Households' responses to climate change: contingent behavior evidence from rural South Africa

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## ONLINE APPENDIX

Appendix A. Multivariate probit model estimates of factors affecting undertaking future livelihood activities a ( $n=324$ responses)

|  | Garden | Livestock | Natural resource harvesting | Casual labor | Small business | Formal employment |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Climate variables ( $\mathrm{X}_{1}$ ) |  |  |  |  |  |  |
| Moderate increase in dryspells | $\begin{array}{r} -1.015 * * * \\ (0.275) \\ \hline \end{array}$ | $\begin{array}{r} 0.766 * * * \\ (0.268) \\ \hline \end{array}$ | $\begin{gathered} 0.520^{* *} \\ (0.256) \\ \hline \end{gathered}$ | $\begin{array}{r} \hline 0.623 * * \\ (0.265) \\ \hline \end{array}$ | $\begin{gathered} 0.601^{* *} \\ (0.261) \\ \hline \end{gathered}$ | $\begin{array}{r} -0.319 \\ (0.293) \\ \hline \end{array}$ |
| Extreme increase in dryspells | $\begin{array}{r} \hline-0.996^{* * *} \\ (0.270) \\ \hline \end{array}$ | $\begin{gathered} -0.462^{*} \\ (0.258) \\ \hline \end{gathered}$ | $\begin{gathered} 0.653 * * \\ (0.254) \\ \hline \end{gathered}$ | $\begin{gathered} 0.571^{* *} \\ (0.264) \\ \hline \end{gathered}$ | $\begin{array}{r} \hline 0.869 * * * \\ (0.265) \\ \hline \end{array}$ | $\begin{array}{r} -0.225 \\ (0.276) \\ \hline \end{array}$ |
| Mild increase in wet- spells | $\begin{array}{r} \hline 0.829 * * * \\ (0.301) \\ \hline \end{array}$ | $\begin{array}{r} \hline 0.759 * * * \\ (0.269) \\ \hline \end{array}$ | $\begin{array}{r} 0.389 \\ (0.253) \\ \hline \end{array}$ | $\begin{array}{r} 0.048 \\ (0.259) \\ \hline \end{array}$ | $\begin{array}{r} 0.308 \\ (0.260) \\ \hline \end{array}$ | $\begin{array}{r} -0.130 \\ (0.272) \\ \hline \end{array}$ |
| Moderate increase in wetspells | $\begin{array}{r} 0.058 \\ (0.279) \\ \hline \end{array}$ | $\begin{array}{r} \hline 1.161^{* * *} \\ (0.291) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.098 \\ (0.262) \\ \hline \end{array}$ | $\begin{array}{r} 0.031 \\ (0.269) \\ \hline \end{array}$ | $\begin{array}{r} 0.064 \\ (0.265) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.078 \\ (0.286) \\ \hline \end{array}$ |
| Extreme increase in wetspells | $\begin{array}{r} -1.843 * * * \\ (0.325) \\ \hline \end{array}$ | $\begin{array}{r} 0.329 \\ (0.271) \\ \hline \end{array}$ | $\begin{array}{r} 0.038 \\ (0.267) \\ \hline \end{array}$ | $\begin{array}{r} -0.829 * * * \\ (0.289) \\ \hline \end{array}$ | $\begin{array}{r} 0.268 \\ (0.271) \\ \hline \end{array}$ | $\begin{array}{r} -0.028 \\ (0.287) \\ \hline \end{array}$ |
| High temperature | $\begin{array}{r} 0.174 \\ (0.224) \\ \hline \end{array}$ | $\begin{array}{r} -0.184 \\ (0.220) \\ \hline \end{array}$ | $\begin{array}{r} 0.158 \\ (0.212) \\ \hline \end{array}$ | $\begin{array}{r} 0.138 \\ (0.218) \\ \hline \end{array}$ | $\begin{array}{r} 0.031 \\ (0.217) \\ \hline \end{array}$ | $\begin{array}{r} -0.060 \\ (0.236) \\ \hline \end{array}$ |
| Capital stocks ( $\mathbf{X 2}_{2}$ ) |  |  |  |  |  |  |
| Education | $\begin{array}{r} \hline-0.004 \\ (0.023) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.027 \\ (0.023) \\ \hline \end{array}$ | $\begin{array}{r} 0.023 \\ (0.021) \\ \hline \end{array}$ | $\begin{array}{r} 0.021 \\ (0.022) \\ \hline \end{array}$ | $\begin{array}{r} 0.031 \\ (0.021) \\ \hline \end{array}$ | $\begin{gathered} \hline 0.049^{* *} \\ (0.023) \\ \hline \end{gathered}$ |
