**Tables and Figures**

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Table 1. Summary statistics of analytic samples

|  |  |  |  |
| --- | --- | --- | --- |
|  | Chinese Sample | English Sample | Math Sample |
| Key Variables | N = 4,754 | N = 4,855 | N = 4,887 |
| ***Predictor Variables*** |  |  |  |
| Education (years) | 15.93 (14.00, 19.00) | 15.87 (14.00, 19.00) | 15.88 (14.00, 19.00) |
| Graduate degree | 118 / 4,754 (2.5%) | 115 / 4,855 (2.4%) | 128 / 4,887 (2.6%) |
| Education major | 4,549 / 4,754 (96%) | 4,216 / 4,855 (87%) | 4,577 / 4,887 (94%) |
| Experience (years) | 16 (1, 35) | 17 (1, 34) | 17 (1, 39) |
| Novice teacher (<= 2 yrs) | 131 / 4,754 (2.8%) | 201 / 4,855 (4.1%) | 127 / 4,887 (2.6%) |
| Experience (binned) |  |  |  |
| 0-1 year (omitted) | 107 / 4,754 (2.3%) | 90 / 4,855 (1.9%) | 36 / 4,887 (0.7%) |
| 2-3 years | 271 / 4,754 (5.7%) | 249 / 4,855 (5.1%) | 192 / 4,887 (3.9%) |
| 4-6 years | 301 / 4,754 (6.3%) | 374 / 4,855 (7.7%) | 242 / 4,887 (5.0%) |
| 7-9 years | 586 / 4,754 (12%) | 388 / 4,855 (8.0%) | 481 / 4,887 (9.8%) |
| 10-12 | 542 / 4,754 (11%) | 624 / 4,855 (13%) | 555 / 4,887 (11%) |
| 13-15 | 489 / 4,754 (10%) | 412 / 4,855 (8.5%) | 673 / 4,887 (14%) |
| 16-24 | 1,717 / 4,754 (36%) | 1,614 / 4,855 (33%) | 1,760 / 4,887 (36%) |
| 25+ | 741 / 4,754 (16%) | 1,104 / 4,855 (23%) | 948 / 4,887 (19%) |
| ***Outcome Variables*** |  |  |  |
| Score | 0.01 (-6.74, 2.24) | 0.02 (-5.52, 3.70) | 0.01 (-6.54, 3.14) |
| Confidence | 0.00 (-3.20, 2.40) | 0.00 (-3.20, 3.15) | 0.00 (-3.02, 3.31) |

Notes: Cells report mean and range for continuous variables and count and percentage of each category for dichotomous and categorical variables.

