**Appendix**

**Robustness Checks One:** Replacing informal care intensities (categorical variables) with log (total number of informal care hours received per month+1)

|  |  |  |  |
| --- | --- | --- | --- |
| **VARIABLES** | **Average marginal effects of unmet needs (standard errors)** | | |
| **Total** | **ADL independent a** | **ADL dependent b** |
| Log (hour+1) c | -0.023 (0.005)\*\*\* | -0.022 (0.005)\*\*\* | -0.021 (0.012) |
| Male | -0.008 (0.020) | 0.006 (0.020) | -0.036 (0.038) |
|  |  |  |  |
| Age group  45-60 years old  60-79 years old  80 and above | Ref  0.068 (0.021)\*\*\*  0.027 (0.032) | Ref  0.063 (0.020)\*\*\*  -0.003 (0.026) | Ref  0.057 (0.046)  0.044 (0.067) |
| HH per capita income (per month) d  <1001  1001-4500  >4500 | Ref  -0.085 (0.067)  0.009 (0.056) | Ref  -0.082 (0.073)  0.034 (0.046) | Ref  -0.034 (0.129)  -0.122 (0.155) |
|  |  |  |  |
| Urban hukou | -0.069 (0.028)\*\*\* | -0.081 (0.031)\*\* | -0.080 (0.050) |
|  |  |  |  |
| Living alone | 0.040 (0.035) | -0.010 (0.033) | 0.135 (0.071)\* |
| Education attainment  No education  Elementary school  Middle school  High school and above | Ref  0.023 (0.021)  -0.008 (0.036)  0.094 (0.050)\* | Ref  0.006 (0.021)  0.009 (0.040)  0.041 (0.056) | Ref  0.017 (0.042)  -0.047 (0.064)  0.158 (0.092)\* |
|  |  |  |  |
| #ADL/IADL difficulties  #ADL  #IADL | 0.033 (0.007)\*\*\*  0.033 (0.007)\*\*\* | -  0.076 (0.008)\*\*\* | -0.005 (0.014)  -0.008 (0.012) |
|  |  |  |  |
| Marital status  Married/cohabitated  Not married | Ref  0.037 (0.027) | Ref  0.071 (0.028)\*\* | Ref  -0.033 (0.051) |
|  |  |  |  |
| Cognitive measurement | -0.003 (0.002) | -0.002 (0.002) | -0.009 (0.004)\* |
| GDP per capita |  |  |  |
| Low GDP (<35,001)  Lower middle GDP (35001-45000)  Upper middle GDP (45001-80000)  High GDP (>80001) | Ref  -0.050 (0.025)\*\*  -0.039 (0.035)  -0.046 (0.027)\* | Ref  -0.003 (0.025)  -0.001 (0.036)  -0.014 (0.028) | Ref  -0045 (0.049)  -0.082 (0.066)  -0.078 (0.057) |
|  |  |  |  |
| Observations | 2,263 | 1,444 | 819 |

Note: Note: a ADL independent denotes that the older people have difficulties with IADL only. b ADL dependent denotes that the older people have difficulties in either ADL only or both ADL and IADL. c log(hour+1) is the logarithmic form of total number of informal care hours received per month plus one d Household per capita income is adjusted using equivalence scale

Standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Appendix: Robustness Checks Two**:Replacing control variable ‘Cognitive measurement’ with ‘# words recalled’ (one component under ‘Cognitive measurement’)

|  |  |  |  |
| --- | --- | --- | --- |
| **VARIABLES** | **Average marginal effects of unmet needs (standard errors)** | | |
| **Total** | **ADL independent a** | **ADL dependent b** |
| Care intensity  Low intensity  Medium intensity  High intensity | Ref  -0.030 (0.024)  -0.089 (0.021)\*\*\* | Ref  -0.052 (0.021)\*\*  -0.071 (0.019)\*\*\* | Ref  0.028 (0.047)  -0.071 (0.044) |
| Male | -0.010 (0.020) | 0.004 (0.020) | -0.046 (0.039) |
|  |  |  |  |
| Age group  45-60 years old  60-79 years old  80 and above | Ref  0.062 (0.022)\*\*\*  0.033 (0.033) | Ref  0.064 (0.010)\*\*\*  0.010 (0.028) | Ref  0.035 (0.048)  0.027 (0.069) |
| HH per capita income (per month) c  <1001  1001-4500  >4500 | Ref  -0.051 (0.068)  -0.004 (0.061) | Ref  -0.044 (0.073)  0.039 (0.049) | Ref  -0.044 (0.128)  -0.020 (0.168) |
|  |  |  |  |
| Urban hukou | -0.078 (0.028)\*\*\* | -0.080 (0.031)\*\* | -0.100 (0.050)\*\* |
|  |  |  |  |
| Living alone | 0.025 (0.037) | -0.014 (0.035) | 0.105 (0.074) |
| Education attainment  No education  Elementary school  Middle school  High school and above | Ref  0.015 (0.021)  -0.002 (0.036)  0.097 (0.051)\* | Ref  -0.003 (0.021)  0.012 (0.033)  0.043 (0.053) | Ref  0.020 (0.042)  -0.034 (0.064)  0.199 (0.095)\*\* |
| #ADL/IADL difficulties  #ADL  #IADL | 0.033 (0.007)\*\*\*  0.033 (0.007)\*\*\* | -  0.069 (0.007)\*\*\* | -0.007 (0.014)  -0.009 (0.012) |
|  |  |  |  |
| Marital status  Married/cohabitated  Not married | Ref  0.036 (0.028) | Ref  0.066 (0.030)\*\* | Ref  -0.020 (0.053) |
|  |  |  |  |
| Episodic memory (# words recalled) | -0.007 (0.005) | -0.001 (0.005) | -0.027 (0.011)\*\* |
| GDP per capita |  |  |  |
| Low GDP (<35,001)  Lower middle GDP (35001-45000)  Upper middle GDP (45001-80000)  High GDP (>80001) | Ref  -0.048 (0.026)\*  -0.024 (0.036)  -0.047 (0.028)\* | Ref  -0.007 (0.026)  0.018 (0.036)  -0.013 (0.028) | Ref  -0.028 (0.050)  -0.084 (0.066)  -0.085 (0.052) |
|  |  |  |  |
| Observations | 2,116 | 1,333 | 783 |

Note: Note: a ADL independent denotes that the older people have difficulties with IADL only. b ADL dependent denotes that the older people have difficulties in either ADL only or both ADL and IADL. c Household per capita income is adjusted using equivalence scale

Standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1