Supplementary materials

**Table A1** ﻿Summary of the survey constructs/variables, measures, expected direction toward intention, reliability test and validity test.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Constructs** | **Statements****Score 1-3** | **Expected direction** | **Reliability test****(Cronbach's coefficient alpha)** | **Validity test****(KMO and Bartlett's test)** |
| **Sustainable harvesting behavior** |  |  | **0.71** | **0.78** |
| B1  | I would evaluate the quality of the grassland and decide whether to harvest or not. | + |  |  |
| B2 | I only harvest leaf herbs. | + |  |  |
| B3 | I would choose to use traditional tools to harvest herbs. | + |  |  |
| B4 | I would try to harvest for expensive herbs as much as possible. | \_ |  |  |
| B5 | I would harvest herbs in the same location. | \_ |  |  |
| B6 | I would harvest herbs in the spring. | - |  |  |
| B7 | I would harvest herbs from the top of the mountain. | - |  |  |
| B8 | I would harvest herbs from the holy mountain and holy water. | - |  |  |
| B9 | After digging herbs in the grassland, I would use backfill soil/grass to deal with the hole left after harvesting. | + |  |  |
| **Harvesting capability** |  |  | **0.72** | **0.74** |
| C1 | I have enough energy to harvest herbs. | + |  |  |
| C2 | I can harvest herbs all day in the grassland. | + |  |  |
| C3 | My body can bear the such work intensity of harvesting herbs. | + |  |  |
| C4 | I know how to harvest and handle after harvesting for herbs I have ever harvested on the grassland. | + |  |  |
| C5 | I know the distribution where the herbs I've harvested in the grassland. | + |  |  |
| C6 | I can find the herbs what I need on the grassland. | + |  |  |
| **Harvesting opportunity** |  |  | **0.70** | **0.74** |
| O1 | My family grassland is relatively close to my house. | + |  |  |
| O2 | The quantity of herbs in my family grassland is stable. | + |  |  |
| O3 | The soil in my family grassland would not become "black soil" after harvesting. | + |  |  |
| O4 | When the season, I have enough time to harvest. | + |  |  |
| O5 | Herbs are allowed to be harvested in the grassland in our village | + |  |  |
| O6 | We have been harvesting herbs in our village. | + |  |  |
| O7 | Other villagers go with me to harvesting herbs. | + |  |  |
| **Sustainable harvesting motivation** |  |  | **0.71** | **0.73** |
| M1 | I harvest herbs to sell to shop buyers. | - |  |  |
| M2 | I harvest herbs to sell to the Tibetan doctors in the village. | + |  |  |
| M3 | I harvest herbs to self-use when sangsol ceremony (Weisang). | + |  |  |
| M4 | I harvest herbs to cure myself or my family members. | + |  |  |
| M5 | I only wanted to harvest when I see herbs while herding. | - |  |  |
| M6 | I am used to harvesting herbs. | - |  |  |
| M7 | I see other people harvesting herbs and I want to harvest too. | - |  |  |
| **Perception of environmental change** |  |  | **0.66** | **0.75** |
| PEC1 | I feel that the migratory time from winter grassland to summer grassland has changed | + |  |  |
| PEC2 | I feel that the grass is green earlier than before | + |  |  |
| PEC3 | I feel that the wild animals on the mountain are getting closer to the village (Byg and Salick, 2009). | + |  |  |
| PEC4 | I feel that the mortality rate of yak calves has increased. | + |  |  |