Table 2. Covariates balance check

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Chinese Sample | | English Sample | | Math Sample | |
|  | Education (years) | Experience (years) | Education (years) | Experience (years) | Education (years) | Experience (years) |
|  | | | | | | |
| Baseline Chinese | 0.016 | 0.098 | -0.015 | -0.068 | -0.037 | -0.109 |
|  | (0.025) | (0.228) | (0.023) | (0.177) | (0.023) | (0.233) |
| Baseline English | -0.018 | 0.251 | 0.054 | -0.065 | 0.050 | 0.125 |
|  | (0.028) | (0.329) | (0.029) | (0.233) | (0.027) | (0.279) |
| Baseline math | 0.035 | -0.287 | -0.038 | 0.167 | 0.003 | -0.056 |
|  | (0.020) | (0.296) | (0.028) | (0.206) | (0.023) | (0.245) |
| Baseline cognitive | -0.016 | -0.013 | 0.022 | 0.273 | -0.003 | -0.073 |
|  | (0.020) | (0.317) | (0.029) | (0.207) | (0.015) | (0.296) |
| Female student | -0.014 | 0.053 | -0.016 | 0.274\* | -0.017 | 0.070 |
|  | (0.014) | (0.143) | (0.016) | (0.125) | (0.015) | (0.178) |
| Age | 0.009 | -0.497 | -0.013 | 0.100 | 0.011 | -0.108 |
|  | (0.014) | (0.297) | (0.026) | (0.161) | (0.017) | (0.239) |
| Only child | -0.013 | 0.055 | -0.003 | -0.360\* | -0.026 | 0.145 |
|  | (0.018) | (0.182) | (0.013) | (0.157) | (0.015) | (0.208) |
| Rural residency | 0.017 | 0.282 | 0.008 | -0.292 | -0.025 | -0.087 |
|  | (0.022) | (0.153) | (0.013) | (0.187) | (0.018) | (0.230) |
| Migrant worker family | -0.015 | 0.321 | 0.021 | -0.178 | 0.019 | -0.225 |
|  | (0.027) | (0.198) | (0.022) | (0.177) | (0.015) | (0.274) |
| Mother education (years) | 0.001 | -0.010 | -0.002 | -0.009 | -0.003 | 0.049 |
|  | (0.003) | (0.033) | (0.003) | (0.023) | (0.003) | (0.041) |
| Father education (years) | 0.005 | 0.053 | -0.002 | 0.008 | -0.0003 | -0.016 |
|  | (0.003) | (0.035) | (0.002) | (0.024) | (0.002) | (0.033) |
| Family income | -0.005 | 0.003 | 0.011 | 0.146 | 0.061\* | -0.527\* |
|  | (0.021) | (0.275) | (0.022) | (0.146) | (0.024) | (0.227) |
|  | | | | | | |
| School FE | Yes | Yes | Yes | Yes | Yes | Yes |
| School-clustered SE | Yes | Yes | Yes | Yes | Yes | Yes |
| F-Statistics | 0.854 (df = 12; 61) | 1.449 (df = 12; 61) | 1.002 (df = 12; 62) | 1.986\* (df = 12; 62) | 1.127 (df = 12; 62) | 1.127 (df = 12; 62) |
| Observations | 4,754 | 4,754 | 4,855 | 4,855 | 4,887 | 4,887 |
| R2 | 0.615 | 0.547 | 0.647 | 0.772 | 0.622 | 0.539 |

Notes: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05. Cells report coefficients and associated standard errors in parentheses. Each column reports results of a separate OLS regression where the predictor variables (teacher education and experience) is regressed on baseline student prior score measures and characteristics. All models control for school fixed effects and cluster standard errors at school level.

Table 3. The causal impacts of teacher educational background on student academic outcomes

Panel A. Teacher education (in years) on student performance

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | | | | | | | |
|  | Chinese score | | | English score | | | Math score | | |
|  | | | | | | | | | |
| Education (years) | 0.059 | 0.049 | 0.046 | 0.026 | 0.019 | 0.025 | -0.027 | -0.019 | -0.021 |
| (0.044) | (0.049) | (0.065) | (0.025) | (0.023) | (0.018) | (0.026) | (0.033) | (0.033) |
|  | | | | | | | | | |
| Student Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Homeroom Covariates | No | Yes | Yes | No | Yes | Yes | No | Yes | Yes |
| Teacher Covariates | No | No | Yes | No | No | Yes | No | No | Yes |
| School FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| School-clustered SE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 4,754 | 4,754 | 4,754 | 4,855 | 4,855 | 4,855 | 4,887 | 4,887 | 4,887 |
| R2 | 0.612 | 0.615 | 0.615 | 0.710 | 0.710 | 0.711 | 0.618 | 0.619 | 0.622 |

Panel B. Graduate degree on student performance

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | |
|  |  | | | | | | | | |
|  | Chinese score | | | English score | | | Math score | | |
|  | | | | | | | | | |
| Graduate degree | 0.249 | 0.261 | 0.258 | 0.031 | 0.009 | 0.051 | -0.229\*\* | -0.236\* | -0.202\* |
| (0.203) | (0.186) | (0.214) | (0.061) | (0.062) | (0.046) | (0.085) | (0.116) | (0.083) |
|  | | | | | | | | | |
| Student Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Homeroom Covariates | No | Yes | Yes | No | Yes | Yes | No | Yes | Yes |
| Teacher Covariates | No | No | Yes | No | No | Yes | No | No | Yes |
| School FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| School-clustered SE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 4,754 | 4,754 | 4,754 | 4,855 | 4,855 | 4,855 | 4,887 | 4,887 | 4,887 |
| R2 | 0.612 | 0.615 | 0.616 | 0.709 | 0.710 | 0.711 | 0.618 | 0.620 | 0.622 |

