**Online Supplementary Material**

Table S1: Percentage share of food groups consumed among farm households and individuals

|  |  |  |  |
| --- | --- | --- | --- |
| Food group | Households | Children | Mothers |
| Cereals | 99 | 90 | 98 |
| Vegetables | 82 | 73 | 80 |
| Miscellaneous† | 62 | 58 | 61 |
| Fruits | 51 | 51 | 51 |
| Oils and fats | 31 | 29 | 31 |
| Sugar and honey | 30 | 28 | 30 |
| Legumes and nuts | 22 | 21 | 21 |
| Fish | 20 | 19 | 20 |
| Tubers and roots | 7 | 6 | 7 |
| Meat and poultry | 6 | 7 | 6 |
| Eggs | 4 | 3 | 4 |
| Milk and milk products | 3 | 3 | 3 |

† Miscellaneous includes spices, condiments and beverages.

Table S2: Importance of different marketing channels for crop sales†

|  |  |  |
| --- | --- | --- |
| Marketing channel | Total number of sales during last season | Share of sales in percent |
| Farm gate sales | 233 | 31 |
| Village market sales | 200 | 26 |
| District market sales | 323 | 43 |

† 84 percent (341 of 408) of the sample farms sold crops during the last season prior to the survey.

Table S3: Crop species count, market access and dietary diversity

|  |  |  |
| --- | --- | --- |
|  | Market access models | Market participation models |
|  | Household DDS | Child DDS | Mother DDS | Household DDS | Child DDS | Mother DDS |
| Crop species count | 0.058\*(0.030) | 0.095\*\*\*(0.034) | 0.063\*\*(0.030) | 0.035(0.027) | 0.075\*\*(0.034) | 0.044(0.028) |
| Village market | 0.326\* | 0.364\* | 0.207 |  |  |  |
|  | (0.170) | (0.210) | (0.169) |  |  |  |
| Time to district market | -0.202\*\*(0.093) | -0.193\*\*(0.095) | -0.248\*\*\*(0.079) |  |  |  |
| Share of maize sold |  |  |  | 0.015\*\*(0.006) | 0.016\*\*\*(0.006) | 0.014\*\*(0.006) |
| Share of other food crops sold |  |  |  | 0.005\*\*(0.002) | 0.003(0.003) | 0.006\*\*(0.002) |
| Area share of non-food cash crops |  |  |  | -0.002(0.004) | -0.006(0.006) | -0.002(0.004) |
| Livestock | 0.063 | 0.122\*\* | 0.087\* | 0.034 | 0.100\* | 0.058 |
|  | (0.046) | (0.053) | (0.045) | (0.050) | (0.057) | (0.051) |
| Off-farm income | 0.001\*\*\* | 0.001\*\*\* | 0.002\*\*\* | 0.001\*\*\* | 0.001\*\*\* | 0.002\*\*\* |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Farm size | 0.040 | -0.006 | 0.031 | -0.001 | -0.027 | -0.009 |
|  | (0.062) | (0.069) | (0.061) | (0.063) | (0.068) | (0.063) |
| Household size | -0.134\*\*\* | -0.196\*\*\* | -0.165\*\*\* | -0.109\*\* | -0.172\*\*\* | -0.142\*\*\* |
|  | (0.044) | (0.067) | (0.049) | (0.046) | (0.064) | (0.050) |
| Age of head | 0.012 | -0.001 | 0.008 | 0.019\*\* | 0.005 | 0.015\* |
|  | (0.008) | (0.011) | (0.009) | (0.009) | (0.011) | (0.009) |
| Male head | 0.036 | 0.080 | -0.001 | 0.052 | 0.122 | 0.043 |
|  | (0.254) | (0.300) | (0.267) | (0.253) | (0.294) | (0.264) |
| Education of head | 0.054\*\*(0.026) | 0.017(0.029) | 0.044\*(0.023) | 0.056\*\*(0.026) | 0.019(0.030) | 0.046\*(0.024) |
|  |  |  |  |  |  |  |
| Observations | 408 | 519 | 408 | 408 | 519 | 408 |
| Chi2 | 73.12\*\*\* | 51.23\*\*\* | 76.94\*\*\* | 58.74\*\*\* | 47.11\*\*\* | 67.43\*\*\* |
| α estimates of equi-dispersion test | -0.1016\*\*\*(0.0095) | -0.0331\*\*(0.0153) | -0.0931\*\*\*(0.0107) | -0.1017\*\*\*(0.0096) | -0.0339\*\*(0.0155) | -0.0929\*\*\*(0.0109) |

DDS, dietary diversity score.

