absorbing tourists.

Mnguni (2010) examined the socio-economic variables affecting agritourism business using the data from two rural societies in Limpopo province in South Africa. For this, logit model and correlation matrix were used. The findings indicated that there were significant differences among active and inactive farmers in agritourism. Age, farm size, gender, and level of

skill in different languages had positive effect on the willingness of farmers to engage in tourism business.

(McGehee, 2007) studied the needs and barriers of farm households that provide agritourism services based on Weber model, which is related to a sociological theory. The findings suggested three beneficiary groups including providers of tourism services, destination marketing organizations (DMOs), and farmers, with each having unique motivations in a tourism system with mutual relations based on rationality. He provided strategies to improve the success of tourism system that can be considered as support tools for decision making of entrepreneurship institutions. These strategies result in improved quality of social life and economic sustainability.

Barbieri and Mshenga (2008) studied the role of farm and owner demographic characteristics on the gross income of the fields related to agritourism. The data were collected from farms and ranches with diversified agritourism business in North America. The findings showed that the experience, the number of employees, farm size and farmers with farming as main job had a positive effect on the annual income of agritourism farms. Other characteristics including location, whether the operator had any services plans, entrepreneurs' education level did not show a significant impact on the performance of these farms.

Brown and Reader (2007) surveyed farm-based recreation via a field study. The analysis indicated that the farmer and farm characteristics along with local and environmental factors related to farmers' activities had an important role in the income of rural communities. In addition, agriculture and recreation which includes hunting, fishing, horse riding, and other farm activities had an important role in the income of farm and rural communities.

Referring to tourism status in Arabian countries including Egypt, Steiner (2006) stated that despite a great deal of tourism attractions, they have not been able to generate income favorably. After surveying the reasons of the inefficiency, he introduced lack of security as well as social and mental threats along with no optimal and varied services provision as the most important reasons of failure in generating income. So to improve the situation, tourism security and services diversification need to be considered.

Colton and Bissix (2005) tried to identify problems and challenges of agritourism development in Nova Scotia based on the findings of a research project, from the perspective of beneficiary groups via interviews. The beneficiaries identified subjects that affect agritourism development including problems related to marketing, developing product diversity, government support, training, cooperation, and communications.

Methods

Theoretical Model

Farmer's decision to engage in agritourism can be considered as similar to a choice between modern and old technology (activity). In this study, a farmer engagement in agritourism is based on the maximum utility he would be able to obtain from increased income provided by agritourism. Following Bagi and Reeder (2012), the objective function is specified as:

$$\text{Maximize } \{E\left(U(\pi_i)\right) = f(X_i) + \varepsilon_i\}, i = 1, \dots, n \tag{1}$$

where $U(\pi_i)$ is the expected utility of the ith farmer from participation in agritourism and $f(.)$ is a function of $X_i = x_{i1}, \dots, x_{ik}$ representing features or factors related to i^{th} farmer affecting his expected utility. Also, ε_i denotes error term which includes all effective factors other than X_i. Let $y_i = 1$ shows adoption of new technology (activity) and y_i takes zero value if i^{th} farmer doesn't adopt. Since the probability of adoption lies between zero and one, a logit model is relevant as a functional form of $f(.)$. So for such cases, the following probability can be introduced:

$$P_i = P(y_i = 1|X_i) = 1/[1 + \exp(-f(X_i))] \tag{2}$$

Equation (2) can be rewritten as:

$$L_i = \ln (P_i/(1 - P_i)) = \beta_0 + \beta_1 x_{1i} + \cdots + \beta_k x_{ki} \tag{3}$$

Here, L denotes the dependent variable and X_i is a vector of K explanatory variables of the ith farmer.

The logit model was first introduced under binomial logit which was used to calculate the level of probability of selection between two options. Then, these models were generalized and used to calculate the level of probability of selection between more than two options, known as multiple or multinomial logit model (Long, 1997).

The basis for the application of multinomial logit model is the choice of a specific level of dependent variables as the base category. In other words, the probability of choosing a level of dependent variable is evaluated against selection of the base level. To estimate discrete selection model with the logit structure, maximum likelihood method is used based on maximizing the probability of occurrence of simultaneous observations (Long, 1997).