| Skills | $\begin{gathered} -0.163^{*} \\ (0.095) \\ \hline \end{gathered}$ | $\begin{array}{r} 0.039 \\ (0.093) \\ \hline \end{array}$ | $\begin{array}{r} 0.065 \\ (0.086) \\ \hline \end{array}$ | $\begin{array}{r} -0.041 \\ (0.091) \\ \hline \end{array}$ | $\begin{aligned} & 0.151^{*} \\ & (0.090) \\ & \hline \end{aligned}$ | $\begin{array}{r} 0.006 \\ (0.094) \\ \hline \end{array}$ |
| Social capital | $\begin{aligned} & \hline 0.188^{*} \\ & (0.104) \\ & \hline \end{aligned}$ | $\begin{array}{r} 0.066 \\ (0.096) \\ \hline \end{array}$ | $\begin{array}{r} 0.116 \\ (0.093) \\ \hline \end{array}$ | $\begin{gathered} -0.011 \\ (0.094) \\ \hline \end{gathered}$ | $\begin{array}{r} 0.162 \\ (0.102) \\ \hline \end{array}$ | $\begin{array}{r} 0.020 \\ (0.095) \\ \hline \end{array}$ |
| Physical capital | $\begin{aligned} & \hline 0.398^{*} \\ & (0.232) \\ & \hline \end{aligned}$ | $\begin{array}{r} 0.360 \\ (0.245) \\ \hline \end{array}$ | $\begin{array}{r} 0.028 \\ (0.211) \\ \hline \end{array}$ | $\begin{array}{r} -0.192 \\ (0.219) \\ \hline \end{array}$ | $\begin{array}{r} -0.009 \\ (0.220) \\ \hline \end{array}$ | $\begin{array}{r} -0.314 \\ (0.239) \\ \hline \end{array}$ |
| Natural capital | $\begin{array}{r} -0.035 \\ (0.081) \\ \hline \end{array}$ | $\begin{aligned} & 0.142^{*} \\ & (0.076) \\ & \hline \end{aligned}$ | $\begin{array}{r} -0.082 \\ (0.069) \\ \hline \end{array}$ | $\begin{array}{r} -0.090 \\ (0.071) \\ \hline \end{array}$ | $\begin{array}{r} 0.097 \\ (0.071) \\ \hline \end{array}$ | $\begin{array}{r} 0.079 \\ (0.075) \\ \hline \end{array}$ |
| Health status ( $\mathbf{X}_{3}$ ) <br> Long-term ill | $\begin{array}{r} \hline-0.069 \\ (0.176) \\ \hline \end{array}$ | $\begin{array}{r} -0.472 * * * \\ (0.174) \\ \hline \end{array}$ | $\begin{array}{r} 0.223 \\ (0.161) \\ \hline \end{array}$ | $\begin{gathered} 0.426^{* *} \\ (0.170) \\ \hline \end{gathered}$ | $\begin{array}{r} 0.113 \\ (0.163) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.220 \\ (0.177) \\ \hline \end{array}$ |
| $\text { Risk aversion }\left(\mathbf{X}_{4}\right)$ Risk | $\begin{aligned} & 0.108^{*} \\ & (0.060) \\ & \hline \end{aligned}$ | $\begin{array}{r} 0.023 \\ (0.058) \\ \hline \end{array}$ | $\begin{gathered} 0.122^{* *} \\ (0.055) \\ \hline \end{gathered}$ | $\begin{array}{r} -0.007 \\ (0.057) \\ \hline \end{array}$ | $\begin{array}{r} -0.013 \\ (0.054) \\ \hline \end{array}$ | $\begin{array}{r} -0.011 \\ (0.059) \\ \hline \end{array}$ |
| Demographic factors ( $\mathbf{X}_{5}$ ) |  |  |  |  |  |  |
| Age of the household head | $\begin{array}{r} \hline-0.007 \\ (0.008) \\ \hline \end{array}$ | $\begin{array}{r} 0.002 \\ (0.007) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.001 \\ (0.007) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.008 \\ (0.007) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.006 \\ (0.007) \\ \hline \end{array}$ | $\begin{array}{r} 0.009 \\ (0.007) \\ \hline \end{array}$ |
| Gender of the household head | $\begin{array}{r} -0.632 * * * \\ (0.199) \\ \hline \end{array}$ | $\begin{array}{r} 0.114 \\ (0.181) \\ \hline \end{array}$ | $\begin{array}{r} 0.228 \\ (0.173) \\ \hline \end{array}$ | $\begin{array}{r} \hline 0.340^{* *} \\ (0.178) \\ \hline \end{array}$ | $\begin{array}{r} 0.413 \\ (0.244) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.132 \\ (0.190) \\ \hline \end{array}$ |