| PEC5 | I feel the color of yak milk has become lighter. | + |  |  |
| PEC6 | I feel like the snow is melting earlier than before (Byg and Salick, 2009). | + |  |  |
| PEC7 | I feel that the number of sudden rainstorms is more frequently than before in spring and summer (Byg and Salick, 2009). | + |  |  |
| PEC8 | I feel the clothes I wear are thinner than before in winter (Byg and Salick, 2009). | + |  |  |
| **Ecological worldview** |  |  | **0.79** | **0.90** |
| EW1 | I think people and wild animals are equal(Li and Yang, 2020). | + |  |  |
| EW2 | I think people is just one part of the natural system (Li and Yang, 2020). | + |  |  |
| EW3 | I think everything on the holy mountain and water are sacred (Li and Yang, 2020). | + |  |  |
| EW4 | I think nature cannot be easily changed and destroyed(Wei, 2013). | + |  |  |
| EW5 | I think human beings must fully respect and adapt to nature in order to survive (Wei, 2013). | + |  |  |
| EW6 | I think directly or indirectly destroying grass and killing life is shameful (Wei, 2013). | + |  |  |
| EW7 | I think destroying nature would be punished (Li and Yang, 2020). | + |  |  |
| EW8 | I think harvesting plants would harm the insects on the plants (Li and Yang, 2020). | + |  |  |
| **Compliance to village rules and customs** |  |  | **0.76** | **0.90** |
| CVRC1 | People would abide by the rules that the village elders told us in our village (Niu, 2018). | + |  |  |
| CVRC2 | People would obey the taboos involving "sacred mountains and lakes" in our village(Niu, 2018). | + |  |  |
| CVRC3 | When someone violated some village rules, the old man would educate him in the village (Niu, 2018). | + |  |  |
| CVRC4 | The people would abide by the regulations of Aba Prefecture on plant harvesting in the village (Niu, 2018). | + |  |  |
| CVRC5 | We would decide which herbs to harvest according to the village regulations (Liu, 2014). | + |  |  |
| CVRC6 | Generally, people would abide by the village's regulations on grassland leasing in our village (Niu, 2018). | + |  |  |
| CVRC7 | People would listen to the temple's publicity advice on plant harvesting in our village (Liu, 2014). | + |  |  |

Note: All questions without references are designed by first author according to the results of pilot interview

**Table A2** Error checking during data transcription (Questionnaire manual record to digital storage).

|  |  |  |  |
| --- | --- | --- | --- |
| ***Sampling with replacement*** | ***Repeat sampling times*** | ***Number of questionnaires with errors*** | ***Probability (%)*** |
| One in ten | 1 | 12 | 13.04% |
| One in ten | 2 | 14 | 15.21% |
| One in ten | 3 | 6 | 6.52% |
| One in ten | 4 | 8 | 8.70% |
| One in ten | 5 | 2 | 2.17% |
| One in ten | 6 | 1 | 1.08% |
| One in ten | 7 | 3 | 3.26% |
| One in ten | 8 | 0 | 0 |

**Table A3** Model selection of GLMM on harvester’s willingness to harvest *N.jatamansi.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Model 1** | **Model 2** | **Model 3** | **Model 4** | **Model 5** | **Model 6** |
| (Intercept) | -1.47  | -1.71  | -2.23  | -2.00  | -2.49  | -2.96  |
| Yak roaming frelly (Ref. not freely) | + | + | NA | NA | NA | NA |
| Number of yaks | -0.29  | -0.29  | -0.24  | -0.23  | -0.22  | NA |
| Yak price | NA | NA | NA | NA | NA | NA |
| Number with junior high school education in family members | NA | NA | NA | NA | NA | NA |