According to McFadden (1974), multinomial logit model must be used only in cases in which selection of alternatives is assumed separately. In other words, the main assumption of the above model is independence of different levels of dependent variable, i.e., the probability of choosing a class of dependent variable against other dependent variable classes (Greene, 2002).

Empirical Model

Many efforts have been made especially during last decade towards recognizing potential factors affecting agritourism. Based on these achievements, four groups of variables can be introduced (Bagi & Reeder, 2012), two relating to farm (characteristics of farm's land and location), one representing farmer's family wealth, and one expressing features of farm operator. Main factors related to farm itself consist of farm size and farm's attractive characteristics (Bernardo, Valentine, & Leatherman, 2004; Sonnino, 2004). It is expected that farmers with bigger farm size are more willing to involve in agritourism as they can provide more facilities for tourist attraction.

Among the major characteristics of farm operator are age, education (training), and experience as one expects that more educated (trained) and experienced farmers are eager to participate in agritourism activities because they are more familiar with advantages of agritourism. Furthermore, elder farmers, due to more conservative behavior and higher risk aversion parameter, are expected to show less willingness towards agritourism.

In this study, for the first time, a new variable is used as proxy for farmer's family wealth. In other words, it is assumed that wealthier farmers can provide more diversified services and are able to produce more number of crops. So, diversification can be a viable proxy for farmer wealth which is expected to directly affect farmer's willingness to involve in agritourism.

For the factors related to location, researchers have pointed out to several variables including geographic region, and distance from the nearest city. Due to high variability of geographic characteristics of farms (climate, amenity, transportation access, availability of hotels etc.), one can't provide a specific expectation. However, we expect that longer distance from cities has a negative impact on agritourism involvement.

In order to identify effective factors on agritourism involvement, the multinomial logit model in equation (3) is rewritten based on above mentioned theoretical expectations:

Y = f (train, farm size, exp, age, cdiv, sdiv)   (4)

where:

Y: is the dependent variable representing willingness to enter agritourism, which is classified in 4 levels. The first class includes farmers who have not supplied any tourism services until now. The second class includes farmers who supplied agritourism services less than 10 times, based on tourists' request. The third class includes those who offer a variety of agritourism services as a second job. Finally, the fourth class consists of the individuals who supply agritourism services professionally as the main job. The independent variables include farmer training (ordered variable), farm size (hectare), the background of experiences on tourism (years), age of farmer (years), and diversification of products and services provided (ordered variable).

The diversity of services includes providing attractive programs for participation in different issues including planting, growing and harvesting of crops, photography with local costumes, providing local music, providing local food, animal exhibition and caring, workshops and recreational-educational classes of working in the farm and garden, plant exhibition, providing attractive amusements for children, providing natural agriculture experiences for children, handicrafts, local tours such as mountains and gardens. Table 2 shows expected impacts of variables.

Table 2. Expected effects of variables

Variable	Education (Training)	Farm Size	Experience	Age	Diversification In Crops	Diversification In Services
Symbol	Train	Size	Exp	Age	Cdiv	Sdiv
Effect	+	+	+	-	+	+

Based on Table 2, stated theoretical expectations and previous works, the research hypotheses can be defined as following:

H1: Education (training) has positive effect on agritourism participation.
H2: Farm size directly affects farmers' willingness to agritourism participation.
H3: The more experienced farmers are more willing to engage in agritourism activities.
H4: Elder farmers have less willingness to agritourism activities.
H5: Diversification in crops and services provided by farmer increases the probability of his participation in agritourism activities.

The multinomial logit model is estimated by maximum likelihood which is the best estimation algorithm in generating unbiased and consistent parameter estimates.

Data

The statistical population of this research consisted of rural families involved in agriculture with the potentials required to supply agritourism attractions in Iran. The required data and statistics were collected through face to face interview with 115 farmers in 24 villages from 12 provinces. The selection of provinces and villages were made according to their share in total number of agritourism sites across the country.

