Research Article

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Determinant Factors of Farmers' Willingness to Start Agritourism in Rural Nepal

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Abstract: Agritourism in developing countries is regarded as a tool not only for rural development but also for poverty alleviation. However, up until now, the majority of the studies on agritourism have been conducted in economically strong countries, focusing on already-developed agritourism destinations. Thus, the main objectives of this study were to investigate farmers' willingness before the establishment of agritourism and the factors that are driving their motivation. The results of an empirical questionnaire survey in rural Nepal conducted in August 2017 revealed that farmers are willing to engage in agritourism. Furthermore, the results indicate that agritourism has a statistical connection with elements related to tourism and an element related to agriculture. Specifically, willingness to start agritourism is connected with the types of tourist attracted and the farmers' willingness to share land resources. Each factor is further explained by employing three different variables. In summary, those farmers who are 21 to 40 years old, have returned from foreign countries, are frequently involved in community activities, and are relatively educated are the potential agritourism practitioners in rural Nepal. This study suggests that policymakers should pay special consideration to farmers with the above traits for agritourism development.

Keywords: Willingness of farmers; Agritourism; Agritourism development, Nepal, Multivariate probit model

1 Introduction

Agritourism in industrial countries has significantly contributed to regional development and has therefore attracted growing attention in developing countries. The introduction of agritourism in developing countries is increasing gradually (Akpınar et al. 2005; Malkanthi and Routry 2011; Kunasekaran et al. 2012). In the case of developing countries, agritourism is regarded as a tool not only for rural development but also for poverty alleviation. However, until now, the majority of the studies on agritourism have been conducted in economically strong countries, focusing on already-developed agritourism destinations (Brian et al. 2006; Barbieri 2008; Ohe and Ciani 2012). This attention should be diversified and include the developing countries where no agritourism exists. Additionally, the attributes and opinions of farmers in developing countries who are not practicing agritourism presently should be explored to assess whether they would participate in agritourism in the future.

Agritourism development is primarily based on farmers' intentions and their characteristics because they are the key factors that determine agritourism success. Therefore, farmers' willingness is necessary to understand before any kind of agritourism implementation because their readiness is the first major step for agritourism development. Farmers' motivational factors for farm diversification, which is somewhat related to agritourism, has been studied in the United States (Nickerson et al. 2001) and Australia (Ollenburg and Buckley 2007). Likewise, farmers' motivational factors for continuing agritourism on already-established agritourism farms in the United States (Bagi and Reeder 2012; Yeboah et al. 2017) and Malaysia (Kunasekaran et al. 2012) have been studied by different scholars. Nevertheless, these studies did not consider the farmers' willingness to start agritourism. In other words, although the motivational factors of current agritourism practitioners have been somewhat studied in industrial countries, the investigation of farmers' willingness before starting agritourism has not been conducted in either developed or developing countries except for Malkanthi et al. (2015).

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Although the study of Malkanthi *et al.* (2015) conducted in Sri Lanka dealt with farmers' willingness to start spice tourism, it failed to consider factors related to tourism, such as the profile of the potential tourists and the roles of full-time vs. part-time farmers, that might profoundly influence the farmers' willingness. These factors are crucial issues to be acknowledged while developing a new tourist destination. In this regard, this study aims to investigate farmers' willingness to initiate agritourism in the context of developing countries where no agritourism exists. It is necessary to focus on developing countries because the majority of poor people comprise farmers in these countries. Of the world's total population, 736 million people are living under extreme poverty (i.e., less than \$1.90 per day) in rural areas and rely on farming (World Bank 2014, 2018). Thus, we can claim that agritourism development in rural areas is necessary to alleviate poverty. Investigating farmers' attitudes toward agritourism will show the degree of possibility of its development in rural areas. Therefore, the authors conducted a study on farmers' willingness while also focusing on the issues related to agriculture and tourism and their statistical connection.

The authors conducted an empirical quantitative survey in one remote village in Nepal, which was chosen for the study because over two-thirds of the Nepalese people are involved directly in the agricultural sector, and more than one-fifth of the country's total population is under the national poverty line (Ministry of Finance [MOF] 2018). Therefore, additional income for the farmers is necessary, which could be earned through agritourism. The authors believe that this village is representative of many rural villages found in developing countries.

Based on the definition of agritourism (presented in Section 2), the authors set the hypothesis that there are specific connections that underscore the relationship of agritourism with tourism-related and agriculture-related elements. Therefore, we chose the multivariate probit (MVP) model because it is used to analyze data that might have endogenous relationships. As per our understanding, there have been no previous agritourism studies that have used the MVP regression model to analyze data and present the resulting statistical relationships. This approach makes our research novel for this field and also provides new statistical evidence. In the remaining sections of this paper, prior research is presented followed by the study's methodology, results, and discussion. Finally, the authors present concluding remarks and policy implications for the development of agritourism.

2 Literature review

The word "agritourism" is a portmanteau of "agriculture" and "tourism," highlighting their relationship (Sznajder *et al.* 2009; Ohe and Kurihara 2013). It is a type of rural tourism in which farm visitors participate in agricultural activities such as planting and harvesting, while farmers provide accommodation, meals and guides, among other activities, on their farms (Barbieri and Mshenga 2008; Petroman and Petroman 2010). Agritourism in the USA comprises "pick your own" crops, Christmas tree sales, hay rides, educational programs, pumpkin patches, petting zoos, and on-farm festivals (McGehee and Kim 2004). This definition clarifies that agritourism means tourists visit farms either for farm activities or for entertainment and educational purposes. However, agritourism in economically developing nations (EDN) may differ from that in economically developed countries (EDC).