Panel C. Major in Educational Studies on student performance

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | |
|  |  | | | | | | | | |
|  | Chinese score | | | English score | | | Math score | | |
|  | | | | | | | | | |
| Major in Educational  Studies | 0.302\*\* | 0.258 | 0.223 | -0.019 | -0.044 | -0.040 | 0.042 | 0.029 | 0.076 |
| (0.105) | (0.160) | (0.170) | (0.072) | (0.076) | (0.052) | (0.104) | (0.102) | (0.074) |
|  | | | | | | | | | |
| Student Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Homeroom Covariates | No | Yes | Yes | No | Yes | Yes | No | Yes | Yes |
| Teacher Covariates | No | No | Yes | No | No | Yes | No | No | Yes |
| School FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| School-clustered SE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 4,754 | 4,754 | 4,754 | 4,855 | 4,855 | 4,855 | 4,887 | 4,887 | 4,887 |
| R2 | 0.612 | 0.615 | 0.615 | 0.709 | 0.710 | 0.711 | 0.618 | 0.619 | 0.622 |

Panel D. Teacher education (in years) on student confidence

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | | | | | | | |
|  | Chinese confidence | | | English confidence | | | Math confidence | | |
|  | | | | | | | | | |
| Education (years) | 0.028 | 0.015 | 0.023 | 0.002 | -0.017 | -0.008 | -0.075\* | -0.135\*\*\* | -0.141\*\*\* |
| (0.074) | (0.066) | (0.050) | (0.029) | (0.030) | (0.032) | (0.033) | (0.036) | (0.038) |
|  | | | | | | | | | |
| Student Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Homeroom Covariates | No | Yes | Yes | No | Yes | Yes | No | Yes | Yes |
| Teacher Covariates | No | No | Yes | No | No | Yes | No | No | Yes |
| School FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| School-clustered SE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 4,754 | 4,754 | 4,754 | 4,855 | 4,855 | 4,855 | 4,887 | 4,887 | 4,887 |
| R2 | 0.078 | 0.082 | 0.086 | 0.259 | 0.263 | 0.267 | 0.240 | 0.246 | 0.247 |

Panel E. Graduate degree on student confidence

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | |
|  |  | | | | | | | | |
|  | Chinese confidence | | | English confidence | | | Math confidence | | |
|  | | | | | | | | | |
| Graduate degree | 0.331 | 0.336 | 0.384\* | 0.069 | -0.006 | 0.060 | -0.043 | -0.153 | -0.139 |
| (0.191) | (0.174) | (0.155) | (0.108) | (0.158) | (0.164) | (0.094) | (0.165) | (0.174) |
|  | | | | | | | | | |
| Student Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Homeroom Covariates | No | Yes | Yes | No | Yes | Yes | No | Yes | Yes |
| Teacher Covariates | No | No | Yes | No | No | Yes | No | No | Yes |
| School FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| School-clustered SE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 4,754 | 4,754 | 4,754 | 4,855 | 4,855 | 4,855 | 4,887 | 4,887 | 4,887 |
| R2 | 0.079 | 0.083 | 0.088 | 0.259 | 0.263 | 0.267 | 0.239 | 0.243 | 0.244 |

Panel F. Major in Educational Studies on student confidence

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | |
|  |  | | | | | | | | |
|  | Chinese confidence | | | English confidence | | | Math confidence | | |
|  | | | | | | | | | |
| Major in Educational  Studies | 0.429\*\* | 0.424\* | 0.288 | -0.022 | -0.052 | -0.045 | -0.106 | -0.099 | -0.084 |
| (0.128) | (0.185) | (0.214) | (0.093) | (0.097) | (0.049) | (0.136) | (0.111) | (0.109) |
|  | | | | | | | | | |
| Student Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Homeroom Covariates | No | Yes | Yes | No | Yes | Yes | No | Yes | Yes |
| Teacher Covariates | No | No | Yes | No | No | Yes | No | No | Yes |
| School FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| School-clustered SE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 4,754 | 4,754 | 4,754 | 4,855 | 4,855 | 4,855 | 4,887 | 4,887 | 4,887 |
| R2 | 0.080 | 0.084 | 0.087 | 0.259 | 0.263 | 0.267 | 0.239 | 0.243 | 0.244 |

Notes: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05. Cells report coefficients and associated standard errors in parentheses. Each column presents results of a separate OLS regression where student outcome is regressed against teacher education attainment measures. For each sample, the outcome variable is estimated three times: the first model controls for student covariates that include cubic polynomial functions of baseline Chinese, English, math, and CEPS cognitive test scores, and student characteristics; the second model adds homeroom covariates that include homeroom size and averaged student characteristics at homeroom level; the third model further adds teacher gender and homeroom advisor status. All models also control for school fixed effects and cluster standard errors at school level.