| Potential harvesting income of *F. cirrhosa* | NA | NA | NA | NA | NA | NA |
| Potential harvesting income of *N. jatamansi*  | + | + | + | + | + | + |
| Past harvesting experience of *F. cirrhosa* | NA | NA | NA | NA | NA | NA |
| Past harvesting experience of *N. jatamansi* | + | + | + | + | + | + |
| Harvester gender (Ref. female) | NA | + | + | NA | + | + |
| Number of monks in the family | NA | NA | NA | NA | NA | NA |
| Family grassland tenure (Ref. collective) | NA | NA | NA | NA | + | NA |
| Number of family expenditure categories | NA | NA | NA | NA | NA | NA |
| df | 6.00  | 7.00  | 6.00  | 5.00  | 7.00  | 5.00  |
| logLik | -125.30  | -124.29  | -125.41  | -126.62  | -124.65  | -126.77  |
| AICc | 262.82  | 262.88  | 263.03  | 263.40  | 263.58  | 263.70  |
| delta | 0.00  | 0.06  | 0.21  | 0.58  | 0.77  | 0.89  |
| weight | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  |
|  | **Model 7** | **Model 8** | **Model 9** | **Model 10** | **Model 11** | **Model 12** |
| (Intercept) | -1.98  | -1.52  | -2.72  | -1.70  | -3.19  | -1.11  |
| Yak roaming frelly (Ref. not freely) | + | NA | NA | + | NA | + |
| Number of yaks | -0.28  | -0.25  | NA | -0.27  | NA | -0.30  |
| Yak price | NA | NA | NA | NA | NA | NA |
| Number with junior high school education in family members | NA | NA | NA | NA | NA | NA |
| Potential harvesting income of *F. cirrhosa* | NA | NA | NA | NA | NA | NA |
| Potential harvesting income of *N. jatamansi*  | + | + | + | + | + | + |
| Past harvesting experience of *F. cirrhosa* | NA | + | NA | NA | NA | + |
| Past harvesting experience of *N. jatamansi* | + | + | + | + | + | + |
| Harvester gender (Ref. female) | + | + | NA | NA | + | + |
| Number of monks in the family | NA | NA | NA | NA | NA | NA |
| Family grassland tenure (Ref. collective) | + | NA | NA | + | + | NA |
| Number of family expenditure categories | NA | NA | NA | NA | NA | NA |
| df | 8.00  | 7.00  | 4.00  | 7.00  | 6.00  | 8.00  |
| logLik | -123.69  | -124.75  | -127.88  | -124.79  | -125.86  | -123.79  |
| AICc | 263.75  | 263.80  | 263.85  | 263.86  | 263.94  | 263.96  |
| delta | 0.93  | 0.98  | 1.04  | 1.05  | 1.12  | 1.14  |
| weight | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  |
|  | **Model 13** | **Model 14** | **Model 15** | **Model 16** | **Model 17** | **Model 18** |
| (Intercept) | -1.97  | -0.93  | -2.23  | -2.18  | -2.71  | -2.93  |
| Yak roaming frelly (Ref. not freely) | + | + | NA | + | NA | NA |
| Number of yaks | -0.31  | -0.30  | -0.22  | -0.31  | -0.25  | NA |
| Yak price | NA | NA | NA | NA | NA | NA |
| Number with junior high school education in family members | NA | NA | NA | NA | NA | NA |
| Potential harvesting income of *F. cirrhosa* | NA | NA | NA | NA | NA | NA |
| Potential harvesting income of N. jatamansi  | + | + | + | + | + | + |
| Past harvesting experience of *F. cirrhosa* | NA | + | NA | NA | NA | NA |
| Past harvesting experience of *N. jatamansi* | + | + | + | + | + | + |
| Harvester gender (Ref. female) | NA | NA | NA | + | + | NA |
| Number of monks in the family | NA | NA | NA | NA | NA | NA |
| Family grassland tenure (Ref. collective) | NA | NA | + | NA | NA | + |
| Number of family expenditure categories | 0.13  | NA | NA | 0.13  | 0.13  | NA |
| df | 7.00  | 7.00  | 6.00  | 8.00  | 7.00  | 5.00  |
| logLik | -124.86  | -124.90  | -125.96  | -123.88  | -124.96  | -127.10  |