| Gender of the survey respondent | $\begin{array}{r} 0.120 \\ (0.267) \\ \hline \end{array}$ | $\begin{array}{r} -0.427 \\ (0.269) \\ \hline \end{array}$ | $\begin{array}{r} 0.140 \\ (0.239) \\ \hline \end{array}$ | $\begin{array}{r} 0.173 \\ (0.254) \\ \hline \end{array}$ | $\begin{gathered} 0.365^{* *} \\ (0.175) \\ \hline \end{gathered}$ | $\begin{array}{r} -0.288 \\ (0.261) \\ \hline \end{array}$ |
| Number of male adults | $\begin{array}{r} 0.163 \\ (0.111) \\ \hline \end{array}$ | $\begin{array}{r} 0.060 \\ (0.101) \\ \hline \end{array}$ | $\begin{array}{r} 0.036 \\ (0.098) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.033 \\ (0.101) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.028 \\ (0.097) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.209^{* *} \\ (0.108) \\ \hline \end{array}$ |
| Number of female adults | $\begin{array}{r} -0.185 \\ (0.116) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.011 \\ (0.116) \\ \hline \end{array}$ | $\begin{array}{r} 0.133 \\ (0.110) \\ \hline \end{array}$ | $\begin{array}{r} -0.065 \\ (0.113) \\ \hline \end{array}$ | $\begin{array}{r} 0.156 \\ (0.111) \\ \hline \end{array}$ | $\begin{array}{r} 0.072 \\ (0.117) \\ \hline \end{array}$ |
| Household size | $\begin{array}{r} 0.033 \\ (0.051) \\ \hline \end{array}$ | $\begin{array}{r} 0.020 \\ (0.051) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.056 \\ (0.047) \\ \hline \end{array}$ | $\begin{array}{r} 0.050 \\ (0.050) \\ \hline \end{array}$ | $\begin{array}{r} -0.077 \\ (0.048) \\ \hline \end{array}$ | $\begin{array}{r} 0.026 \\ (0.052) \\ \hline \end{array}$ |
| Experience ( $\mathbf{X}_{6}$ ) Currently adopted | $\begin{array}{r} \hline 0.530^{* * *} \\ (0.192) \\ \hline \end{array}$ | $\begin{array}{r} 0.203 \\ (0.244) \\ \hline \end{array}$ | $\begin{array}{r} 0.183 \\ (0.217) \\ \hline \end{array}$ | $\begin{array}{r} \hline 0.990^{* * *} \\ (0.219) \\ \hline \end{array}$ | $\begin{array}{r} 0.342 \\ (0.263) \\ \hline \end{array}$ | $\begin{array}{r} 0.509 \\ (0.362) \\ \hline \end{array}$ |
| Village Fixed Effects ( $\mathbf{X}_{7}$ ) |  |  |  |  |  |  |
| Area 2 | $\begin{array}{r} 0.083 \\ (0.272) \\ \hline \end{array}$ | $\begin{array}{r} -0.372 \\ (0.253) \\ \hline \end{array}$ | $\begin{array}{r} -0.169 \\ (0.241) \\ \hline \end{array}$ | $\begin{array}{r} -0.076 \\ (0.253) \\ \hline \end{array}$ | $\begin{array}{r} 0.219 \\ (0.242) \\ \hline \end{array}$ | $\begin{array}{r} 0.061 \\ (0.250) \\ \hline \end{array}$ |
| Area 3 | $\begin{array}{r} 0.041 \\ (0.191) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.058 \\ (0.188) \\ \hline \end{array}$ | $\begin{array}{r} 0.139 \\ (0.176) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.137 \\ (0.184) \\ \hline \end{array}$ | $\begin{array}{r} 0.260 \\ (0.179) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.526^{* * *} \\ (0.184) \\ \hline \end{array}$ |
| Intercept | $\begin{array}{r} 0.890 \\ (0.683) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.176 \\ (0.683) \\ \hline \end{array}$ | $\begin{array}{r} \hline-1.063 \\ (0.648) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.336 \\ (0.660) \\ \hline \end{array}$ | $\begin{array}{r} -0.725 \\ (0.639) \\ \hline \end{array}$ | $\begin{array}{r} \hline-0.941 \\ (0.670) \\ \hline \end{array}$ |
|  | Log likelihood -1092.45 Wald chi2(132) 323.54 |  |  |  |  |  |
|  | Likelihood ratio test rho $=0$ cross the six equation $\operatorname{chi2}(15)=22.89$ |  |  |  |  |  |