Results and Discussion

The results of the estimated model are tabulated in Table 3. Six explanatory variables including training or education of farmers on agritourism, size of the farm, farmer's experience in the field and his (her) age and finally diversification made in both crops and services provided by the farmer are present in the estimated logit regression. The model is estimated by maximum likelihood algorithm as it's recommended in the literature as a method of estimating unbiased, efficient and consistent coefficients (Greene, 2002). The estimated goodness of fit criteria

(Pseudo R-squared and LR statistics) confirm validity of the model. The coefficient of determination (Pseudo R-squared) shows the estimated model can explain 51.7 percent of dependent variable (farmers' willingness to enter agritourism activities) variations which is in the expectable range for logit model. By looking at probability of the estimated likelihood ratio (LR) statistic, significance of the model, namely, all estimated coefficients are not zero at the same time, can be easily verified.

Table 3. Estimated coefficients of multinomial logit model

Variable	Coefficient	Standard Deviation	Z Statistics	Marginal Effect			
				Level 1	Level 2	Level 3	Level 4
train	0.854*	0.380	2.243	0.136	0.174	0.405	0.137
Size	0.279*	0.119	2.342	0.044	0.057	0.133	0.044
Exp	0.203*	0.082	2.327	0.032	0.041	0.096	0.032
Age	-0.139*	0.051	-2.688	-0.022	-0.028	-0.066	-0.022
cdiv	0.381*	0.172	2.209	0.060	0.078	0.181	0.061
sdiv	0.209*	0.106	1.972	0.033	0.042	0.099	0.033
Pseudo R-squared = 0.517							
Log likelihood = 30.46							
LR statistic = 65.13							
Probability (LR stat) <0.0001							

*significant at 5 percent level.

All coefficients are statistically significant at 5 percent level and possess theoretically consistent sign as described in Table 2. The highest impact goes to education (training) variable implying that awareness of farmers with potential benefits of agritourism is the main driver of agritourism development. In fact, logarithm of odds ratio (probability of getting involved in agritourism over chance of not getting involved in agritourism) is expected to be greater by 0.854 for trained (educated) farmers than those who did not attended any related training courses. So the first hypothesis of the research (H1) can't be rejected. This finding was previously reported by Bagi and Reeder (2012). Two new variables of interest including crops and services diversification have positive and reasonably great impact. In other words, farming more crop items (crop diversification) is estimated to raise chance of entering into the agritourism industry. Logarithm of odds ratio (probability of entering into agritourism over chance of not entering into agritourism) is expected to be higher by 0.381 for farmers with diversified cultivated crops than those who did not pay attention to this factor. The same result (with slightly lower impact) is obtained for services diversification. By provision of diversified services at the farm to visitors, the chance of getting involved in agritourism would be increased. To be more specific, providing visitors the possibility to personally attend in different farm activities such as planting, growing and harvesting of crops, could attract more people suggesting agritourism as a money making job leading to more chance of getting formally involved in agritourism (agritourism development). Furthermore, activities like photography with local costumes, providing local music and food, animal exhibition and caring, recreational-educational workshops at the farm, working in the farm and garden, plant exhibition, providing attractive amusements for children, getting visitors (especially children) possibility of having natural agriculture experiences, handicrafts, local tours such as mountains and gardens visit, all could leave visitors with pleasant memories of their farm visit. This, of course, could be stated for other people and relatives and as a result provide potential development for farmers' income. It suggests more investment on provision of diversified crops and services on the farm as it creates more attraction for tourists. Thus our fifth hypothesis (H5) is confirmed.

The two other independent variables of the model (size and experience) revealed theoretically consistent sign. In other words, probability of choosing agritourism as a source of income is estimated to be higher for farmers with larger farms and more experience. Large farm gives possibility for dealing with different activities at the same time. Meanwhile, it's expected that farmers with larger farms are risk-lover implying more willingness to enter new working fields (agritourism). So, two other hypotheses of the research (H2 and H3) are confirmed.