| AICc | 264.00  | 264.09  | 264.14  | 264.14  | 264.22  | 264.35  |
| delta | 1.19  | 1.28  | 1.32  | 1.32  | 1.40  | 1.53  |
| weight | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  |
|  | **Model 19** | **Model 20** | **Model 21** | **Model 22** | **Model 23** | **Model 24** |
| (Intercept) | -1.37  | -1.36  | -2.51  | -2.49  | -1.37  | -1.59  |
| Yak roaming frelly (Ref. not freely) | NA | + | NA | + | + | + |
| Number of yaks | -0.24  | -0.29  | -0.25  | NA | -0.29  | -0.29  |
| Yak price | NA | NA | NA | NA | NA | NA |
| Number with junior high school education in family members | NA | -0.19  | NA | NA | NA | -0.19  |
| Potential harvesting income of *F. cirrhosa* | NA | NA | NA | NA | + | NA |
| Potential harvesting income of *N. jatamansi*  | + | + | + | + | + | + |
| Past harvesting experience of *F. cirrhosa* | + | NA | NA | NA | NA | NA |
| Past harvesting experience of *N. jatamansi* | + | + | + | + | + | + |
| Harvester gender (Ref. female) | NA | NA | NA | NA | + | + |
| Number of monks in the family | NA | NA | NA | NA | NA | NA |
| Family grassland tenure (Ref. collective) | NA | NA | NA | NA | NA | NA |
| Number of family expenditure categories | NA | NA | 0.14  | NA | NA | NA |
| df | 6.00  | 7.00  | 6.00  | 5.00  | 8.00  | 8.00  |
| logLik | -126.10  | -125.10  | -126.14  | -127.18  | -124.09  | -124.09  |
| AICc | 264.42  | 264.48  | 264.49  | 264.52  | 264.55  | 264.55  |
| delta | 1.60  | 1.67  | 1.68  | 1.70  | 1.73  | 1.74  |
| weight | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  |
|  | **Model 25** | **Model 26** | **Model 27** | **Model 28** | **Model 29** | **Model 30** |
| (Intercept) | -1.17  | -2.08  | -1.86  | -3.00  | -2.74  | -2.36  |
| Yak roaming frelly (Ref. not freely) | + | NA | NA | NA | + | NA |
| Number of yaks | -0.28  | -0.24  | -0.23  | -0.24  | NA | NA |
| Yak price | NA | NA | NA | NA | NA | NA |
| Number with junior high school education in family members | NA | -0.22  | NA | NA | NA | NA |
| Potential harvesting income of *F. cirrhosa* | + | NA | + | NA | NA | NA |
| Potential harvesting income of *N. jatamansi*  | + | + | + | + | + | + |
| Past harvesting experience of *F. cirrhosa* | NA | NA | NA | NA | NA | + |
| Past harvesting experience of *N. jatamansi* | + | + | + | + | + | + |
| Harvester gender (Ref. female) | NA | + | + | + | + | + |
| Number of monks in the family | NA | NA | NA | NA | NA | NA |
| Family grassland tenure (Ref. collective) | NA | NA | NA | + | NA | NA |
| Number of family expenditure categories | NA | NA | NA | 0.14  | NA | NA |
| df | 7.00  | 7.00  | 7.00  | 8.00  | 6.00  | 6.00  |
| logLik | -125.13  | -125.13  | -125.18  | -124.17  | -126.25  | -126.25  |
| AICc | 264.56  | 264.56  | 264.64  | 264.71  | 264.72  | 264.73  |
| delta | 1.74  | 1.74  | 1.83  | 1.90  | 1.90  | 1.91  |
| weight | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  |
|  | **Model 31** | **Model 32** | **Model 33** |  |  |  |
| (Intercept) | -2.02  | -1.43  | -1.88  |  |  |  |
| Yak roaming frelly (Ref. not freely) | NA | + | NA |  |  |  |
| Number of yaks | -0.27  | -0.29  | -0.23  |  |  |  |
| Yak price | NA | NA | NA |  |  |  |
| Number with junior high school education in family members | NA | NA | NA |  |  |  |
| Potential harvesting income of *F. cirrhosa* | NA | NA | NA |  |  |  |