Notes: *** significant at the $1 \%$ level, ** significant at the $5 \%$ level, * significant at the $10 \%$ level.

## Appendix B. Construction of capital stock variables using principle component analysis (PCA)

Index variables for physical and social capital are derived using principal component analysis (PCA). The physical assets index is derived from 17 physical asset characteristics (see table B1). The PCA generates factor scores for each asset characteristic. The factor scores are computed by assuming a regression method based on uncorrelated rotated factors. The 17 factors are standardized to zero mean and unit variance. Table B1 shows factor scores from factor 1, which is the factor that explained most of the variation in the asset characteristics. Factor 1 is used to generate the physical asset index. The physical asset index is generated by weighting the asset characteristics with the scoring coefficient and adding them up.

Table B1. Descriptive statistics and scoring coefficients for retained factors of the variables included in the PCA model for physical assets ( $n=155$ households)

| Physical Capital Factors | Mean | Std. Dev | Min | Max | Factor 1 Scores |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Do you have a kraal? | 0.9 | 0.296 | 0 | 1 | 0.378 |
| Do you have a car? | 0.0559 | 0.23003 | 0 | 1 | 0.365 |
| Do you own a bicycle? | 0.0235 | 0.1518 | 0 | 1 | -0.104 |
| Do you own a cell? | 0.8794 | 0.32613 | 0 | 1 | 0.514 |
| Do you own a TV? | 0.5059 | 0.5007 | 0 | 1 | 0.82 |
| Do you own a radio? | 0.5235 | 0.50018 | 0 | 1 | 0.397 |
| Do you own a DVD? | 0.3441 | 0.47578 | 0 | 1 | 0.697 |
| Do you own a stove? | 0.5912 | 0.49234 | 0 | 1 | 0.699 |
| Do you own a fridge? | 0.4676 | 0.49969 | 0 | 1 | 0.792 |
| Do you own a plough? | 0.1324 | 0.33937 | 0 | 1 | -0.327 |
| Do you own a cart? | 0.0618 | 0.24108 | 0 | 1 | -0.2 |
| Do you own a bed? | 0.9824 | 0.13186 | 0 | 1 | 0.007 |
| Do you own a solar panel? | 0.0647 | 0.24637 | 0 | 1 | 0.035 |
| Do you own a sewing machine? | 0.0676 | 0.62269 | 0 | 11 | -0.101 |
| Do you own a Jojo tank? | 0.2059 | 0.40494 | 0 | 1 | -0.13 |
| Do you own a wheelbarrow? | 0.2941 | 0.45632 | 0 | 1 | 0.131 |
| Do you own a generator? | 0.2824 | 0.45081 | 0 | 1 | 0.561 |