As presented in Table 1, characteristics of agritourism in EDCs and EDNs may differ based on the quality of infrastructure, skill level of the farmers, degree of organization of agritourism, and the level of service standards. Due to the poorer economies in EDNs, in most cases, the combination of less-developed infrastructure, lower-skilled farmers, less-structured agritourism activities, and lower levels of service make agritourism simpler, less formal, less sophisticated and more rural. However, agritourism in EDCs is more organized and formal. As Ohe and Ciani (2012) noted, farmers in Japan and Italy are providing a full-fledged service, taking advantages of tangible and intangible rural aspects such as local food, heritage experiences, and farm products to serve their visitors. Except in exceptional cases, EDNs cannot provide these kinds of services to tourists. In contrast, the traditional technology used for farming, the lack of (or very low) pesticides used in the farms, and multi-cropping systems provides tourists more opportunities to learn about different types of crops in a single visit, which is one of the potential advantages of agritourism in EDNs. As agritourism connects farmers and tourists, any earnings from tourism also directly benefit to the farmers. This direct connection not only increases farmers' income but also contributes to the surrounding rural area's development and the revitalization of the rural economy (Petroman and Petroman 2010; Ohe and Ciani 2012). Therefore, we research farmers' willingness to start agritourism.

In the development of agritourism, different conditions should be considered; among them, farmers' willingness is key and therefore necessary to understand before any kind of agritourism implementation. Nickerson *et al.* (2001) found that farmers were motivated to employ

Table 1: Differences between EDC and EDN

Items	EDC	EDN
Infrastructure	Highly organized	Not organized
Skill level of farmers	High skilled	Low skilled
Agritourism	Organized	Not organized
Service standard	Higher quality	Lower quality

Source: Authors' classification

farm diversification because of three types of reasons: social, economic, and external. Likewise, Bagi and Reeder (2012) categorized the conditions necessary for agritourism development into four groups: characteristics of the farm's land and operations, the farm's household wealth or net worth, the characteristics of the farm operator, and the farm's location. Further, the factors significantly affecting agritourism adoption by farmers in North Carolina are educational background, race, public access to the farm for recreation, farm location, willingness to pay for farm management and household income of the farmers (Yeboah et al. 2017). In Sri Lanka, the main factors affecting willingness to initiate spice tourism for farmers are employment opportunities for family members, support from being an established tourism location, education level, farm size, higher annual family income, high farm profits, and long-term experience before the starting agritourism. (Malkanthi et al. 2015). In Malaysia, Kunasekaran et al. (2012) found that farmers tended to have a positive perception of agrotourism because they were already connected to the tourism business, meaning that farmers are motivated to become involved in general tourism activities by their attributes and capabilities.

Regarding agritourism in Maharashtra, India, a project was implemented with the involvement of the local farmers, who received 70% of the revenue from the project. This influx of income serves as a motivating factor for them to continue developing agritourism in their area (Chadda and Bhakare 2012). Similarly, the additional income motivates farmers currently participating in the agritourism activities in Montana and Virginia (Nickerson et al. 2001; McGehee and Kim 2004). Although income as a motivating factor is universal, the degree of motivation can differ from place to place. For instance, American and Sri Lankan farmers had different capacity of investing money (Barbieri and Mshenga 2008; Malkanthi et al. 2015); farmers in developing countries may be motivated by small earnings, while farmers from developed countries may require a more significant amount of money to be motivated.

Studies have shown that the adoption of agritourism in a specific destination must be linked to farmers' perceptions and capabilities. If farmers are not assured of receiving benefits, they will be less receptive to establishing agritourism on their farms. Some researchers like Bagi and Reeder (2012), Kunasekaran et al. (2012), Malkanthi et al. (2015), and Yeboah et al. (2017) investigated farmers' adoption of agritourism and the factors behind their adoption. These studies reveal that farmers' attributes (e.g., age, gender, etc.), farm location, and farm size were the main determining factors. However, the interest and capabilities of farmers differ according to their country's degree of development and economic situation. For instance, U.S. farmers had no problem investing in agritourism (Barbieri and Mshenga 2008). Conversely, Sri Lankan farmers had financial problems that complicated the process of starting a new business (Malkanthi et al. 2015). Therefore, it appears that studies conducted in different contexts give different results, and independent research is necessary for a specific destination because it may not be appropriate to consider a given study's results to be applicable to all farmers. Thus, an empirical study on farmers' willingness to start agritourism in developing countries is necessary because of the scarcity of studies in this particular context.

The perceived benefits of agritourism are often associated with different farm businesses and household attributes (Tew and Barbieri 2012), meaning that farmers' attributes should be analyzed because they contribute to farmers' perceptions. For instance, gender has been included in more tourism studies. Some researchers like Akpinar et al. (2005) and Tucker and Boonabaana (2012) have found that women are not allowed to work in agritourism in Turkey due to the country's cultural practices. Barbieri and Mshenga (2008) found that women earn less than men in agritourism because of their limited access to resources and general disadvantages in the business arena. However, many other studies have determined that women outperform men in this field (Duffy et al. 2015; Costa et al. 2017; Ohe 2008, 2011, 2017).

Similarly, farmers' ages and educational backgrounds are other essential factors that influence agritourism establishment (Tew and Barbieri 2012; Bagi and Reeder 2012; Malkanthi *et al.* 2015; Yeboah *et al.* 2017; Ohe 2017). Recent trends show that young farmers are shifting towards different jobs, and the number of farmers is decreasing throughout the world—over 43% of the total population were working in agriculture in 1991, and that number had decreased to around 26% by 2017 (World Bank 2018). Weiss (1999) and Barbieri and Mshenga (2008) revealed that farmer age is inversely related to the agritourism business; they found that younger farmers in North America were generating more revenue than older farmers.