| Potential harvesting income of *N. jatamansi*  | + | + | + |  |  |  |
| Past harvesting experience of *F. cirrhosa* | + | NA | + |  |  |  |
| Past harvesting experience of *N. jatamansi* | + | + | + |  |  |  |
| Harvester gender (Ref. female) | + | NA | + |  |  |  |
| Number of monks in the family | NA | + | NA |  |  |  |
| Family grassland tenure (Ref. collective) | NA | NA | + |  |  |  |
| Number of family expenditure categories | 0.15  | NA | NA |  |  |  |
| df | 8.00  | 7.00  | 8.00  |  |  |  |
| logLik | -124.18  | -125.24  | -124.21  |  |  |  |
| AICc | 264.73  | 264.77  | 264.79  |  |  |  |
| delta | 1.91  | 1.95  | 1.98  |  |  |  |
| weight | 0.01  | 0.00  | 0.00  |  |  |  |

**Table A4** Model selection of GLMM on harvester’s willingness to harvest *F.cirrhosa*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Model 1** | **Model 2** | **Model 3** | **Model 4** | **Model 5** | **Model 6** |
| (Intercept) | -0.67  | -0.33  | -0.49  | -1.67  | -0.19  | -0.56  |
| Yak roaming freely (Ref. not freely) | NA | NA | NA | NA | NA | NA |
| Number of yaks  | NA | NA | NA | NA | NA | NA |
| Yak price  | + | + | + | + | + | + |
| Number with junior high school education in family members | NA | NA | NA | NA | NA | NA |
| Potential harvesting income of *F. cirrhosa* | + | + | + | + | + | + |
| Potential harvesting income of *N. jatamansi*  | NA | NA | NA | NA | + | + |
| Past harvesting experience of *F. cirrhosa* | + | + | + | + | + | + |
| Past harvesting experience of *N. jatamansi* | NA | NA | NA | NA | NA | NA |
| Harvester gender (Ref. female) | + | NA | + | NA | NA | + |
| Number of monks in the family | NA | NA | + | NA | NA | NA |
| Family grassland tenure (Ref. collective) | + | + | + | + | + | + |
| Number of family expenditure categories | NA | NA | NA | 0.32  | NA | NA |
| df | 8.00  | 7.00  | 9.00  | 8.00  | 8.00  | 9.00  |
| logLik | -47.77  | -48.91  | -46.86  | -47.96  | -48.02  | -47.00  |
| AICc | 111.92  | 112.12  | 112.18  | 112.29  | 112.42  | 112.48  |
| delta | 0.00  | 0.19  | 0.26  | 0.37  | 0.50  | 0.56  |
| weight | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  |
|  | **Model 7** | **Model 8** | **Model 9** | **Model 10** | **Model 11** | **Model 12** |
| (Intercept) | -2.13  | -1.82  | -1.51  | -0.72  | -0.55  | -2.53  |
| Yak roaming freely (Ref. not freely) | NA | NA | NA | NA | NA | NA |
| Number of yaks  | NA | NA | NA | NA | NA | NA |
| Yak price  | + | + | + | + | + | NA |
| Number with junior high school education in family members | 0.74  | NA | NA | 0.67  | 0.63  | NA |
| Potential harvesting income of *F. cirrhosa* | + | + | + | + | + | + |
| Potential harvesting income of *N. jatamansi*  | NA | NA | + | NA | NA | + |
| Past harvesting experience of *F. cirrhosa* | + | + | + | + | + | + |
| Past harvesting experience of *N. jatamansi* | NA | NA | NA | NA | NA | NA |
| Harvester gender (Ref. female) | NA | + | NA | + | NA | NA |
| Number of monks in the family | NA | NA | NA | + | NA | NA |
| Family grassland tenure (Ref. collective) | + | + | + | + | + | + |
| Number of family expenditure categories | 0.37  | 0.28  | 0.31  | NA | NA | 0.36  |
| df | 9.00  | 9.00  | 9.00  | 10.00  | 8.00  | 7.00  |
| logLik | -47.05  | -47.10  | -47.14  | -46.13  | -48.23  | -49.28  |
| AICc | 112.58  | 112.67  | 112.75  | 112.84  | 112.84  | 112.85  |
| delta | 0.66  | 0.75  | 0.83  | 0.92  | 0.92  | 0.92  |