Marginal effects are shown with village cluster-corrected SEs in parentheses. Based on equi-dispersion test results, all models were estimated with a generalized Poisson estimator.

\*\*\*P<0.01, \*\*P<0.05, \*P<0.1

Table S4: Crop species count, market access, agricultural technology and dietary diversity

|  |  |  |
| --- | --- | --- |
|  | Market access models | Market participation models |
|  | Household DDS | Child DDS | Mother DDS | Household DDS | Child DDS | Mother DDS |
| Crop species count | 0.047(0.029) | 0.083\*\*(0.034) | 0.051\*(0.030) | 0.031(0.028) | 0.071\*\*(0.034) | 0.040(0.028) |
| Village market | 0.279\* | 0.295 | 0.152 |  |  |  |
|  | (0.166) | (0.215) | (0.167) |  |  |  |
| Time to district market | -0.216\*\*(0.092) | -0.208\*\*(0.094) | -0.264\*\*\*(0.078) |  |  |  |
| Share of maize sold |  |  |  | 0.013\*\*(0.006) | 0.015\*\*(0.006) | 0.012\*\*(0.006) |
| Share of other food crops sold |  |  |  | 0.005\*\*(0.002) | 0.003(0.003) | 0.006\*\*(0.002) |
| Area share of non-food cash crops |  |  |  | -0.003(0.004) | -0.005(0.006) | -0.002(0.004) |
| Improved maize varieties | 0.254(0.175) | 0.245(0.225) | 0.263(0.200) | 0.153(0.173) | 0.141(0.231) | 0.173(0.194) |
| Improved legume varieties | 0.098(0.175) | 0.071(0.214) | 0.102(0.175) | -0.002(0.172) | -0.024(0.215) | -0.008(0.176) |
| Chemical fertilizer | 0.634\*\*(0.316) | 0.340(0.399) | 0.706\*\*(0.344) | 0.656\*\*(0.300) | 0.380(0.399) | 0.688\*\*(0.339) |
| Maize-legume intercropping | 0.065(0.153) | 0.290(0.205) | 0.073(0.165) | 0.087(0.149) | 0.299(0.208) | 0.087(0.162) |
| Livestock | 0.067 | 0.131\*\* | 0.091\*\* | 0.035 | 0.104\* | 0.058 |
|  | (0.046) | (0.054) | (0.045) | (0.050) | (0.056) | (0.051) |
| Off-farm income | 0.001\*\*\* | 0.001\*\*\* | 0.001\*\*\* | 0.001\*\*\* | 0.001\*\*\* | 0.001\*\*\* |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Farm size | 0.028 | -0.009 | 0.017 | -0.006 | -0.027 | -0.015 |
|  | (0.064) | (0.071) | (0.063) | (0.064) | (0.070) | (0.064) |
| Household size | -0.130\*\*\* | -0.199\*\*\* | -0.159\*\*\* | -0.106\*\* | -0.175\*\*\* | -0.138\*\*\* |
|  | (0.043) | (0.066) | (0.047) | (0.045) | (0.063) | (0.049) |
| Age of head | 0.010 | -0.001 | 0.006 | 0.017\*\* | 0.005 | 0.013 |
|  | (0.008) | (0.011) | (0.009) | (0.009) | (0.011) | (0.009) |
| Male head | 0.044 | 0.086 | 0.007 | 0.057 | 0.121 | 0.050 |
|  | (0.255) | (0.306) | (0.267) | (0.251) | (0.294) | (0.259) |
| Education of head | 0.048\*(0.026) | 0.013(0.029) | 0.038(0.023) | 0.050\*(0.026) | 0.015(0.030) | 0.040\*(0.024) |
|  |  |  |  |  |  |  |
| Observations | 408 | 519 | 408 | 408 | 519 | 408 |
| Chi2 | 85.77\*\*\* | 56.89\*\*\* | 86.77\*\*\* | 68.67\*\*\* | 56.79\*\*\* | 76.36\*\*\* |
| α estimates of equi-dispersion test | -0.1038\*\*\*(0.0094) | -0.0361\*\*(0.0153) | -0.0957\*\*\*(0.0105) | -0.1035\*\*\*(0.0095) | -0.0364\*\*(0.0154) | -0.0951\*\*\*(0.0106) |

DDS, dietary diversity score.