Regarding farmer education, those with higher levels of education and participation in agritourism training and awareness campaigns do comparatively better in agritourism than those with lower levels of education and training (Barbieri and Mshenga 2008; Bagi and Reeder 2012, Malkanthi and Routry 2011). For example, Naidoo and Sharpley (2016) demonstrated how education worked as an essential factor for community well-being and tourism development in the case of Mauritius. In Cuba, most of the farmers are trained in the agrological practices that helped develop the quality products in agroecotourism (Duffy *et al.* 2016). Moreover, because the tourism industry is globalized and agritourism is a part of the tourism sector, it involves not only domestic visitors but also tourists from abroad. Therefore, a certain level of understanding and communication capabilities are also needed by tourism operators. The higher the education level of the farmers, the more likely he or she will introduce diversified activities that will attract more visitors (Ohe 2017).

The types of farmers working on the farm are also a crucial factor for agritourism. Whether a farmer works full-time or part-time, for instance, contributes differently to agritourism development (Evans and Llbery 1993). Full-time farmers devote themselves to the farm, and their main intention is usually to earn more money from farm activities. Conversely, part-time farmers would dedicate less time to agritourism if agriculture is a secondary source of income or if they see agriculture as a hobby rather than a job. In the case of Great Britain, Evans and Llbery (1993) pointed out that diversification of farm activities, like starting farm accommodation, helped prevent the operators from leaving the farm to find employment, demonstrating that the possibility of additional income for part-time farmers is a motivating factor for continuing their job. Concerning rural tourism development in Japan, Ohe (2008) statistically proved that both full-time and part-time farmers are important for rural tourism development, specifically regarding accommodation, restaur-

ant, and direct-selling activities. Some other socioeconomic characteristics of the farmers like income level and average household size are also crucial (Ohe 2008; Kim *et al.* 2013; Ohe and Kurihara 2013; Rivera *et al.* 2016).

In addition to farmers' attributes, other subjective factors affect the adoption of tourism. Woo *et al.* (2015) determined that the overall quality of life is a useful predictor of support for further tourism development. Similarly, residents' perception of tourism's economic benefits raises their satisfaction with their material life, which consequently increases their overall life satisfaction (Kim *et al.* 2013). Kamaruddin *et al.* (2013) suggested that active involvement from related institutions, strengthening of financial and human assets, and the introduction of technology that is more acceptable to farmers are the best ways to raise happiness levels among farmers. In other words, once the farmers are satisfied or happy with their core job, then in the next stage, they are likely to introduce tourism (Ohe *et al.* 2010). Moreover, Rivera *et al.* (2016) also statistically proved that farmers' satisfaction and tourism development are positively correlated and that the variables are not exclusive.

Social factors like the experience of hosting visiting friends and relatives (VFR) and participation in community projects also contribute to increasing willingness to engage in tourism destination development. Rogerson (2017) found that hosting VFR is very important for the tourism industry because those who host VFR frequently are relatively eager to host the tourists. Similarly, tourism is a type of community activity, and farmers' participation in community activities can lead to successful tourism development (Ohe 2016). Therefore, it is reasonable to assume that farmers' social and community involvement can affect agritourism in addition to agricultural characteristics.

Besides the factors already mentioned, the development of agritourism is further affected by other issues. In Sri Lanka, Malkanthi *et al.* (2015) found that factors of concern include farmers' ignorance of such activities, including fear of destruction of local culture, lack of capital to develop the necessary infrastructure, lack of support from the government, and difficulty in ensuring hygiene for tourists. Consequently, farmers who want to pursue agritourism should have good managerial knowledge and strictly follow hygiene standards; some external support is necessary to overcome these problems (Ohe 2017). Location of the farms also plays an important role. However, Barbieri and Mshenga (2008) found that the location did not have a significant relationship with agritourism performance in North America.

In addition to these issues, the role of infrastructure, and in particular, transportation infrastructure, is another critical issue. Often, transportation infrastructure is insufficient in developing countries. For instance, Malkanthi et al. (2015) and Yang (2012) noted an urgent need for new public investment in transportation infrastructure in Sri Lanka and China respectively, as many roads are in poor condition and villages are difficult to reach without private transportation otherwise it hampers for the agritourism. In the present study, we do not consider issues related to infrastructure because of study limitations.

To summarize, farmers' demographic attributes, farm characteristics, subjective attitudes, and social involvement are crucial factors for the development of agritourism. Based on the literature review, we can safely claim that research on farmers' willingness to establish agritourism is a necessary but neglected topic, especially in developing countries, and this study is intended to fill that gap.

2.1 Economy and tourism in Nepal

Primarily, Nepal is a developing country: the GNI per capita income of the Nepalese people remained at \$1004 in 2018 (MOF 2018). Furthermore, in 2018, out of the total population of Nepal, 21.6% (over 6 million) of them were under the national poverty line (MOF 2018). However, as the government system transitioned from being a monarchy to a democratic republic in 2006, the country experienced a period of insurgency that lasted for almost ten years. Finally, Nepal received a new constitution from the constituent assembly in Sep 2015. Due to this political change, the Nepalese economy is now in a phase of growth (MOF 2018). Nepal has progressed significantly, in comparison with previous years, in terms of economic growth. In 2017, the GDP growth rate was 7.5%, and it is forecasted that the GDP growth rate will remain at an average of over 4% until 2022 (MOF 2018). Secondly, this is an agrarian country; more than two-thirds of the working population is engaged in the agricultural sector. However, agriculture contributes only 27.6% of the total GDP (MOF 2018). The data show that agricultural production levels are not satisfactory and additional income for the farmers is necessary.