The social capital index is generated using the same procedure as for the physical assets index. The social capital index is derived from 21 variables that measure social capital. Table B2 presents descriptive statistics for the scoring coefficients for retained factors of the variables included in the PCA model for social capital. A summary of the PCA scoring criteria used to generate the physical
and social capital indices is presented in table B3. As mentioned, the indices are based on component one scores, which explain the greatest amount of variation in factors.

Table B2. Descriptive statistics and scoring coefficients for retained factors of the variables included in the PCA model for social capital ( $n=155$ households)

| Social Capital Factors | Mean | Std. <br> Dev. | Min | Max | Factor 1 <br> Scores |
| :--- | :--- | :--- | :--- | :--- | :--- |
| How long have you been established in this village? | 4.61 | 1.522 | 1 | 7 | -0.129 |
| Does anyone in this household take part in community <br> decision making? | 2.37 | 0.858 | 1 | 3 | 0.135 |
| Is household involvement in community activities less (1), <br> the same (2), more (3) compared to 10 years ago? | 1.76 | 0.97 | 1 | 3 | 0.186 |
| Do you have free access to human rights advice? | 0.19 | 0.389 | 0 | 1 | 0.444 |
| Do you have free access to legal advice? | 0.18 | 0.384 | 0 | 1 | 0.311 |
| Do you have free access to medical advice? | 0.62 | 0.487 | 0 | 1 | 0.409 |
| Do you have free access to veterinary advice? | 0.2 | 0.403 | 0 | 1 | 0.542 |
| Do you have free access to medical advice? | 0.22 | 0.417 | 0 | 1 | 0.569 |
| Do you have free access to building advice? | 0.12 | 0.326 | 0 | 1 | 0.519 |
| Do you have free access to schooling advice? | 0.21 | 0.407 | 0 | 1 | 0.588 |
| Do you have free access to moving/relocating advice? | 0.04 | 0.192 | 0 | 1 | 0.448 |
| Do you have free access to market/business advice? | 0.1 | 0.296 | 0 | 1 | 0.592 |
| Do you have free access to credit/financial advice? | 0.17 | 0.374 | 0 | 1 | 0.494 |
| People around here are willing to help their neighbors. | 3.21 | 0.751 | 1 | 4 | 0.291 |
| This is a close-knit or 'tight' neighborhood where people <br> generally know one another? | 3.19 | 0.914 | 1 | 4 | 0.389 |
| If I had to borrow R50 in an emergency, I could borrow it <br> from a neighbor | 3.1 | 1.036 | 1 | 4 | 0.22 |
| People in this neighborhood generally get along with each <br> other | 3.14 | 0.822 | 1 | 4 | 0.241 |
| People in this neighborhood can be trusted | 2.71 | 0.983 | 1 | 4 | 0.209 |
| If I were sick I could count on my neighbors to shop for <br> groceries for me | 3.14 | 0.787 | 1 | 4 | 0.236 |
| People in this neighborhood share the same beliefs, culture <br> and values | 2.94 | 1.143 | -5 | 4 | -0.202 |

Table B3. Components extracted from principal component analysis and proportion of variation in factors explained by components ( $n=155$ households)

|  | Physical capital index |  |  | Social capital index |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Component | Eigen <br> value | Proportion | Cumulative <br> \% | Eigen <br> value | Proportion | Cumulative <br> \% |
| 1 | 3.215 | 17.863 | 17.863 | 2.821 | 14.104 | 14.104 |
| 2 | 2.078 | 11.547 | 29.411 | 2.318 | 11.588 | 25.692 |
| 3 | 1.677 | 9.314 | 38.725 | 2.008 | 10.04 | 35.732 |
| 4 | 1.573 | 8.738 | 47.463 | 1.583 | 7.917 | 43.648 |
| 5 | 1.33 | 7.39 | 54.852 | 1.42 | 7.098 | 50.746 |
| 6 | 1.242 | 6.9 | 61.753 | 1.143 | 5.714 | 56.459 |

