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研究課題名（和文）Agricultural Entrepreneurship among Female-headed Remittance Receiving Households in Nepal

研究課題名（英文）Agricultural Entrepreneurship among Female-headed Remittance Receiving Households in Nepal

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研究成果の概要（和文）：この研究は、世帯員の移住状況に応じた世帯の起業家行動の理解に貢献します。移民がいない世帯（HNM）が示す起業家精神の行動を、帰還移民がいる世帯（HRM）および現移民がいる世帯（HCM）と比較した。HRM は経済的資源（貯蓄）、スキル、ネットワークを持っているため、起業家精神が高いです。HCM も資金力（仕送り）はあるものの、残された家族の人材やスキルが不足しており、起業が少ないです。結果普及セミナーはネパールの地区レベルおよび村レベルで開催され、結果を関連する利害関係者と共有しました。代表者はこのようなセミナーが証拠に基づいた政策策定に役立つことを認めた。

研究成果の学術的意義や社会的意義

Foreign remittance in Nepal is mainly spent on unproductive sectors, with only about one percent being invested in entrepreneurship. This research contributes to understand the entrepreneurship choices based on the migration status of the household members. The results are relevant to policy makers.

研究成果の概要（英文）：This research contributes in understanding the entrepreneurial behavior of households depending on the migration status of its members. Entrepreneurship behavior exhibited by households with no migrants (HNM) was compared to households with returnee migrants (HRM) and households with current migrants (HCM). Entrepreneurship was found to be the highest among HRM, as they have better financial resources (savings), skills, and social networks. Although HCM also have financial resources (remittances), they lagged behind in entrepreneurship due to lack of human resources and skills among family members left behind. Results dissemination seminars were held at district level and village level in Nepal to share the findings with the relevant stakeholders directly. The seminars were helpful to bridge the gap that exists between researchers and policy-makers. Both the district and village level representatives acknowledged that such seminars are helpful in evidence-based policy formulations.

研究分野：International migration and remittance

キーワード：Migration Remittance Entrepreneurship Peri-urban Nepal Chitwan Household Survey Livelihoods

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## 1. 研究開始当初の背景

Foreign remittance is a major component of the Nepalese economy. At the time when this research was conceptualized in 2015/16, remittances contributed to 29.6 percent of the Nepalese gross domestic product (NRB, 2016). For the year 2023, the share is estimated at 26.6 percent, which is the highest in South Asia and fifth globally (Ratha et al., 2023). Remittance has significantly contributed to poverty reduction in Nepal. A study by Oxford University attributes the major role of remittance inflows in decreasing multidimensional poverty in Nepal from 64.7 percent in 2006 to 44.4% in 2011 (Tuladhar et al., 2014). Similarly, World Bank (2023) reports that remittances from the Gulf countries and Malaysia accounted for 40 percent of the decline in poverty rates between 2001 and 2011.

While the impacts of remittance is largely positive, concerns have been raised about remittance inducing the ‘Dutch disease’ effect. The latest nationwide study by Central Bank of Nepal indeed depicts an alarming state, with only 1.1% of remittance being used for productive investments (NRB, 2016). Other studies have reported similar findings (World Bank, 2013; Chalise, 2014; Devkota, 2015). These studies report that the major chunk of the remittance is spent in daily household consumption and non-productive investments like housing. With increasing remittance, the recipient family members tend to choose more leisure than work, which adversely affects the growth in national GDP (NRB, 2016). It is thereby very important to promote entrepreneurship among the remittance-recipients, which has potential roles in sustainable poverty reduction and boosting the national economy.

There are few field-based evidences in Nepal that studies the entrepreneurship among returnee migrants and remittance receiving households (World Bank, 2013; Chalise, 2014; Devkota, 2015; NRB, 2016). This research contributes to lessen the gap in literature. Furthermore, this research also contributes in comparative analysis by including non-migrant households in the sample.

## 2. 研究の目的

With the above background, there are two major objectives of this research. The first objective is to understand the impact of migration on the entrepreneurship behavior of the households. For this purpose, the entrepreneurship status is compared among households with no migrants (HNM) versus households with current migrants (HCM) and households with returnee migrants (HRM). The second objective is to analyze the socio-economic determinants of entrepreneurship among households in peri-urban Nepal. For this purpose, an empirical analysis is conducted with the choice of entrepreneurship as a function of migration status and socio-economic plus demographic characteristics of the households.