On the contrary, Nepal has high potential for tourism activities because of its topography. Thus, the number of tourists arriving in the country has been increasing for the last ten years (NTB 2018). Every year, thousands of foreign tourists visit Nepal for adventurous, recreational, religious, and other purposes (NTB 2018). Nevertheless, due

to poor infrastructure and limited connectivity between tourism destinations in the country, the geographic scope of most tourist experiences is limited, and per capita spending is just \$695 (*i.e.*, \$54 per day) that ultimately contributes 7.5% to overall GDP (NTB 2018).

2.2 Agritourism and its research in Nepal

Concerning the current situation of agritourism in Nepal, as far as the authors are aware, only a few farm activities are available for tourists. In the eastern part of Nepal (near to Darjeeling and Sikkim, India), tours to tea gardens are becoming popular among domestic tourists (Maharjan and Dangol 2018). Typically, farmers from different parts of the country go there to see the tea farming as an educational tour, and monetary transactions inside the farms are minimal. Also, as of August 2018, a total of 107 farms are registered in WWOOF Nepal (WWOOF Nepal website 2018), which allows visitors to participate in the farm activities on a volunteer basis. In addition to this, some of the travel and trekking companies are organizing occasional farm activities on specific dates for the purpose of promoting tourism (*e.g.*, Ropain; rice planting festival). While this does sporadically generate additional income for the farmers, it is not a result of their own initiatives. Some travel companies organize trekking or hiking through the rural farms and present these activities as a form of agritourism. The government has recently announced a plan to develop an agritourism project in eastern Nepal, but this has not yet started (THT 02 Feb 2019). Based on the available information, we see clear evidence that both the public and private sectors are initiating efforts for agritourism development in Nepal.

Given that agritourism does not practically exist in the country on a material scale, the research on agritourism in Nepal is very limited (Maharjan and Dangol 2018). Nevertheless, some researchers have examined the potential of Nepalese agritourism development. Pandey and Pandey (2011) discussed the agritourism potential in Bhaktapur, and Shrestha et al. (2011) studied the prospects of agritourism development in Kirtipur; both of these cities are in the Kathmandu area. In addition, Aoki (2013) studied the relationship between organic farming and tourism in western Nepal. However, none of these studies considered farmers' willingness.

Focusing on the concentration of tourism activities in Nepal, Yogi (2010) noted their negative impact on ecology. In this context, Yogi (2010) suggests that such activities must be decentralized for the sustainable development of the country and that agritourism development helps in

this process by developing different types of tourism destinations. Further, based on our literature review, we have confirmed that there are some ad hoc case studies on agritourism in Nepal, but there has been no study of farmers' willingness where agritourism has not yet started. Thus, we decided to study the farmers' willingness to engage in agritourism. We therefore conduct an empirical study through statistical tests and an econometric model estimation to ascertain these connections based on the data from a Nepalese agrarian, rural village.

3 Methods

3.1 Study area

The primary objective of this study was to investigate the willingness of farmers to start agritourism activities in rural Nepal and the main drivers. To investigate farmers' willingness, the authors conducted a questionnaire-based interview with the farmers in the rural village of Phikuri¹. This village was intentionally chosen because of the following three reasons:

- It is an ordinary agrarian village.
- The village has plenty of untapped tourism attractions (historical, religious, cultural, and natural).
- Location has good accessibility (100 km to the capital city, 80 km to the Chinese border at Kerung, and close to China's ongoing One Belt One Road Initiative). Further, the village is located between two favorite trekking trails (Lang Tang and Singla), which can potentially attract tourists (Itagaki, 2017). Phikuri Mountain (3,580 m altitude) itself is a tourist attraction around the locality both for its natural beauty and as a pilgrimage destination.

Phikuri was the name of the Village Development Committee (VDC) in the previous administrative system of the Nepalese government. As of 2011, the Phikuri VDC had nine wards and a total of 2,873 people living in 636 households (Census 2011). Further, the census report revealed that the VDC is composed of five different ethnic communities such as Tamang (1,198), Brahman (1,445), Chetri (111), Damai (73) and Kami (25). As the majority of the population of the village is Brahman and Tamang, the data collection was conducted in Wards 5 to 9 because they represent the main area for the Tamang and Brahman com-

munities. Due to the lack of proper statistical records in the village, the real number of households in these wards is unknown. Our sample survey found an average household size of 5.22 for Wards 5 to 9, while the overall average household size in Phikuri VDC was 4.52 in 2011 (Census 2011). All were reported to have had access to electricity and drinking water. Currently, the road is being upgraded, which will reduce the time to reach the capital city, a key benefit for tourism destination development.

3.2 Data collection procedures

For the purpose of data collection, the authors-initiated contact with some of the representatives of the village, and based on the preliminary discussions, it was decided to interview residents in five out of nine wards of Phikuri village. Then, the authors recruited and trained one representative from each ward to help in the data collection process. Initially 81 farmers were engaged at the beginning of process, however, following the departure of several participants, the resulting group was reduced to 64. For the two variables used in this study, we used information for each of the members of the respondents' households (i.e. educational background and farm jobs), and for these variables the total sample size is 334. The sole criteria for participation and subsequent interview was invitation by the respective representatives; no other selection process was involved.

Before data collection, a presentation was given to the farmers by the author. The primary topic for the presentation was the constraints and potential of agritourism development in the village together with the different types of agritourism practiced in foreign countries, specifically in Japan and Italy. We used flip charts and A4 sized photos during the presentation, then conducted a brief interaction on the same topic with the farmers. The interview was conducted on 7th August 2017 using a set questionnaire. The study was primarily conducted in the local language, Nepali, and later translated to English. Table 2 presents the summary statistics of the data used in this study.