The estimated marginal effects provide information on how probability of participation in agritourism in different levels of dependent variable changes as a result of change in each covariate. For example, ceteris paribus, it is expected that by increase in the diversity of crops and services, the willingness of farmers for entering into the agritourism business in the third group (agritourism as the second job) increases by 18.1% and 9.9% on average, respectively. Here again greater values are found for train. Our estimated marginal effects for train suggest the more educated are farmers the more would be probability to entering agritourism in the third group (agritourism as the second job). The estimated rate of increase is 40.5 percent.

Also, other findings show that farmers' age in all groups has a negative influence on their willingness to enter into agritourism business. This may be due to risk-averse characteristic of elder farmers which prevents them from involving in activities they have not experienced before. This is very important from policy making point of view. If government aims at development of agritourism as a new source of agricultural earnings, younger farmers should be a group with higher potential willingness. This is in line with findings of Bahrami et al. (2011) and Bagi and Reeder (2012). The estimated coefficient of farm size predicts that farmers with larger farming area are more likely to enter agritourism in all groups. These are in line with findings reported by Barbieri and Mshenga (2008); Birthal, Joshi, Roy, and Thorat (2007); Nickerson, Black, and McCool (2001). Therefore, all the research hypotheses were confirmed by empirical findings.

Conclusions

This study aimed at providing empirical evidence on main drivers of agritourism development in Iran. The multinomial logit model was adopted based on both the theoretical considerations and nature of dependent variable. The estimation findings suggested education (training) of farmers as the main driver of farmers' willingness to participate in agritourism. It could be of high importance for policy makers. So as far as agritourism is considered as a new source of income both for farmers and the country, programs aiming at increasing the knowledge of farmers regarding different advantages of agritourism should be paid special attention by the government. Considering the marginal effects of the considered variables, it is suggested that for development of agritourism, the main attention of planners and policy makers should be directed toward the third group (farmers who selected agritourism business as a second job).

Also crops and services diversification on the farm are recognized as two critical drivers which have not been studied before. It means that provision of more crops and services on the farm generates more attraction for tourists and can lead to the development of agritourism. This can help in ensuring agritourism as a stable and reliable job for farmers.

References

Åke Nilsson, P. (2002). Staying on farms: An ideological background. *Annals of Tourism Research*, *29*(1), 7–24. https://doi.org/10.1016/S0160-7383(00)00081-5

Amanor-Boadu, V. (2013). Diversification decisions in agriculture: The case of agritourism in Kansas. *International Food and Agribusiness Management Review, 16*(2), 57–74.

Ashley, C., De Brine, P., Lehr, A., & Wilde, H. (2007). *The role of the tourism sector in expanding*

economic opportunity.

Bagi, F., & Reeder, R. J. (2012). Factors affecting farmer participation in agritourism. *Agricultural and Resource Economics*, *41*(2), 189–199.

Bahrami, R., Habibi, K., & Ghaderi, R. (2011). Strategic planning of rural tourism development (Case study: Rural areas of Kurdistan Province). *Geography and Regional Planning*, *2*(1), 21–36.

Barbieri, C., & Mshenga, P. M. (2008). The role of the firm and owner characteristics on the performance of agritourism farms. *Journal Compilation European Society for Rural Sociology*, *48*(1), 166–183.

Baum, S., Weingarten, P., & Banski, J. (2004). *Developments or rural economies in the Central and Eastern Europe: An overview* (Rural Areas and Development No. 2).

Bernardo, D., Valentine, L., & Leatherman, J. (2004). Agritourism: If we build It, will they come? In *Risk and Profit Conference, Manhattan, Kansas*. Retrieved from http://www.uvm.edu/ tourismresearch/agtour/publications/Kansas

Birthal, P. S., Joshi, P. K., Roy, D., & Thorat, A. (2007). *Diversification in Indian agriculture towards high-value crops: The role of smallholders* (IFPRI Discussion Paper No. 00727).

Blacka, A., Coale, P., Couture, P., Dooley, J., Hankins, A., Lastovica, A., … Uysal, M. (2001). Agritourism. Retrieved 25 November 2007, from http://www.ext.vt.edu/pubs/ agritour/310-003/310-003.html

Boruj, A. (2012). Standardization of eco lodges in Iran,. In *1st International Conference on Standardization in the Tourism and Related Industries*.

