**Appendix**

**Table A-1. Double hurdle model estimates of factors influencing milk sales volume.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable name in the dataset | | Marginal effect | | |
| **Household characteristics** | | | | | |
| 1 | Gender | 134.616 | | |
| 2 | Age | 8.404\*\*\* | | |
| 3 | Uzbek | -193.499 | | |
| 4 | Russian | 356.305 | | |
| 5 | Other nation | 112.952 | | |
| 6 | Marital status | -10.980 | | |
| 7 | Secondary education | 114.557 | | |
| 8 | Risk taking level of household head | 25.075\* | | |
| 9 | Size of the household | -3.334 | | |
| 10 | Ratio of male labor | 499.372\*\* | | |
| 11 | Dependency ratio | 4.381 | | |
| 12 | Ratio of members with higher education | -64.360 | | |
| 13 | Ratio of off-farm income | -160.700 | | |
| **Private assets** | | | | | |
| 14 | Total assets value | 0.082\*\*\* | | |
| 15 | Bicycle ownership | 68.793 | | |
| 16 | Motorcycle ownership | -131.935 | | |
| 17 | Car ownership | -45.374 | | |
| 18 | Tractor ownership | 168.564 | | |
| 19 | Cell phone ownership | 136.325 | | |
| 20 | Land size | -7.444 | | |
| **Public assets** | | | | | |
| 21 | Distance to agro market | 7.734\*\*\* | | |
| 22 | Djalal Abad | -760.163\*\*\* | | |
| 23 | Naryn | -861.536\*\*\* | | |
| 24 | Batken | -162.577 | | |
| 25 | Osh | -893.932\*\*\* | | |
| 26 | Talas | 759.783\*\*\* | | |
| 27 | Chui | 1437.098\*\*\* | | |
| 28 | Urban | -379.270\*\*\* | | |
| **Marketing-related variables** | | | |
| 29 | Milk price | -642.101\*\*\* |
| 30 | Internet access | 38.353 |
| 31 | Environmental affect | -71.114 |
| 32 | Family shock | -116.230 |

\*, \*\*, \*\*\* indicates the corresponding coefficients are significant at the 10%, 5%, and 1%, respectively.

**Table A-2. Household characteristics** **difference between participants and nonparticipants.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Non-market participant | Market participant | Overall | P-value |
| Age of household head | 55.437 | 54.004 | 54.729 | 0.017\*\* |
| Risk taking level of household head (0~10) | 4.707 | 4.631 | 4.669 | 0.570 |
| Size of the household | 6.299 | 5.842 | 6.073 | 0.000\*\*\* |
| Share of male labor (0~1) | 0.509 | 0.491 | 0.500 | 0.013\*\* |
| Dependency ratio (0~1) | 0.335 | 0.320 | 0.328 | 0.120 |
| Share of members with higher education (0~1) | 0.074 | 0.065 | 0.069 | 0.160 |
| Ratio of off-farm income (0~1) | 0.327 | 0.300 | 0.314 | 0.090\* |

\*, \*\*, \*\*\* indicates the corresponding coefficients are significant at the 10%, 5%, and 1% levels, respectively.

**Table A-3. Gender of the household heads**

|  |  |  |
| --- | --- | --- |
| Gender | Non-market participant | Market participant |
| Female | 181 | 180 |
| Male | 782 | 762 |
| Total | 963 | 942 |
| Percentage | 50.55% | 49.45% |

**Table A-4:** **Ethnicity.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Ethnicity | | Non-market participant | Market participant | Total |
| Kyrgyz | Frequency | 817 | 782 | 1,599 |
| Percentage | 51.09% | 48.91% | 100.00% |
| Uzbek | Frequency | 112 | 20 | 132 |
| Percentage | 84.85% | 15.15% | 100.00% |
| Russian | Frequency | 3 | 22 | 25 |
| Percentage | 12.00% | 88.00% | 100.00% |
| Other nation | Frequency | 31 | 118 | 149 |
| Percentage | 20.81% | 79.19% | 100.00% |
| Total | | 963 | 942 | 1,905 |
| Percentage | | 50.55% | 49.45% | 100.00% |