The number of farmers willing to specifically host agritourists is 34, and the number of farmers willing to host both types of tourists is 52, a situation that appears to reflect an imbalance. In exploring this further, it was found that most of the farmers (especially males) work as trekkers' assistants in the off-season. For this reason, farmers are familiar with the benefits of tourist arrivals in the village. Therefore, they may be expecting additional job opportunities as a result of the arrival of tourists in

¹ It should be noted that the first author was born and raised in this village, thus facilitating ease of access and cooperation.

Table 2: Summary Statistics of variables

Types	Variables	Types	Percentage (%)	Frequency
Dependent variables	Willingness to agritourism	Willing	53.1	34
		Not willing	46.9	30
	Types of tourists	National only	4.7	3
		International only	14.1	9
		Both	81.2	52
Land sharing			50.0	32
	Willing	Not willing	50.0	32
Explanatory variables	Gender	Male	71.9	46
		Female	28.1	18
	Age groups	21-40 years	53.2	34
		≥41 years	46.8	30
	#Education background	≤10 years schooling	85.9	287
		≥10 years schooling	14.1	47
	Frequency of hosting VFR	5 and more times	54.7	35
		Up to 4 times	45.3	29
		Happy	62.5	40
	Happiness of hosting VFR	Not much happy	37.5	24
		#Farm jobs	Full-time	44.3
	Part-time		55.7	186
	Member of community	Yes	79.7	51
		No	20.3	13
	Community activities	Almost every time	65.6	42
		Often	34.4	22
	Family members working abroad	Yes	45.3	29
		No	54.7	35

Source: Field survey by authors (August 2017).

Sample size 64, #includes the family members of the farmers that is, a total of 334.

the village. However, the fact that the number of farmers willing to engage in agritourism is less than that of those willing to host both types of tourists needs to be investigated more deeply.

3.3 Data handling, analysis, and model estimation

We translated the data from Nepali to English, then conducted the primary statistical tests using Stata software version 11.2. All the variables used in this model are binary variables.

During data processing, we conducted chi-squared and Fisher's exact tests to check the significance of the connectivity between the explained and explanatory variables. The results in Table 3 reveal that there are significant connections between the three explained variables at the 1% significance level. Thus, our hypothesis—tourism has a connection with agritourism—is confirmed. This result signifies that there is an endogenous relationship

between willingness and land sharing, and willingness and types of tourists at the 1% significance level (Table 3). For this reason, a multivariate probit (MVP) model was applied to statistically evaluate the factors that potentially affect farmers' willingness.

Table 3 presents values that confirmed the hypothesis. Then, we chose one separate variable for each element to explain them in detail. More specifically, we used the willingness to start agritourism (y_1) as an agritourism element, which is the main explained variable; types of tourists (y_2) as a tourism element; and land sharing within the farmers (y_3) as an agricultural element. The perception of tourism activities and willingness is supposed to be related to variables of agriculture. In this regard, the farmers' willingness, types of tourists, and land sharing are not mutually exclusive. Once farmers decide to establish agritourism, they must be ready to host any tourist. Further, they must also be willing to share land with fellow farmers if supply is limited.

The average annual income of Nepalese people is US\$1,004 (MOF 2018) which is below the average income

Table 3: Relationship between willingness, tourist types, land sharing, and activities undertaken (Chi-squared/Fisher's exact test)

Variables	Willingness			Tourist types			Land sharing		
	Yes	No	TR	Yes	No	TR	Yes	No	TR
Willingness (willing=1, not willing=0)				94.1	66.7	***	76.8	20.0	***
Land sharing (willing=1, not willing=0)	81.3	25.0	***	81.2	81.2	ns			
Happiness of hosting VFR (happy=1, otherwise=0)	77.5	12.5	***	87.5	70.8	*	67.5	20.8	***
Age groups (21-40 years=1, others=0)	79.0	42.2	**	94.7	75.6	*	52.6	48.9	ns
Agritourism knowledge (yes=1, no=0)	69.9	39.3	**	83.3	78.6	ns	58.3	39.3	ns
Tourist types (national and international=1, otherwise=0)	61.5	16.7	***				50.0	50.0	ns
#Educational background (>11 th years=1, ≤10 years=0)	47.9	68.8	ns	85.4	68.8	ns	68.8	43.8	*
Gender (male=1, female=0)	51.2	55.6	ns	72.4	88.6	*	57.1	26.7	*
Social activities (almost every time=1, otherwise=0)	61.9	36.4	**	81.0	81.8	ns	64.3	22.7	***
Average VFR hosting in a month (5 and more times=1, ≤4 times=0)	48.3	57.1	ns	72.4	88.6	*	44.8	54.3	ns
#Full time farm jobs (yes=1, no=0)	51.7	54.3	ns	93.1	71.7	**	51.7	48.6	ns

Source: Field survey by the authors (August 2017).

Note: ***, **, * indicate 1%, 5%, and 10% significance levels, respectively. ns stands for not statistically significant and TR for test results.

Data processing process is presented in 'Explained and explanatory variables' section.

Sample size is 64, # includes family members of the farmers that is, a total of 334.

of other least developing countries (CDP 2018). In this regard, farmers cannot rely on domestic tourists only, so their main target is the international market. Consequently, farmers target both types of tourists (national and international), but only among groups with sufficient income.

Land sharing in this study is important because the average land holding size is small in the village. Neighboring farmers with a common border share their private land to make farms larger. With land sharing, farmers can introduce relatively more time-consuming tourism activities for agritourists on their farm.