Brandth, B., & Haugen, M. (2011). Farm diversification into tourism - implications for social identity? *Journal of Rural Studies*, *27*(1), 35–44.

Brown, D. M., & Reader, R. J. (2007). *Farm-based recreation: A statistical profile* (No. ERR-53).

Carpio, C. E., Wohlgenant, M. K., & Boonsaeng, T. (2008). The demand for agritourism in the United States. *Journal of Agricultural and Resource Economics*. https://doi.org/10.22004/ag.econ.42465

CBI. (2018). *Economic report & balance Sheet*. Tehran.

Che, D., Veeck, A., & Veeck, G. (2005). Sustaining production and strengthening the agritourism product: Linkages among Michigan agritourism destinations. *Agriculture and Human Values*, *22*(2), 225–234. https://doi.org/10.1007/s10460-004-8282-0

Colton, J. W., & Bissix, G. (2005). Developing agritourism in Nova Scotia: Issues and challenges. *Journal of Sustainable Agriculture*, *27*(1), 91–112. https://doi.org/10.1300/J064v27n01_06

Cordell, K. (2004). *Outdoor recreation for 21st Century America: A report to the nation: The national survey on recreation and the environment*. Andover, MA: Venture Publishing, Inc.

Demirbas Topcu, E. (2007). *Agri-tourism: As a new element of country planning*. Middle East Technical University.

Eftekhari, A. R., & Ghaderi, E. (2002). The rule of rural tourism in rural development (Theoretical analysis). *The Journal of Spatial Planning*, *6*(2), 23–41.

Eftekhari, R., & Mahdavi, D. (2006). Rural tourism development strategies using SWOT model insmall Lavasanat Village. *Human Sciences Modares Seasonal Journal*, *10*(2), 1–30.

Gannon, A. (1994). Rural tourism as a factor in rural community economic development for economies in transition. *Journal of Sustainable Tourism*, *2*(1–2), 51–60. https://doi.org/10.1080/09669589409510683

Gil Arroyo, C., Barbieri, C., & Rozier Rich, S. (2013). Defining agritourism: A comparative study of stakeholders' perceptions in Missouri and North Carolina. *Tourism Management*, *37*, 39–47. https://doi.org/10.1016/j.tourman.2012.12.007

Greene, W. H. (2002). *Econometric analysis* (5th ed.). Washington, D.C.: New York University.

Hamilpurka, S. (2012). Agri-tourism in Karnataka – Issues, constraints and possibilities. *International Journal of Research in Commerce, Economics & Management*, *2*(7), 106–111.

Harcombe, D. P. (1999). The economic impacts of tourism. *ABAC Journal*, *19*(2), 10–22.

Kumar, J., Hussain, K., & Kannan, S. (2015). Positive vs negative economic impacts of tourism development: A revenue of economic impact studies. In *21st Asia Pacific Tourism Association Annual Conference: Development of the new tourism paradigm in the Asia Pasific Region*. Asia Pacific Tourism Association.

Lane, B. (2009). Rural tourism: An overview. In T. Jamal & M. Robinson (Eds.), *The SAGE Handbook of Tourism Studies* (pp. 354–370). London, UK.: SAGE Publications Inc.

Liu, W. (2006). Analysis of agritourism development of Shanghai. *Shanghai Journal of Economics*, *1*(2), 53–60.

Long, J. S. (1997). *Regression models for categorical and limited dependent variables*. London, UK.: SAGE Publications, Inc.

Ma, Y., Ma, J., Zhang, L., Yu, J., & Zhang, C. (2011). Research on dynamic mechanism of the development of agricultural tourism in Shanghai. *Chinese Agriculture Science Bulletin*, *27*(33), 318–322.