**Table A-5. Marital status of household head**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marital status of household head | | Non-market participant | Market participant | Total |
| Single | Frequency | 199 | 205 | 404 |
| Percentage | 49.26% | 50.74% | 100.00% |
| Married | Frequency | 764 | 737 | 1501 |
| Percentage | 50.90% | 49.10% | 100.00% |
| Total | | 963 | 942 | 1905 |
| Percentage | | 50.55% | 49.45% | 100.00% |

**Table A-6. Secondary education status of the head of household**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Secondary education status of the head of household | | Non-market participant | Market participant | Total |
| With education | Frequency | 227 | 200 | 427 |
| Percentage | 53.16% | 46.84% | 100.00% |
| No education | Frequency | 736 | 742 | 1478 |
| Percentage | 49.80% | 50.20% | 100.00% |
| Total | | 963 | 942 | 1905 |
| Percentage | | 50.55% | 49.45% | 100.00% |

**Table A-7. Total value of assets difference between participants and nonparticipants.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of Variables | Mean | | | P-value |
| Non-market participant | Market participant | Overall |  |
| Total assets in (KGS, 1000) | 1587.749 | 1507.427 | 1548.030 | 0.299 |
| Land size (ha) | 1.722 | 2.049 | 1.884 | 0.235 |

\*, \*\*, \*\*\* indicates the corresponding coefficients are significant at the 10%, 5%, and 1% levels, respectively.

**Table A-8. Bicycle ownership**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Bicycle ownership | | Non-market participant | Market participant | Total |
| No | Frequency | 823 | 801 | 1,624 |
| Percentage | 50.68% | 49.32% | 100.00% |
| Yes | Frequency | 140 | 141 | 281 |
| Percentage | 49.82% | 50.18% | 100.00% |
| Total | | 963 | 942 | 1,905 |
| Percentage | | 50.55% | 49.55% | 100.00% |

**Table A-9. Motorcycle ownership**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Motorcycle ownership | | Non-market participant | Market participant | Total |
| No | Frequency | 958 | 933 | 1,891 |
| Percentage | 50.66% | 49.34% | 100.00% |
| Yes | Frequency | 5 | 9 | 14 |
| Percentage | 35.71% | 64.29% | 100.00% |
| Total | | 963 | 942 | 1,905 |
| Percentage | | 50.55% | 49.55% | 100.00% |

**Table A-10. Car ownership**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Car ownership | | Non-market participant | Market participant | Total |
| No | Frequency | 519 | 544 | 1,063 |
| Percentage | 48.82% | 51.18% | 100.00% |
| Yes | Frequency | 444 | 398 | 842 |
| Percentage | 52.73% | 47.27% | 100.00% |
| Total | | 963 | 942 | 1,905 |
| Percentage | | 50.55% | 49.55% | 100.00% |

**Table A-11.** **Tractor ownership**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Tractor ownership | | Non-market participant | Market participant | Total |
| No | Frequency | 878 | 835 | 1,713 |
| Percentage | 51.26% | 48.47% | 100.00% |
| Yes | Frequency | 85 | 107 | 192 |
| Percentage | 44.27% | 55.73% | 100.00% |
| Total | | 963 | 942 | 1,905 |
| Percentage | | 50.55% | 49.55% | 100.00% |

**Table A-12. Mobile phone ownership**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Cell phone ownership | | Non-market participant | Market participant | Total |
| No | Frequency | 58 | 43 | 101 |
| Percentage | 57.43% | 42.57% | 100.00% |
| Yes | Frequency | 905 | 899 | 1,804 |
| Percentage | 50.17% | 49.83% | 100.00% |
| Total | | 963 | 942 | 1,905 |
| Percentage | | 50.55% | 49.55% | 100.00% |

**Table A-13. Public assets**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of Variables | Mean | | | P-value |
| Non-market participant | Market participant | Overall |  |
| Distance to agro market | 11.033 | 10.663 | 10.850 | 0.535 |

\*, \*\*, \*\*\* indicates the corresponding coefficients are significant at the 10%, 5%, and 1% levels, respectively.