## 3. 研究の方法

### Site selection

Ward number 25 of Bharatpur metropolitan city in Chitwan district was selected as the site of study. The selection was done after consultations with line agencies involved in research works related to international migration and remittances. Chitwan district was selected for two main reasons. Firstly, Chitwan district lies in the Terai region of Nepal, from where the majority of international migrants originate. Secondly, the district has suitable infrastructures like road networks and input/output market that is required for entrepreneurship. Ward number 25 of Bharatpur metropolitan city was selected as it represents the situation of peri-urban areas of Nepal.

### Sampling

The sample households were selected through systematic random cluster sampling. There were 41 clusters of grassroot level organizations called *Tole Bikas Sansthaas* (TBSs) within ward number 25. These TBSs clusters were considered as the research population. With an aim to cover 20% of the research population, 8 clusters were systematically selected as the sample. The sampling interval,  $k$ , was determined as  $N/n \approx 5$ , where  $N$  is the size of the population and  $n$  is the sample size. The TBSs were listed systematically from east to west, and every fifth TBS in the list was taken as the sample cluster. All the households within the selected TBSs were included in the study. The list of households were obtained from the records maintained by the committee members of each TBS. The final sample consisted of a total of 345 households (Table 1).

### Data collection, cleaning, and analysis

The study is based on primary data collected through structured household survey. For the

purpose, a questionnaire was developed in Nepali language. The questionnaire covered the information on household members, current migrants, annual remittances received, use of the remittances, returnee migrants, entrepreneurship, households' income sources, and so on. Pre-testing of the questionnaire was done in adjoining ward number 24 of Bharatpur metropolitan city. Based on the inputs from the pre-testing, the questionnaire was revised into its final form. The structured household survey was administered in October 2017. The sampled households were visited in person and face-to-face interviews were conducted with either the head of the household or the spouse of the household head. Prior consent for the participation in the survey was obtained before interviewing. Data cleaning was done by the principal investigator and the households were contacted again if needed for clarifications and supplementary data. The data was then entered into Excel spreadsheets. Stata 13 was used for further data analysis.

Table 1. List of *Tole Bikash Sansthas* (TBSs) included in the sample

| S.N. | Names of sample TBSs, Location                 | Number of households |
|------|--|----------------------|
| 1    | Bayarghari TBS, Bayarghari (BG)                | 49                   |
| 2    | Devasthan TBS, Devasthan (DS)                  | 33                   |
| 3    | Sagarmatha TBS, Sagarmatha Chowk (SM)          | 50                   |
| 4    | Namuna TBS, Namuna Chowk (NNC)                 | 40                   |
| 5    | Jeetwahan TBS, Soshi Tharu Gaun (JW)           | 40                   |
| 6    | Suryamukhi TBS, Jabka Purba Tole (SMJ)         | 42                   |
| 7    | Chhahaari TBS, Baanskattaa/ Chhahari Tole (CH) | 44                   |
| 8    | Namuna TBS, Purba Amritnagar (NPAN)            | 47                   |
|      | Total  | 345                  |

Source of data: Field Survey, 2017

#### Empirical model

The choice of entrepreneurship by the sampled households was tested as a function of migration status and socio-economic cum demographic characteristics of the households. Previous research have identified the possibility of endogeneity or simultaneity between the employment and migration decisions of the households (Demurger and Xu, 2011; Maharjan et al., 2012). The endogeneity issue in our research has been addressed by the use of recursive trivariate probit model following Giulietti et al. (2013).

$$\begin{aligned}
 E^* &= \beta_1 X + \gamma HCM + \delta HRM + \varepsilon_1 && \text{with } E = 1 \text{ if } E^* > 0; 0 \text{ otherwise} \\
 HCM^* &= \beta_2 X + \lambda_1 z_1 + \varepsilon_2 && \text{with } HCM = 1 \text{ if } HCM^* > 0; 0 \text{ otherwise} \\
 HRM^* &= \beta_3 X + \lambda_2 z_2 + \varepsilon_3 && \text{with } HRM = 1 \text{ if } HRM^* > 0; 0 \text{ otherwise}
 \end{aligned}$$

(Subscripts for the observational units are suppressed for convenience)

Where,

$E$  = Households' choice of entrepreneurship (1 = Yes; 0 otherwise)

$X$  = Socio-economic and demographic characteristics of the households

$HCM$  = Households with current migrants (1 = Yes; 0 otherwise)

$HRM$  = Households with return migrants (1 = Yes; 0 otherwise)