## Appendix C. Risk aversion questions

Suppose that your family income (cash and in-kind) that you get from your livelihood activities is guaranteed for every year for life. An extension agent comes and gives you an opportunity to adopt a new technology that would change your income. There is a 50-50 chance that this new technology will double your family income and a 50-50 chance that it will cut your family income by a third. Would you adopt this new technology, Yes or No?
If the answer is '"no,'" please answer the following question (Gamble 2):
Suppose the chances were 50-50 that the new technology would double your family income and 5050 chances that it would cut it by 20 percent. Would you adopt this new technology, Yes or No? If the answer to the first question is '"yes,' please answer the following question (Gamble 3): Suppose the chances were 50-50 that the new technology would double your family income and 5050 that it would cut it by half. Would you adopt this new technology, Yes or No?

These three questions allow categorization of respondents into four groups.
Respondents who answered 'no'" to both questions: very strongly risk averse
Respondents who answered 'yes' to both questions: weakly risk averse
Respondents who answered 'no" to the first question but 'yes'" to the second: strongly risk averse

Those who answered "yes" to the first question and "no" to the second: moderately risk averse

Appendix D. Random parameters model coefficients ( $n=324$ responses)

|  | Garden | Livestock | Natural resource harvesting | Casual Labor | Small <br> Business | Formal Employm ent |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Moderate increase in dry-spells | $\begin{aligned} & \hline-1.032^{* * *} \\ & (0.315) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.958 * * * \\ & (0.311) \\ & \hline \end{aligned}$ | $\begin{aligned} & 1.874 * * * \\ & (0.495) \end{aligned}$ | $\begin{aligned} & \hline 0.611^{* *} \\ & (0.272) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.602 * * \\ & (0.268) \end{aligned}$ | $\begin{aligned} & \hline-0.348 \\ & (0.353) \\ & \hline \end{aligned}$ |
| Extreme increase in dry-spells | $\begin{aligned} & -0.974 * * * \\ & (0.320) \\ & \hline \end{aligned}$ | $\begin{aligned} & -0.597^{* *} \\ & (0.306) \\ & \hline \end{aligned}$ | $\begin{aligned} & 2.082 * * * \\ & (0.507) \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.642^{* *} \\ & (0.280) \end{aligned}$ | $\begin{aligned} & 0.837 * * * \\ & (0.272) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.213 \\ & (0.325) \\ & \hline \end{aligned}$ |
| Mild increase in wet-spells | $\begin{aligned} & \hline 0.874^{* *} \\ & (0.361) \end{aligned}$ | $\begin{aligned} & 1.056 * * * \\ & (0.319) \\ & \hline \end{aligned}$ | $\begin{aligned} & 1.171^{* *} \\ & (0.469) \end{aligned}$ | $\begin{aligned} & \hline 0.040 \\ & (0.269) \end{aligned}$ | $\begin{aligned} & \hline 0.321 \\ & (0.265) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.110 \\ & (0.304) \\ & \hline \end{aligned}$ |
| Moderate increase in wet-spells | $\begin{aligned} & \hline 0.056 \\ & (0.291) \\ & \hline \end{aligned}$ | $\begin{aligned} & 1.537 * * * \\ & (0.351) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.301 \\ & (0.459) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.031 \\ & (0.281) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.033 \\ & (0.272) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.085 \\ & (0.328) \\ & \hline \end{aligned}$ |
| Extreme increase in wet- spells | $\begin{aligned} & -1.841^{* * *} \\ & (0.381) \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.475 \\ & (0.314) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.026 \\ & (0.473) \\ & \hline \end{aligned}$ | $\begin{aligned} & -0.803^{* * *} \\ & (0.301) \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.229 \\ & (0.287) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.025 \\ & (0.295) \\ & \hline \end{aligned}$ |
| High temperature | $\begin{aligned} & \hline 0.173 \\ & (0.263) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.270 \\ & (0.253) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.566 \\ & (0.382) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.127 \\ & (0.223) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.023 \\ & (0.220) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.051 \\ & (0.279) \\ & \hline \end{aligned}$ |