Considering the possibility of simultaneous choices of willingness, types of tourists, and land sharing, as well as the potential correlations and the endogenous relationship of choosing decisions among these three variables, the MVP model is most suitable for this study. This model is used when the dependent variables are mutually inclusive. The model can be written as follows:

Likelihood of willingness (y_1) = f (vector of determinants of willingness) (1)

Likelihood of tourist types (y_2) = f (vector of determinants of tourist types) (2)

Likelihood of land sharing (y_3) = f (vector of determinants of land sharing) (3)

Likelihood of willingness in MVP model = $f\{(y_1)(y_2)(y_3)\}$ (4)

We used three explained variables in this model: willingness toward agritourism, types of tourists, and land sharing. The explained variables of willingness toward agritourism and land sharing were initially surveyed using a 5-point Likert scale. Then, the authors adopted the methodology of Ohe and Kurihara (2013), and the original data were converted into binary data due to the smaller sample

sizes in some stages. For data integration, we decoded variables depending on whether farmers have willingness or not. The upper two levels demonstrate farmers' willingness and the lower three levels indicate that the decision of the farmers is either unclear or less favorable. Types of tourists were originally divided into three types: national, international, and both. The original survey and the conversion process of the variables are presented in Table 4. The relationship between the explained variables and explanatory variables were examined separately, and then, explanatory variables were decided.

Regarding the explanatory variables affecting "willingness toward agritourism," we used "happiness to host VFR" as one of the three explanatory variables because hosting VFR is the most important factor for tourism development (Choi and Fu 2018; Rogerson 2017). Thus, the authors believe hosting VFR is also important for Nepalese agritourism. We used farmers' "age group" as another explanatory variable because the age group as an attribute of the farmers is an important point to be considered. We created a binary variable as 21-40 years of age or otherwise based on the findings of a study conducted in Nigeria which reported that those belonging to the 21-40 age group are considered as young people and are less active participants in farming (Mgbakor et al. 2013). However, Weiss (1999) and Barbieri and Mshenga (2008) reported that young farmers are doing comparatively better in agritourism. In this regard, we want to see the specific contribution of these younger people to agritourism development in Nepal. We employed "returned from a foreign country" as the third explanatory variable because people who have migrated for temporary work can promote agritourism from having been exposed to it while abroad.

Regarding the "types of tourists" as the second explained variable, the authors used "full-time worker" as the first explanatory variable because they play a critical role in agritourism development. "Frequency of hosting VFR" was used as another explanatory variable because it aids in the understanding of the farmers' general experience of hosting VFR. Those who host VFR frequently are more likely to host tourists on their farms. Based on the preliminary discussions with the village representatives, we first asked how frequently farmers host VFR, and the majority of the farmers (54.7%) responded that they host five or more times per month. As a result, we decided to change it into a binary variable with one indicator for 5 times and above and another for up to 4 times. The third explanatory variable was "farm experience service." We used this variable to explain "types of tourists" because the types of services farmers want to introduce might significantly influence the types of tourists they host.

The third explained variable, "land sharing", corresponded to the following explanatory variables: "educational background," "gender," and "participation in social work." "Educational background," and "gender" were considered as the important demographic variables for agritourism development. The frequency of farmers' "participation in social work" was utilized as the third explanatory variable. Rasoolimanesh et al. (2017) found significant differences between the effects of residents' perception and community participation in the support of tourism development in urban and rural tourism destinations, therefore, the authors used the variable "participation in social work" in this model. This variable is important because tourism activity in villages can be considered a community activity, and farmers who participate in community activities will have greater influence in terms of agritourism development in the village.

The other tested variables—household size, farm products, landholding size, English communication ability, and handicraft production—were not statistically significant for farmers' willingness. Thus, the authors excluded them from the model.

Ethical approval: The conducted research is not related to either human or animal use.

4 Results and discussion

The MVP model output results, that is, the Wald Chi-squared test, $(9) = 35.89$, is significant at the 1% level, which indicates that the subset of the model's coefficients is jointly significant and that the explanatory power of the factors included in the model is satisfactory. Thus, the MVP model fits the data reasonably well. Likewise, the model is significant because the null hypothesis—that the choice decision of the three explained variables: (1) willingness to start agritourism, (2) types of tourists, and (3) land sharing is independent—is rejected at the 1% significance level.

The results of the likelihood ratio test in the model (probability = 0.0068) indicate that the independence of the null hypothesis between the explained variables), is rejected at the 1% significance level. There are joint correlations for the two estimated coefficients across the equations in the models. In), equals the correlation between willingness to start agritourism and types of tourists, equals the correlation between willingness to start agritourism and land sharing, and equals the correlation between land sharing and types of tourists. This result

Table 4: Original survey and variable integration process

Items	Variables	Original survey data	Integrated data
Explained variables	Farmers' willingness	Very willing=5, willing=4, neither willing nor unwilling=3, unwilling=2, very unwilling=1	Very willing and willing→willing=1, not willing=0
	Types of tourists	Domestic only=3, international only=2 and both types=1	Both=1, otherwise (one type only) =0
	Land sharing	Very willing=5, willing=4, neither willing nor unwilling=3, unwilling=2, very unwilling=1	Very willing and willing→willing=1, not willing=0
Explanatory variables	Happiness to host VFR	Very happy=5, happy=4, neither happy nor unhappy=3, unhappy=2, very unhappy=1	Very happy and happy→happy =1, others =0
	Age group	0-10=1, 11-20=2, 21-30=3, 31-40=4, 41-50=5, 51-60=6 61 and over=7	21-40 years=1, others=0
	Returned from foreign country	Yes=1, no=0	Not changed
	Full-time farm job	Yes=1, no=0	Not changed
	Frequency of hosting VFR (per month)	1 time=1, 2 times=2, 3 times=3, 4 times=4, 5 and more times=5	5 or more times=1, up to 4 times=0
	Experience service only in the farms	Yes=1, no=0	Not changed
	Educational background	Cannot read and write=1, Fewer than 10 years of schooling=2, high school=3, university=4, master's and above=5	Those with high school education→over 11 years of education =1, up to 10 years=0
	Gender	Male=1, female=0	Not changed
	Participation in social work	Almost every time=5, often=4, sometimes=3, rarely=2, and never=1	Almost every time=1, other=0

Note: We converted the original data into binary outcomes because the primary statistical tests showed smaller sample size in some stages.

indicates the goodness of fit of the model and supports the use of MVP. It also verifies that the separate estimation of these variables is biased and the choice of the three explained variables is interrelated. The individual results are interpreted as follows.