$\gamma$  and  $\delta$  = conditional differences in the probability of entrepreneurship between HCM-HNM (households with no migrants); and between HRM-HNM, respectively

$z_1$  and  $z_2$  = exclusion restrictions for HCM and HRM, respectively; do not appear in the E-equation

Multivariate probit (mvprobit) was run in Stata. Following Cappellari and Jenkins (2003), the number of draws (R) was set equivalent to the square root of the sample size ( $\approx 19$ ) as compared to the default of 5. Variance inflation test (VIF) for multicollinearity confirmed there was none. However, heteroscedasticity was shown to be existent by both Breush-Pagan/Cook-Weisberg test and White's test. The issue was addressed by estimations using robust standard errors (Wooldridge, 2006).

#### 4. 研究成果

The variables used in the model and the descriptive statistics are shown in Table 2. It was found that nearly one-third of the sample households have adopted entrepreneurship. This includes both formal as well as informal entrepreneurship and almost all are small enterprises run by the family members with no employees. The major ones are commercial agriculture and livestock, grocery stores, tailoring, meat shops, cosmetic stores, small eateries, and street food stalls. Households' location within the TBSs were considered as the restriction criteria for current migrants' model. Those belonging to either Bayarghari or Suryamukhi-Jabka TBS was taken as 1 and 0 otherwise, because more than fifty percent of the households in both these TBSs had current migrants at the time of survey. That means

the social network in the TBS were effective in encouraging migration among the neighboring households. The total duration of outmigration of the household members was taken as the restriction criteria for returnee migrants' model because the longer the duration of outmigration, the higher is the possibility of the migrant to return home. The average years that the migrants spent overseas was around four and half years in this study.

Table 2. Variables used in the recursive trivariate probit model

| Variables  | Units  | Mean       |
|--|--|------------|
| Choice variables   |  |            |
| Entrepreneurship   | Dummy (1 = Yes; 0 otherwise)   | 0.32       |
| HCM  | Dummy (1 = Yes; 0 otherwise)   | 0.39       |
| HRM  | Dummy (1 = Yes; 0 otherwise)   | 0.30       |
| Explanatory variables  |  |            |
| Ethnicity  | Ordinal value (0 = Dalit; 1 = Janajati; 2 = Bahun/Chhetri)   | 0.88       |
| Age of the household head (hhh)                                      | Years  | 48.48      |
| Education of the hhh   | Years  | 5.19       |
| Gender of the hhh  | Dummy (1 = male; 0 otherwise)  | 0.78       |
| Highest education in the family                                      | Years  | 10.65      |
| Family size  | Adult equivalent <sup>1</sup>  | 4.75       |
| Log of annual income from sources other than business and remittance |  | 8.23       |
| Landownership  | <i>Kattha</i> <sup>2</sup>   | 11.55      |
| Housing  | Ordinal value (0 = do not own a house; 1 = thatch roof; 2 = stone-mud wall and stone/tin roof; 3 = cemented wall but roof not concrete; 4 = concrete roof) | 2.83       |
| Outstanding loan   | Nepali rupees  | 219,081.16 |
| Exclusion restriction for HCM  |  |            |
| Belongs to Bayarghari or Suryamukhi-Jabka TBS                        | Dummy (1 = yes, 0 otherwise)   | 0.26       |
| Exclusion restriction for HRM  |  |            |
| Duration of outmigration   | Years  | 4.42       |

Source of data: Field survey, 2017

Table 3. Parameter estimates of recursive trivariate probit model (P value = 0.000\*\*\*)

| Variables                | Entrepreneurship | HCM      | HRM      |
|--------------------------|------------------|----------|----------|
| HCM                      | -0.44            |          |          |
| HRM                      | 0.02             |          |          |
| Ethnicity                | 0.36***          | -0.28**  | 0.07     |
| Age of hhh               | -0.005           | 0.001    | -0.000   |
| Education of hhh         | 0.007            | -0.004   | 0.02     |
| Gender of hhh            | 0.37             | -1.27*** | 1.67***  |
| Highest education        | -0.002           | 0.09***  | 0.005    |
| Family size              | 0.008            | 0.006    | -0.008   |
| Log of income            | -0.05***         | -0.06*** | 0.02     |
| Landownership            | 0.027***         | -0.001   | 0.006    |
| Housing                  | 0.09             | 0.02     | -0.14*   |
| Outstanding loan         | 0.000***         | -0.000   | -0.00    |
| Belongs to BG or SMJ     |                  | 0.60***  |          |
| Duration of outmigration |                  |          | 0.14***  |
| Constant                 | -1.19***         | 0.21     | -2.50*** |

\*, \*\*, \*\*\* indicate significance at 10%, 5%, and 1% respectively.