| weight | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  |
|  | **Model 13** | **Model 14** | **Model 15** | **Model 16** | **Model 17** | **Model 18** |
| (Intercept) | -0.15  | -0.84  | -0.51  | -1.04  | -1.56  | -0.16  |
| Yak roaming freely (Ref. not freely) | NA | NA | NA | NA | NA | NA |
| Number of yaks  | NA | NA | NA | NA | NA | NA |
| Fell sale price of yak  | + | + | + | NA | + | + |
| Number with junior high school education in family members | NA | 0.56  | NA | NA | NA | NA |
| Potential harvesting income of *F. cirrhosa* | + | + | + | + | + | + |
| Potential harvesting income of *N. jatamansi*  | NA | NA | NA | + | NA | NA |
| Past harvesting experience of *F. cirrhosa* | + | + | + | + | + | + |
| Past harvesting experience of *N. jatamansi* | + | NA | + | NA | NA | NA |
| Harvester gender (Ref. female) | NA | + | + | NA | + | NA |
| Number of monks in the family | NA | NA | NA | NA | + | + |
| Family grassland tenure (Ref. collective) | + | + | + | + | + | + |
| Number of family expenditure categories | NA | NA | NA | NA | 0.26  | NA |
| df | 8.00  | 9.00  | 9.00  | 6.00  | 10.00  | 8.00  |
| logLik | -48.29  | -47.24  | -47.25  | -50.42  | -46.31  | -48.42  |
| AICc | 112.95  | 112.96  | 112.97  | 113.06  | 113.19  | 113.21  |
| delta | 1.02  | 1.04  | 1.05  | 1.14  | 1.27  | 1.29  |
| weight | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  |
|  | **Model 19** | **Model 20** | **Model 21** | **Model 22** | **Model 23** | **Model 24** |
| (Intercept) | -0.43  | -2.25  | -1.90  | -0.38  | -1.68  | -1.99  |
| Yak roaming freely (Ref. not freely) | NA | NA | NA | NA | NA | NA |
| Number of yaks  | NA | NA | NA | NA | NA | NA |
| Yak price  | + | + | + | + | + | + |
| Number with junior high school education in family members | NA | 0.67  | 0.70  | 0.60  | NA | 0.82  |
| Potential harvesting income of *F. cirrhosa* | + | + | + | + | + | + |
| Potential harvesting income of *N. jatamansi*  | + | NA | + | + | + | NA |
| Past harvesting experience of *F. cirrhosa* | + | + | + | + | + | + |
| Past harvesting experience of *N. jatamansi* | NA | NA | NA | NA | NA | NA |
| Harvester gender (Ref. female) | + | + | NA | NA | + | NA |
| Number of monks in the family | + | NA | NA | NA | NA | + |
| Family grassland tenure (Ref. collective) | + | + | + | + | + | + |
| Number of family expenditure categories | NA | 0.33  | 0.35  | NA | 0.27  | 0.37  |
| df | 10.00  | 10.00  | 10.00  | 9.00  | 10.00  | 10.00  |
| logLik | -46.33  | -46.36  | -46.37  | -47.43  | -46.39  | -46.42  |
| AICc | 113.23  | 113.30  | 113.32  | 113.33  | 113.36  | 113.41  |
| delta | 1.31  | 1.37  | 1.40  | 1.41  | 1.44  | 1.49  |
| weight | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  | 0.01  |
|  | **Model 25** | **Model 26** | **Model 27** | **Model 28** | **Model 29** | **Model 30** |
| (Intercept) | -2.05  | -1.49  | -0.35  | -0.42  | -0.71  | -1.35  |
| Yak roaming freely (Ref. not freely) | NA | NA | NA | NA | NA | NA |
| Number of yaks  | NA | NA | NA | NA | NA | NA |
| Yak price  | + | + | + | + | + | + |
| Number with junior high school education in family members | 0.77  | NA | 0.66  | 0.72  | 0.55  | NA |
| Potential harvesting income of *F. cirrhosa* | + | + | + | + | + | + |
| Potential harvesting income of *N. jatamansi*  | NA | NA | NA | NA | + | NA |