Marginal effects are shown with village cluster-corrected SEs in parentheses. Based on equi-dispersion test results, all models were estimated with a generalized Poisson estimator.

\*\*\*P<0.01, \*\*P<0.05, \*P<0.1

Table S5: Market access, agricultural technology and dietary diversity

|  |  |  |
| --- | --- | --- |
|  | Market access models | Market participation models |
|  | Household DDS | Child DDS | Mother DDS | Household DDS | Child DDS | Mother DDS |
| Village market | 0.197 | 0.149 | 0.057 |  |  |  |
|  | (0.163) | (0.210) | (0.164) |  |  |  |
| Time to district market | -0.206\*\*(0.091) | -0.198\*\*(0.098) | -0.252\*\*\*(0.078) |  |  |  |
| Share of maize sold |  |  |  | 0.013\*\*(0.006) | 0.016\*\*\*(0.006) | 0.013\*\*(0.006) |
| Share of other food crops sold |  |  |  | 0.006\*\*(0.002) | 0.004(0.003) | 0.006\*\*\*(0.002) |
| Area share of non-food cash crops |  |  |  | -0.002(0.004) | -0.004(0.007) | -0.001(0.004) |
| Improved maize varieties | 0.237(0.176) | 0.183(0.232) | 0.236(0.202) | 0.151(0.173) | 0.106(0.239) | 0.165(0.196) |
| Improved legume varieties | 0.151(0.178) | 0.162(0.227) | 0.160(0.177) | 0.027(0.174) | 0.044(0.225) | 0.030(0.176) |
| Chemical fertilizer | 0.682\*\*(0.317) | 0.436(0.401) | 0.769\*\*(0.346) | 0.670\*\*(0.303) | 0.421(0.406) | 0.713\*\*(0.342) |
| Maize-legume intercropping | 0.084(0.157) | 0.306(0.218) | 0.095(0.169) | 0.095(0.151) | 0.298(0.219) | 0.098(0.165) |
| Off-farm income | 0.001\*\*\* | 0.001\*\* | 0.001\*\*\* | 0.001\*\*\* | 0.001\*\* | 0.001\*\*\* |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Farm size | 0.055 | 0.043 | 0.050 | 0.012 | 0.016 | 0.011 |
|  | (0.063) | (0.073) | (0.063) | (0.063) | (0.074) | (0.065) |
| Household size | -0.114\*\*\* | -0.175\*\* | -0.139\*\*\* | -0.097\*\* | -0.156\*\* | -0.124\*\* |
|  | (0.044) | (0.069) | (0.048) | (0.045) | (0.065) | (0.050) |
| Age of head | 0.009 | -0.002 | 0.005 | 0.017\* | 0.004 | 0.012 |
|  | (0.008) | (0.012) | (0.009) | (0.009) | (0.012) | (0.009) |
| Male head | 0.065 | 0.120 | 0.033 | 0.073 | 0.163 | 0.075 |
|  | (0.262) | (0.319) | (0.274) | (0.254) | (0.302) | (0.263) |
| Education of head | 0.053\*\*(0.026) | 0.024(0.030) | 0.044\*(0.024) | 0.053\*\*(0.026) | 0.023(0.030) | 0.044\*(0.024) |
|  |  |  |  |  |  |  |
| Observations | 408 | 519 | 408 | 408 | 519 | 408 |
| Chi2 | 71.49\*\*\* | 40.31\*\*\* | 73.57\*\*\* | 66.65\*\*\* | 40.65\*\*\* | 71.29\*\*\* |
| α estimates of equi-dispersion test | -0.1024\*\*\*(0.0095) | -0.0307\*(0.0158) | -0.0937\*\*\*(0.0107) | -0.1030\*\*\*(0.0095) | -0.0332\*\*(0.0158) | -0.0942\*\*\*(0.0108) |

DDS, dietary diversity score.

Marginal effects are shown with village cluster-corrected SEs in parentheses. Based on equi-dispersion test results, all models were estimated with a generalized Poisson estimator.

\*\*\*P<0.01, \*\*P<0.05, \*P<0.1