| Education | $\begin{aligned} & \hline-0.004 \\ & (0.030) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.030 \\ & (0.027) \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.082^{* *} \\ & (0.037) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.030 \\ & (0.023) \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.108 * * * \\ & (0.039) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.049 \\ & (0.026) \\ & \hline \end{aligned}$ |
| Skills | $\begin{aligned} & \hline-0.150 \\ & (0.109) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.066 \\ & (0.112) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.159 \\ & (0.153) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.023 \\ & (0.100) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.379 * * \\ & (0.166) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.000 \\ & (0.112) \\ & \hline \end{aligned}$ |
| Social capital | $\begin{aligned} & \hline 0.182 \\ & (0.119) \end{aligned}$ | $\begin{aligned} & \hline 0.085 \\ & (0.115) \end{aligned}$ | $\begin{aligned} & \hline 0.444^{* *} \\ & (0.180) \end{aligned}$ | $\begin{aligned} & \hline-0.023 \\ & (0.100) \end{aligned}$ | $\begin{aligned} & \hline 0.473 * * \\ & (0.190) \end{aligned}$ | $\begin{aligned} & \hline 0.015 \\ & (0.097) \end{aligned}$ |
| Physical capital | $\begin{aligned} & \hline 0.373 \\ & (0.323) \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.455 \\ & 0.290 \end{aligned}$ | $\begin{aligned} & 0.096 \\ & 0.363 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.231 \\ & 0.226 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.439 \\ & (0.380) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.321 \\ & (0.251) \\ & \hline \end{aligned}$ |
| Natural capital | $\begin{aligned} & \hline-0.048 \\ & (0.102) \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.165^{* *} \\ & 0.086 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.259^{* *} \\ & 0.124 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.121 * \\ & 0.071 \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.376^{* * *} \\ & (0.134) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.083 \\ & (0.090) \\ & \hline \end{aligned}$ |
| Health status ( $\mathbf{X}_{3}$ ) Long-term ill | $\begin{aligned} & \hline-0.079 \\ & (0.255) \\ & \hline \end{aligned}$ | $\begin{aligned} & -0.620^{* * *} \\ & (0.214) \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.717 * * \\ & (0.298) \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.440 * * \\ & (0.179) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.101 \\ & (0.162) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.251 \\ & (0.197) \\ & \hline \end{aligned}$ |
| Risk aversion ( $\mathbf{X}_{4}$ ) Risk | $\begin{aligned} & \hline 0.102 \\ & (0.084) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.027 \\ & (0.067) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.388^{* * *} \\ & (0.105) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.023 \\ & (0.059) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.003 \\ & (0.054) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.016 \\ & (0.071) \\ & \hline \end{aligned}$ |
| Age of the household head | $\begin{aligned} & \hline-0.007 \\ & (0.010) \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.009 \\ & 0.007 \end{aligned}$ | $\begin{aligned} & \hline-0.005 \\ & 0.011 \end{aligned}$ | $\begin{aligned} & \hline-0.002 \\ & 0.006 \end{aligned}$ | $\begin{aligned} & \hline-0.010 \\ & 0.007 \end{aligned}$ | $\begin{aligned} & \hline 0.009 \\ & (0.008) \\ & \hline \end{aligned}$ |
| Gender of the household head | $\begin{aligned} & -0.714^{* * *} \\ & (0.275) \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.188 \\ & (0.213) \end{aligned}$ | $\begin{aligned} & 0.740^{* *} \\ & (0.313) \end{aligned}$ | $\begin{aligned} & \hline 0.399^{* *} \\ & (0.185) \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.329 \\ & (0.175) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.138 \\ & (0.224) \\ & \hline \end{aligned}$ |