Regarding the first explained variable, the happiness to host VFR (Table 5) has a positive relationship with the likelihood of willingness to start agritourism among farmers at the 1% significance level. Thus, those farmers who accommodate VFR at their homes would be willing to start agritourism. The higher the level of satisfaction of those farmers who provide accommodation to their relatives and friends, they are more willing to start agritourism. Most of the farmers in the village are either Hindu or Buddhist, and cultural traditions dictate that they celebrate different occasions and festivals by visiting each other's homes. Similarly, the variable of age groups of the farmers positively influences the likelihood of willingness

to start agritourism at the 10% significance level. The result indicates that young farmers between 21-40 years of age are more willing to start agritourism on their farms than other age groups. This is because many young people do not have the opportunity to obtain government jobs or work in the private sector, and if they choose to go abroad for a temporary job, they would need to work in a challenging environment facing issues such as work-related accidents, high levels of pressure, and improper health conditions (Adhikari et al. 2018). Therefore, the opinion of younger farmers influences the willingness to establish agritourism in the village. Also, migrant returnees have a positive likelihood of willingness at the 5% significance level. Specifically, the result shows that those who have returned from foreign countries (all from the Middle East and Malaysia) are more likely to start agritourism. They might have learned of tourism, its nature, and impact while in a foreign country or might be expecting more sat-

Table 5: Multivariate probit estimations for determinants of farmers' willingness

Explained variables	Explanatory variables	Ordinary coeff.	z-value	Robust coeff.	z-value
Willingness	Happiness to host VFR (happy=1, others=0)	1.283***	2.78	1.283***	2.80
	Age groups (21-40 years of age=1, others=0)	0.764*	1.87	0.764**	2.02
	Returned from the foreign country (yes=1, no=0)	0.748*	1.91	0.748**	2.06
	Constant	-1.199***	-2.83	-1.199***	-2.81
Types of tourists	#Full-time farm jobs (yes=1, no=0)	0.990**	2.31	0.990***	2.44
	Average VFR hosts in a month (5 and more times=1, up to 4 times=0)	-0.785**	-1.97	-0.785**	-2.09
	Experience service only in the farms (yes=1, no=0)	1.008**	2.54	1.008***	2.61
	Constant	0.270	0.72	0.270	0.67
Land sharing	#Educational background (over 11 years=1, up to 10 years =0,)	0.753*	1.81	0.753*	1.76
	Gender (male=1, female=0)	0.802**	2.23	0.802*	1.81
	Participation in social work (almost every time=1, otherwise=0)	1.130***	3.15	1.130***	2.86
	Constant	-1.515***	-3.42	-0.762	-2.51
	/atrho21	0.699*	1.89	0.699*	1.81
	/atrho31	0.776**	2.55	0.776***	2.57
	/atrho32	0.262	1.02	0.262	1.08
	rho21	0.604***	2.57	0.604**	2.46
	rho31	0.650***	3.70	0.650***	3.37
	rho32	0.257	1.07	0.257	1.13

Source: Field survey by the authors (August 2017).

Note: ***, **, * indicate 1%, 5%, and 10% significance levels, respectively and coeff denotes coefficients. In this model, (1) willingness, (2) types of tourists, and (3) land sharing are explained variables, /atrho is the Fisher's z transformation of the correlation; /rho21 is the correlation between willingness and types of tourists; /rho31 is the correlation between willingness and land sharing, and /rho32 is the correlation between land sharing and types of tourists.

Sample size is 64, #includes family members of the farmers that is a total of 334.

isfaction from agritourism than working abroad. Hence, they are willing to start agritourism in Nepal.

Regarding the second explained variable in this model (i.e., types of tourists), almost 82% of the farmers mentioned that both domestic and foreign tourists are good for them (presented in Table 2). Full-time farmers and types of tourists have a positive relationship at the 5% significance level (Table 5). This is because farmers who are entirely devoted to farm activities are more likely to accept both types of tourists on their farms. In other words, full-time farmers might be trying to receive additional benefits by accepting more visitors on their farms.

However, hosting VFR, on average, has a negative relationship with the likelihood of type of tourist at the 5% significance level. Those farmers with an average level of a VFR arrival over five times per month are less likely

to host both types of tourists. There are several reasons for this. First, farmers are undoubtedly busy with farming work; receiving too many guests might hamper their work. Second, the village in question is still in the reconstruction phase after the devastating earthquake in April 2015. The farmers now have limited capacity to accommodate guests in their homes. Third, farmers may focus their target in order to maintain a consistent quality of their service and business brand. The result shows that those farmers who want to run the "experience service only" type of agritourism on their farm are more likely to host both types of tourists. This is because they do not need to manage other services for tourists, such as transportation, food, and accommodation. It is rational for those who operate "experience service only" agritourism to accept any type of tourist because they do not need to worry about provid-

ing any services other than the experience on their farms. This result is consistent with the output of Ohe (2008).