| Past harvesting experience of *F. cirrhosa* | + | + | + | + | + | + |
| Past harvesting experience of *N. jatamansi* | NA | NA | + | NA | NA | + |
| Harvester gender (Ref. female) | + | NA | NA | NA | + | NA |
| Number of monks in the family | + | + | NA | + | NA | NA |
| Family grassland tenure (Ref. collective) | + | + | + | + | + | + |
| Number of family expenditure categories | 0.31  | 0.32  | NA | NA | NA | 0.28  |
| df | 11.00  | 9.00  | 9.00  | 9.00  | 10.00  | 9.00  |
| logLik | -45.37  | -47.49  | -47.54  | -47.57  | -46.52  | -47.59  |
| AICc | 113.44  | 113.44  | 113.55  | 113.60  | 113.61  | 113.65  |
| delta | 1.52  | 1.52  | 1.63  | 1.68  | 1.69  | 1.73  |
| weight | 0.01  | 0.01  | 0.00  | 0.00  | 0.00  | 0.00  |
|  | **Model 31** | **Model 32** | **Model 33** | **Model 34** | **Model 35** | **Model 36** |
| (Intercept) | -1.39  | -0.37  | -0.49  | -0.35  | -0.67  | -0.05  |
| Yak roaming freely (Ref. not freely) | NA | NA | + | NA | NA | NA |
| Number of yaks  | NA | NA | NA | -0.10  | NA | NA |
| Yak price  | NA | + | + | + | + | + |
| Number with junior high school education in family members | NA | NA | NA | NA | 0.60  | NA |
| Potential harvesting income of *F. cirrhosa* | + | + | + | + | + | + |
| Potential harvesting income of *N. jatamansi*  | + | NA | NA | NA | NA | + |
| Past harvesting experience of *F. cirrhosa* | + | + | + | + | + | + |
| Past harvesting experience of *N. jatamansi* | NA | + | NA | NA | + | NA |
| Harvester gender (Ref. female) | + | + | + | + | + | NA |
| Number of monks in the family | NA | + | NA | NA | NA | + |
| Family grassland tenure (Ref. collective) | + | + | + | + | + | + |
| Number of family expenditure categories | NA | NA | NA | NA | NA | NA |
| df | 7.00  | 10.00  | 9.00  | 9.00  | 10.00  | 9.00  |
| logLik | -49.69  | -46.55  | -47.68  | -47.69  | -46.65  | -47.71  |
| AICc | 113.67  | 113.68  | 113.82  | 113.85  | 113.87  | 113.88  |
| delta | 1.75  | 1.76  | 1.90  | 1.93  | 1.95  | 1.96  |
| weight | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  |
|  | **Model 37** | **Model 38** | **Model 39** | **Model 40** |  |  |
| (Intercept) | -2.71  | -2.91  | -1.27  | -1.77  |  |  |
| Yak roaming freely (Ref. not freely) | NA | NA | NA | NA |  |  |
| Number of yaks  | NA | NA | -0.18  | NA |  |  |
| Yak price  | NA | NA | + | + |  |  |
| Number with junior high school education in family members | NA | NA | NA | 0.75  |  |  |
| Potential harvesting income of *F. cirrhosa* | + | + | + | + |  |  |
| Potential harvesting income of *N. jatamansi*  | + | NA | NA | NA |  |  |
| Past harvesting experience of *F. cirrhosa* | + | + | + | + |  |  |
| Past harvesting experience of *N. jatamansi* | NA | NA | NA | + |  |  |
| Harvester gender (Ref. female) | + | NA | NA | NA |  |  |
| Number of monks in the family | NA | NA | NA | NA |  |  |
| Family grassland tenure (Ref. collective) | + | + | + | + |  |  |
| Number of family expenditure categories | 0.33  | 0.37  | 0.37  | 0.32  |  |  |
| df | 8.00  | 6.00  | 9.00  | 10.00  |  |  |
| logLik | -48.76  | -50.84  | -47.72  | -46.67  |  |  |
| AICc | 113.89  | 113.90  | 113.91  | 113.92  |  |  |
| delta | 1.97  | 1.98  | 1.99  | 1.99  |  |  |
| weight | 0.00  | 0.00  | 0.00  | 0.00  |  |  |

**Table A5** Summary of GLMM averaged model estimate results. Significance: \*\*\*= *p* ≤0.001; \*\* = *p* ≤0.01; \* = *p* ≤0.05.