| Gender of the survey respondent | $\begin{aligned} & \hline 0.097 \\ & (0.359) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.436 \\ & (0.307) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.306 \\ & (0.411) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.302 \\ & (0.264) \\ & \hline \end{aligned}$ | $\begin{aligned} & 1.490 * * * \\ & (0.475) \end{aligned}$ | $\begin{aligned} & \hline-0.301 \\ & (0.319) \\ & \hline \end{aligned}$ |
| Number of male adults | $\begin{aligned} & 0.162 \\ & (0.149) \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.090 \\ & (0.120) \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.112 \\ & (0.173) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.033 \\ & (0.109) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.034 \\ & (0.098) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.207 \\ & (0.115) \\ & \hline \end{aligned}$ |
| Number of female adults | $\begin{aligned} & \hline-0.187 \\ & (0.149) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.008 \\ & (0.135) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.469^{* *} \\ & (0.201) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.046 \\ & (0.112) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.150 \\ & (0.115) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.092 \\ & (0.118) \\ & \hline \end{aligned}$ |
| Household size | $\begin{aligned} & \hline 0.031 \\ & (0.069) \end{aligned}$ | $\begin{aligned} & \hline 0.022 \\ & (0.058) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.196^{* *} \\ & (0.085) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.046 \\ & (0.053) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.078 \\ & (0.048) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.019 \\ & (0.059) \\ & \hline \end{aligned}$ |
| Experience with an activity ( $\mathbf{X}_{6}$ ) Currently adopted | $\begin{aligned} & \hline 0.617^{* *} \\ & (0.292) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.265 \\ & (0.288) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.779^{* *} \\ & (0.405) \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.962 * * * \\ & (0.237) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.391 \\ & (0.275) \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.565 \\ & (0.451) \\ & \hline \end{aligned}$ |
| Village Fixed Effects ( $\mathbf{X}_{7}$ ) |  |  |  |  |  |  |
| Area 2 | $\begin{aligned} & \hline 0.055 \\ & (0.359) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.525^{*} \\ & (0.297) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.482 \\ & (0.429) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.086 \\ & (0.258) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.201 \\ & (0.243) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.050 \\ & (0.306) \\ & \hline \end{aligned}$ |
| Area 3 | $\begin{aligned} & \hline 0.023 \\ & (0.258) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.111 \\ & (0.224) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.483 \\ & (0.314) \end{aligned}$ | $\begin{aligned} & \hline-0.179 \\ & (0.196) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.271 \\ & (0.183) \\ & \hline \end{aligned}$ | $\begin{aligned} & -0.541^{* *} \\ & (0.217) \\ & \hline \end{aligned}$ |
| Intercept | $\begin{aligned} & \hline 0.891 \\ & (0.958) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.289 \\ & (0.743) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-3.361^{* * *} \\ & 1.134 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.861 \\ & (0.620) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.374 \\ & (0.618) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline-0.922 \\ & (0.657) \\ & \hline \end{aligned}$ |
| Standard deviations of the intercept | $\begin{aligned} & \hline 0.002 \\ & (0.091) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.934 * * * \\ & (0.113) \end{aligned}$ | $\begin{aligned} & 3.250^{* * *} \\ & (0.393) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.214^{* * *} \\ & (0.077) \end{aligned}$ | $\begin{aligned} & \hline 0.022 \\ & (0.073) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.266^{* * *} \\ & (0.083) \\ & \hline \end{aligned}$ |
| Log likelihood function | -161.703 | -183.601 | -206.162 | -189.219 | -199.265 | -169.523 |
| AIC | 1.1463 | 1.274 | 1.412 | 1.308 | 1.369 | 1.194 |
| BIC | 1.426 | 1.552 | 1.691 | 1.586 | 1.648 | 1.474 |

Notes: *** significant at the $1 \%$ level, ${ }^{* *}$ significant at the $5 \%$ level, $*$ significant at the $10 \%$ level.