Likelihood ratio test of  $\rho_{21} = \rho_{31} = \rho_{32} = 0$  P value = 0.000\*\*\*

The parameter estimates of the recursive trivariate probit model is given in Table 3. The variables

<sup>1</sup> Adult equivalent (AE) is aggregate measure of family size that standardize consumption unit within the household taking into account the age and sex of the household members.

<sup>2</sup> One *kattha* = 0.033 hectares

used as the restriction criteria for the models of current migrants and returnee migrants are both highly significant, thereby establishing their validity. The results of the entrepreneurship model show that the probability of entrepreneurship among households with current migrants (HCM) compared to that of households with no migrants (HNM) is negative while the probability of households with returnee migrants (HRM) is positive. This implies that returnee migrants are more likely to invest their savings from overseas employment once they return to their homeland. Returnee members acquire extra skills, knowledge, and networks during their overseas employment, thereby enabling them for entrepreneurship. Ethnicity plays an important role in determining the entrepreneurship. The results suggest that households from higher castes (i.e. Bahun, Chhetri) are more likely to own a business while Dalits are less likely to do so. The caste-based hierarchy in Nepal plays an important role in determining the social-economic status of the households. Higher castes often enjoy higher asset possession, better education, and social networks. On the other hand, Dalits comparatively lag behind in those socio-economic indicators. Dalits are also considered as untouchables, which hinders them from starting a business. Households earning a higher annual income from sources other than business or remittances are less likely to adopt entrepreneurship. This shows that as long as the households have other stable sources of income like salaried jobs, entrepreneurship is not the preferred choice of income source in the study area. Landownership was found to be positively significant. This is because most of the enterprises reported in the study area is commercial agriculture, for which landholding is a prerequisite. Similarly, land is also used as collateral in the financial institutions to obtain loans. Finally, outstanding loan is also positively significant, thereby implying that access to loans is very important to acquire investment capital needed for entrepreneurship.

#### Conclusion and further analysis

It was found that socio-economic variables, namely ethnicity, income, landownership and loan are the important determinants of entrepreneurship. Thus policy formulation and support interventions must focus on improving the households' access to capital required for investment. Targeted interventions are also needed so that the poorest households like Dalits are enabled to start a business.

Although the households with current migrants receive foreign remittances regularly, they have the least probability of entrepreneurship among the sample households. This implies that simply having access to financial resources is not sufficient for entrepreneurship. There might be several reasons for this phenomenon. The lack of human resources due to the outmigration of household members may hinder HCM for entrepreneurship. The left-behind members of HCM, who are mostly women and children, may not possess the skills and network that is required to start a business. Yet another reason may be that the left-behind members are not motivated to earn extra income as the remittances provide enough income for a comfortable living. Further analysis is needed to identify the exact reason in the case of our study site.

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5. 主な発表論文等

〔雑誌論文〕 計3件（うち査読付論文 3件／うち国際共著 3件／うちオープンアクセス 3件）

|   |                           |
|---|---------------------------|
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| 2. 論文標題<br>Food and Nutrient Supply from Organic Agriculture in the Least Developed Countries and North America | 5. 発行年<br>2021年           |
| 3. 雑誌名<br>Sustainability  | 6. 最初と最後の頁<br>5068 ~ 5068 |
| 掲載論文のDOI（デジタルオブジェクト識別子）<br>10.3390/su13095068   | 査読の有無<br>有                |
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| 2 . 発表標題<br>Factors affecting adoption of commercial vegetable farming among vegetable growers in Nepal: A probit analysis |
| 3 . 学会等名<br>30th International Conference of Agricultural Economists, Vancouver, Canada (国際学会)                             |
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〔図書〕 計3件

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| 2．出版社<br>Springer Nature   | 5．総ページ数<br>202 |
| 3．書名<br>Socio-Economic Issues of Climate Change. A Livelihood Analysis from Nepal. |                |

〔産業財産権〕

〔その他〕

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6．研究組織

|       | 氏名<br>(ローマ字氏名)<br>(研究者番号) | 所属研究機関・部局・職<br>(機関番号)                           | 備考 |
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|       | (20732275)                | (15401)   |    |

7．科研費を使用して開催した国際研究集会

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8．本研究に関連して実施した国際共同研究の実施状況

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