|  |  |  |
| --- | --- | --- |
| ***Covariate*** | ***Model 1 Estimate (SE)*** *N.jatamansi* | ***Model 2 Estimate (SE)****F.cirrhosa* |
| Intercept | -2.03\* (0.90) | -1.07\*\* (1.29) |
| Yak roaming freely (Ref. not freely) | -0.25 (0.36)  | -0.00 (0.09) |
| Number of yaks  | 0.21 (0.17) | -0.00 (0.05) |
| Yak price increased (Ref. no change) | - | -1.86 (1.06) |
| Yak price decreased (Ref. no change) | - | -0.85 (0.86) |
| Number with junior high school education in family members | -0.01 (0.07) | 0.22 (0.41) |
| Potential harvesting income of *F. cirrhosa* | -0.03 (0.20) | 2.08\*\* (0.66) |
| Potential harvesting income of *N. jatamansi*  | 2.54\*\*\* (0.35) | -0.11 (0.38) |
| Past harvesting experience of *F. cirrhosa* | -0.14 (0.42) | 4.09\*\*\* (0.71) |
| Past harvesting experience of *N. jatamansi* | 2.91\*\*\* (0.35) | -0.30 (0.57) |
| Harvester gender (Ref. female) | 0.31 (0.38) | 0.46 (0.66)  |
| Number of monks in the family | -0.00 (0.05) | -0.20 (0.45) |
| Family grassland tenure (Ref. collective) | 0.15 (0.37) | -1.82\*\* (0.71) |
| Number of family expenditure categories | 0.02 (0.07) | 0.13 (0.21) |

**Table A6** the convergent validity of measurement model

|  |  |  |  |
| --- | --- | --- | --- |
| **Constructs** | **Factor loadings (FL)** | **composite reliability (CR)** | **Average variance extracted（AVE）** |
| **Recommended value** | ≥0.6 | ≥0.5 | ≥0.5 |
| **Behavior** |  | **0.75** | **0.50** |
| B4 | 0.64 |  |  |
| B7 | 0.73 |  |  |
| B9 | 0.74 |  |  |
| **Capability** |  | **0.82** | **0.61** |
| C1 | 0.82 |  |  |
| C2 | 0.75 |  |  |
| C3 | 0.77 |  |  |
| **Opportunity** |  | **0.78** | **0.50** |
| O4 | 0.64 |  |  |
| O5 | 0.80 |  |  |
| O6 | 0.69 |  |  |
| O7 | 0.61 |  |  |
| **Motivation** |  | **0.82** | **0.53** |
| M2 | -0.76 |  |  |
| M3 | -0.79 |  |  |
| M6 | 0.70 |  |  |
| M7 | 0.68 |  |  |
| **Perception of environment change** |  | **0.75** | **0.50** |
| PEC1 | 0.62 |  |  |
| PEC2 | 0.66 |  |  |
| PEC3 | 0.83 |  |  |
| **Ecological worldview** |  | **0.89** | **0.62** |
| EW3 | 0.76 |  |  |
| EW4 | 0.80 |  |  |
| EW5 | 0.83 |  |  |
| EW6 | 0.76 |  |  |
| EW7 | 0.78 |  |  |
| **Compliance to village rules and customs** |  | **0.83** | **0.50** |
| CVRC 2 | 0.67 |  |  |
| CVRC 3 | 0.66 |  |  |
| CVRC 4 | 0.75 |  |  |
| CVRC 5 | 0.69 |  |  |
| CVRC 6 | 0.78 |  |  |

**Table A7** Goodness-of-fit indices of the structural models.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Variable** | **X2/df** | **RMSEA** | **SRMR** | **TLI** | **CFI** | **P** |
| **Model 1** | the harvesting behavior and motivation, harvesting capability, harvesting opportunity, perception of environment change, compliance to village rules and customs and ecological worldview | 3.85 | 0.05 | 0.08 | 0.81 | 0.82 | 0.00 |
| **Model 2**  | the harvesting behavior, harvesting capability, harvesting opportunity, perception of environment change, compliance to village rules and customs and ecological worldview | 4.30 | 0.06 | 0.09 | 0.81 | 0.83 | 0.00 |
| **Model 3** | the harvesting motivation, harvesting capability, harvesting opportunity, perception of environment change, compliance to village rules and customs and ecological worldview | 16.00 | 0.06 | 0.07 | 0.85 | 0.87 | 0.00 |
| **Recommended value** |  | ≤5.00 | ≤0.06 | ≤0.10 | ≥0.90 | ≥0.90 | ≤0.01 |

**Figure A1** Visualization of Structural Equation Model 1



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