Table 4. The causal impacts of teacher experience on student academic outcomes

Panel A. Teacher experience (in years) on student performance

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | | | | | | | |
|  | Chinese score | | | English score | | | Math score | | |
|  | | | | | | | | | |
| Experience (in years) | -0.002 | -0.00004 | 0.002 | -0.003 | -0.002 | -0.004 | -0.004 | -0.005 | -0.004 |
| (0.004) | (0.004) | (0.004) | (0.003) | (0.003) | (0.002) | (0.002) | (0.003) | (0.002) |
|  | | | | | | | | | |
| Student Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Homeroom Covariates | No | Yes | Yes | No | Yes | Yes | No | Yes | Yes |
| Teacher Covariates | No | No | Yes | No | No | Yes | No | No | Yes |
| School FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| School-clustered SE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 4,754 | 4,754 | 4,754 | 4,855 | 4,855 | 4,855 | 4,887 | 4,887 | 4,887 |
| R2 | 0.611 | 0.614 | 0.615 | 0.710 | 0.710 | 0.712 | 0.618 | 0.620 | 0.622 |

Panel B. Novice teacher status (less than 2-y experience) on student performance

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | |
|  |  | | | | | | | | |
|  | Chinese score | | | English score | | | Math score | | |
|  | | | | | | | | | |
| Novice teacher | -0.089 | -0.223 | -0.367\* | 0.100 | 0.144 | 0.248\* | -0.018 | 0.076 | 0.070 |
| (0.208) | (0.144) | (0.155) | (0.083) | (0.120) | (0.110) | (0.154) | (0.174) | (0.125) |
|  | | | | | | | | | |
| Student Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Homeroom Covariates | No | Yes | Yes | No | Yes | Yes | No | Yes | Yes |
| Teacher Covariates | No | No | Yes | No | No | Yes | No | No | Yes |
| School FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| School-clustered SE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 4,754 | 4,754 | 4,754 | 4,855 | 4,855 | 4,855 | 4,887 | 4,887 | 4,887 |
| R2 | 0.611 | 0.615 | 0.617 | 0.709 | 0.710 | 0.712 | 0.618 | 0.619 | 0.622 |

Panel C. Teacher experience (binned) on student performance (compared to teachers with 0-1 year experience)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | |
|  |  | | | | | | | | |
|  | Chinese score | | | English score | | | Math score | | |
|  | | | | | | | | | |
| 2-3 years | -0.111 | 0.143 | 0.209 |  |  |  | 0.218 |  |  |
| (0.366) | (0.312) | (0.359) | (0.000) | (0.000) | (0.000) | (0.131) | (0.000) | (0.000) |
| 4-6 years | 0.019 | 0.196 | 0.247 | -0.164 | -0.213 | -0.230\* |  | -0.284 | -0.245\* |
|  | (0.184) | (0.192) | (0.203) | (0.127) | (0.108) | (0.108) | (0.000) | (0.147) | (0.111) |
| 7-9 years | -0.029 | 0.168 | 0.242 | -0.232 | -0.256\* | -0.357\*\* | 0.216\*\*\* | -0.119 | -0.102 |
|  | (0.221) | (0.228) | (0.225) | (0.127) | (0.109) | (0.111) | (0.059) | (0.148) | (0.110) |
| 10-12 years | -0.137 | 0.020 | 0.105 | -0.183 | -0.162 | -0.237\* | 0.078 | -0.245 | -0.215\* |
|  | (0.176) | (0.195) | (0.198) | (0.122) | (0.112) | (0.105) | (0.066) | (0.154) | (0.107) |
| 13-15 years | -0.093 | 0.070 | 0.168 | -0.190 | -0.187 | -0.283\*\* | -0.030 | -0.288 | -0.267\* |
|  | (0.175) | (0.174) | (0.184) | (0.143) | (0.125) | (0.104) | (0.077) | (0.148) | (0.106) |
| 16-24 years | -0.098 | 0.102 | 0.184 | -0.221 | -0.260\* | -0.341\*\* | -0.021 | -0.309\* | -0.281\*\* |
|  | (0.177) | (0.195) | (0.200) | (0.127) | (0.116) | (0.106) | (0.038) | (0.146) | (0.102) |
| 25+ years | -0.116 | 0.104 | 0.217 | -0.244 | -0.245\* | -0.343\*\* | 0.043 | -0.251 | -0.207 |
|  | (0.165) | (0.189) | (0.197) | (0.137) | (0.121) | (0.113) | (0.053) | (0.143) | (0.108) |
|  | | | | | | | | | |
| Student Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Homeroom Covariates | No | Yes | Yes | No | Yes | Yes | No | Yes | Yes |
| Teacher Covariates | No | No | Yes | No | No | Yes | No | No | Yes |
| School FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| School-clustered SE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 4,754 | 4,754 | 4,754 | 4,855 | 4,855 | 4,855 | 4,887 | 4,887 | 4,887 |
| R2 | 0.612 | 0.615 | 0.616 | 0.710 | 0.711 | 0.712 | 0.621 | 0.622 | 0.624 |