It seems that happiness to host VFR and the average level of hosting VFR per month is contradictory. The farmers are motivated to host agritourists. However, this result concludes that farmers are against hosting many tourists at once. This means that the farmers may either be considering their carrying capacity or they just want to host a limited number of tourists at the beginning.

Regarding the third explained variable, (i.e., land sharing), education background has a positive relationship with the likelihood of land sharing for agritourism development at the 10% significance level. The result shows that farmers who have less than ten years of schooling are less likely to share their private land with their neighbor, that is, with higher schooling, farmers are more likely to share land with other farmers for the agritourism development. This result is consistent with the results of Tew and Barbieri (2012) and Bagi and Reeder (2012) that the higher the level of education of the farmers, the more likely their participation in agritourism. This may be because uneducated or less educated farmers are ignorant of the benefits of agritourism and community activities. The less educated farmers might be expecting more benefits under a family-operated business, rather than a community-operated venture.

Correspondingly, the variable of male respondents has a positive relationship with the likelihood of land sharing at the 5% significance level. This can be attributed to households in Phikuri village being male-dominant. Due to the male-dominated society, opinions of the male influence the decision-making of the female. Our result is consistent with Akpınar *et al.* (2005) and Tooker and Boonabaana (2012), which was conducted in male-dominated societies of Turkey and Uganda and revealed that the males decided whether their wives worked in agritourism or not. However, many other researchers have presented conflicting results (Duffy *et al.* 2015; Costa *et al.* 2017; Ohe 2008, 2017, 2018). Their results show that females are doing comparatively better as a result of agritourism.

Participation in social work shows a positive relationship with the likelihood of land sharing at the 1% significance level. This result is consistent with the output of Rasoolimanesh *et al.* (2017). The result shows that farmers who frequently participate in social activities are more likely to share their land with neighboring farmers. This is because the farmers who often participate in social activities not only know each other, but they also know about the nature of the local community and understand the benefits of working together within the community.

5 Conclusion

The authors empirically investigated the willingness of farmers (who are not currently practicing agritourism) to start agritourism. The data were collected from one rural village in Nepal and analyzed using the MVP model. The results showed that the farmers of rural Nepal are willing to establish agritourism, and there is a statistically significant connection between the agritourism-related element (the willingness to start agritourism), the tourism-related element (types of tourists), and the agricultural-related element (land sharing). In other words, the willingness to start agritourism is statistically connected with types of tourists and willingness toward land sharing.

Willingness to start agritourism is statistically determined by the practice of hosting VFR, returned migrant status, and farmer age groups. Specifically, farmers who are happy while hosting VFR, those who have returned from foreign countries, and those aged 21-40 are more willing to establish agritourism in rural Nepal. Regarding returning migrant status, our result is consistent with that of Ozturk *et al.* (2018) which found that migrant returnees were likely to develop their own profession upon arrival in their home country. This result of the analysis on age group (21-40) is inconsistent with the result of Mgbakor *et al.* (2013), who presented that people of that demographic were not engaged in agriculture in Nigeria; however, it is consistent with Weiss (1999) and Barbieri and Mshenga (2008) who suggested that young people are doing better in agritourism.

With respect to the selection of types of tourists for agritourism, there was a statistically significant relationship with types of farmers, the frequency of hosting VFR, and the types of agritourism that farmers want to introduce: in particular, those who work full-time on the farm, host VFR less frequently, and prefer to introduce “experience services only” types of agritourism.

Willingness to share land was affected by education level, gender, and frequency of participation in social activities. Specifically, those who are oriented toward land sharing are relatively eager to participate in community activities, relatively educated, and more likely to be men. The role of men on decision making is in line with the results with Akpınar *et al.* (2005) and Tooker and Boonabaana (2012).

In summary, farmers with experience working abroad who are young, involved in community activities, and relatively educated have the highest potential to become agritourism practitioners in the village. The local government should give special attention to these farmers. Also, this study raised some issues which should be taken into

account. As many scholars (Duffy et al. 2015; Costa et al. 2017; Ohe 2008, 2017, 2018) have presented the importance of the female role in agritourism, educational training and awareness campaigns should be launched with a greater focus more on females so that their level of confidence increases, and they become more independent. The increased self-esteem can help them to become leaders in tourism development (Duffy et al. 2016). Additionally, young farmers and migrant returnees have an interest in developing agritourism in the village, and special support packages should be given to increase their level of motivation and capability. Eventually, agritourism can be an effective counter measure against migration which is currently 45.3% (Table 2) and a male dominant culture in the long run.

This study demonstrated that the majority of the farmers in Phikuri village are willing to start agritourism on their farms. Based on the results from this village, we believe that farmers in the developing countries where agritourism does not currently exist would also be willing to establish agritourism. Understanding the level of willingness, an area previously neglected in the literature, is the first step to agritourism development, and the concerned authorities and policymakers should think use this as base from which to explore the next steps.

The quantitative results of this study provide insight into farmers' willingness to establish agritourism. The exploration of the factors related to the determination of farmers' motivation sheds light for future research. Further study is necessary to determine whether the development of agritourism in the village is viable focusing on different perspectives, like the real ability of the farmers to maintain a standard level of service quality. More in-depth qualitative research will further strengthen the understanding of the potential for agritourism. Also, during data processing, we noticed that the number of farmers willing to host both (national and international) types of tourists were higher than that of farmers willing to establish agritourism, and the reason behind this should be explored further.

This study has some limitations regarding the research tool, survey methods, and comparative studies. During the data collection, the authors were limited to farmers who were invited by the contacted village representatives and those who participated during the study time. Further, data related to farmers' income were not able to be collected during the study because farmers did not provide this information. These points should also be considered in future studies.

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