**Table A-14. Region difference between participants and nonparticipants.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Region | | Non-market participant | Market participant | Total |
| Issyk kul | Frequency | 162 | 225 | 387 |
| Percentage | 41.86% | 58.14% | 100.00% |
|  |  |  |  |  |
| Djalal Abad | Frequency | 221 | 117 | 338 |
| Percentage | 65.38% | 34.62% | 100.00% |
|  |  |  |  |  |
| Naryn | Frequency | 74 | 5 | 79 |
| Percentage | 93.67% | 6.33% | 100.00% |
|  |  |  |  |  |
| Batken | Frequency | 177 | 78 | 225 |
| Percentage | 69.41% | 30.59% | 100.00% |
|  |  |  |  |  |
| Osh | Frequency | 291 | 101 | 392 |
| Percentage | 74.23% | 25.77% | 100.00% |
|  |  |  |  |  |
| Talas | Frequency | 11 | 192 | 203 |
| Percentage | 5.42% | 94.58% | 100.00% |
|  |  |  |  |  |
| Chui | Frequency | 27 | 224 | 251 |
| Percentage | 10.76% | 89.24% | 100.00% |
|  | |  |  |  |
| Total | | 963 | 942 | 1,905 |
| Percentage | | 50.55% | 49.45% | 100.00% |

**Table A-15. Urban location**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Urban location | | Non-market participant | Market participant | Total |
| No | Frequency | 928 | 877 | 1,805 |
| Percentage | 51.41% | 48.59% | 100.00% |
| Yes | Frequency | 35 | 65 | 100 |
| Percentage | 35.00% | 65.00% | 100.00% |
| Total | | 963 | 942 | 1,905 |
| Percentage | | 50.55% | 49.55% | 100.00% |

**Table A-16. Milk price difference between participants and nonparticipants.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of Variables | Mean | | | P-value |
| Non-market participant | Market participant | Overall |
| Milk price (Per litres) | 21.914 | 17.697 | 19.829 | 0.000\*\*\* |

\*, \*\*, \*\*\* indicates the corresponding coefficients are significant at the 10%, 5%, and 1% levels, respectively.

**Table A-17. Internet access**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Internet access | | Non-market participant | Market participant | Total |
| No | Frequency | 933 | 891 | 1,824 |
| Percentage | 51.15% | 48.85% | 100.00% |
| Yes | Frequency | 30 | 51 | 81 |
| Percentage | 37.04% | 62.96% | 100.00% |
| Total | | 963 | 942 | 1,905 |
| Percentage | | 50.55% | 49.55% | 100.00% |

**Table A-18. Environmental affect**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Environmental affect | | Non-market participant | Market participant | Total |
| No | Frequency | 375 | 294 | 669 |
| Percentage | 56.05% | 43.95% | 100.00% |
| Yes | Frequency | 588 | 648 | 1,236 |
| Percentage | 47.57% | 52.43% | 100.00% |
| Total | | 963 | 942 | 1,905 |
| Percentage | | 50.55% | 49.55% | 100.00% |

**Table A-19. Family shock.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Family shock | | Non-market participant | Market participant | Total |
| No | Frequency | 766 | 765 | 1,531 |
| Percentage | 50.03% | 49.97% | 100.00% |
| Yes | Frequency | 197 | 177 | 347 |
| Percentage | 52.67% | 47.33% | 100.00% |
| Total | | 963 | 942 | 1,905 |
| Percentage | | 50.55% | 49.55% | 100.00% |