Mahaliyanaarachchi, R. (2015). *Agritourism farm and farm stay*. Sabaragamuwa: Sabaragamuwa University of Sri Lanka. https://doi.org/10.13140/RG.2.1.3938.4721

Malkanthi, S., & Routry, J. (2011). Potential for agritourism development: Evedance from Sri Lanka. *Journal of Agricultural Sciences – Sri Lanka*, *6*(1), 45–58. https://doi.org/10.4038/jas.v6i1.3812

Matei (Titilina), F. D. (2015). Cultural tourism potential, as part of rural tourism development in the North-East of Romania. *Procedia Economics and Finance*, *23*(October 2014), 453–460. https://doi.org/10.1016/s2212-5671(15)00584-5

McFadden, D. (1974). Conditional logit analysis of qualitative choice behaviour. In P. Zarembka (Ed.), *Frontiers in Econometrics* (pp. 105–142). New York: Academic Press.

McGehee, N. G. (2007). An agritourism systems model: A weberian perspective. *Journal of Sustainable Tourism*, *15*(2), 111–124. https://doi.org/10.2167/jost634.0

McGehee, N. G., & Kim, K. (2004). Motivation for agri-tourism Eentrepreneurship. *Journal of Travel Research*, *43*(2), 161–170. https://doi.org/10.1177/0047287504268245

Mnguni, K. I. (2010). *The socio-economic analysis of agritourism in two rural communities in the Limpopo Province*. University of South Africa.

Moss, C. B., Kuethe, T., & Morehart, M. (2012). The agricultural resource management survey: An information system for production agriculture. *Agricultural Finance Review*, *72*(2), 191–200. https://doi.org/10.1108/00021461211250429

Myer, S., & de Crom, E. (2013). Agritourism activities in the Mopani District Municipality, Limpopo Province, South Africa: Perceptions and opportunities. *The Journal for Transdisciplinary Research in Southern Africa*, *9*(2), 295–308. https://doi.org/10.4102/td.v9i2.208

Nickerson, N. P., Black, R. J., & McCool, S. F. (2001). Agritourism: Motivations behind farm/ranch business diversification. *Journal of Travel Research*, *40*(1), 19–26. https://doi.org/10.1177/004728750104000104

OECD. (2009). *OECD annual report 2009*.

Okech, R., Haghiri, M., & George, B. P. (2012). Rural tourism as a sustainable development alternative: An analysis with special reference to Luanda, Kenya. *CULTUR*, *6*(3), 36–54.

Patterson, A. (2014). Brand Ireland: Tourism and national identity. In E. Frew & L. White (Eds.), *Tourism and national identities: An international perspective*. London, UK.: Routledge. https://doi.org/10.4324/9780203855966

People. (2010). Shanghai built more than 100 agritourist attractions.

Schilling, B. J., Attavanich, W., & Jin, Y. (2014). Does agritourism enhance farm profitability? *Journal of Agricultural and Resource Economics*. https://doi.org/10.22004/ag.econ.168260

Sonnino, R. (2004). For a piece of bread? Interpreting sustainable development through agritourism in Southern Tuscany. *Sociologia Ruralis*, *44*(3), 285–300. https://doi.org/10.1111/j.1467-9523.2004.00276.x

Statistical Center of Iran. (2011). *Preliminary summary results of the national tourists survey - 2011*.

Steiner, C. (2006). *Social distance, security threats and tourism volatility* (University of Mainz Publications). Germany.

Tanrivermis, H., & Sanli, H. (2007). A research on the impacts of tourism on rural household income and farm enterprises: The case of the Nevsehir Province of Turkey. *Journal of Agriculture and Rural Development in the Tropics and Subtropics*, *108*(2), 169–189.

Tew, C., & Barbieri, C. (2012). The perceived benefits of agritourism: The provider's perspective. *Tourism Management*, *33*(1), 215–224. https://doi.org/10.1016/j.tourman.2011.02.005

UNESCO. (2009). Sustainable tourism development in UNESCO designated sites in South-Eastern Europe. Montenegro: UNESCO.

UNWTO. (2016). *Annual report 2016 - World Tourism Organization*. https://doi.org/10.18111/9789284418725

USDA. (2009). *2007 census of agriculture*. Washing-ton, D.C.

USDA. (2014). *2012 census of agriculture*. Washing-ton, D.C.