Panel D. Teacher experience (in years) on student confidence

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | | | | | | | |
|  | Chinese confidence | | | English confidence | | | Math confidence | | |
|  | | | | | | | | | |
| Experience (in years) | -0.005 | -0.003 | -0.0001 | 0.003 | 0.001 | -0.003 | -0.004 | -0.002 | -0.002 |
| (0.006) | (0.005) | (0.005) | (0.004) | (0.003) | (0.003) | (0.004) | (0.004) | (0.003) |
|  | | | | | | | | | |
| Student Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Homeroom Covariates | No | Yes | Yes | No | Yes | Yes | No | Yes | Yes |
| Teacher Covariates | No | No | Yes | No | No | Yes | No | No | Yes |
| School FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| School-clustered SE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 4,754 | 4,754 | 4,754 | 4,855 | 4,855 | 4,855 | 4,887 | 4,887 | 4,887 |
| R2 | 0.078 | 0.082 | 0.086 | 0.259 | 0.263 | 0.267 | 0.239 | 0.243 | 0.244 |

Panel E. Novice teacher status (less than 2-y experience) on student confidence

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | |
|  |  | | | | | | | | |
|  | Chinese confidence | | | English confidence | | | Math confidence | | |
|  | | | | | | | | | |
| Novice teacher | 0.347 | 0.237 | 0.166 | 0.029 | 0.143 | 0.293\* | -0.194 | -0.048 | -0.055 |
| (0.196) | (0.191) | (0.190) | (0.089) | (0.101) | (0.128) | (0.309) | (0.322) | (0.318) |
|  | | | | | | | | | |
| Student Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Homeroom Covariates | No | Yes | Yes | No | Yes | Yes | No | Yes | Yes |
| Teacher Covariates | No | No | Yes | No | No | Yes | No | No | Yes |
| School FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| School-clustered SE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 4,754 | 4,754 | 4,754 | 4,855 | 4,855 | 4,855 | 4,887 | 4,887 | 4,887 |
| R2 | 0.079 | 0.083 | 0.088 | 0.259 | 0.263 | 0.267 | 0.239 | 0.243 | 0.244 |

Panel F. Teacher experience (binned) on student confidence (compared to teachers with 0-1 year experience)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | |
|  |  | | | | | | | | |
|  | Chinese score | | | English score | | | Math score | | |
|  | | | | | | | | | |
| 2-3 years | -0.232 | 0.019 | 0.020 |  |  |  | 0.100 |  |  |
| (0.363) | (0.390) | (0.308) | (0.000) | (0.000) | (0.000) | (0.241) | (0.000) | (0.000) |
| 4-6 years | -0.686\*\*\* | -0.532\*\*\* | -0.508\*\*\* | -0.052 | -0.149 | -0.180 |  | -0.282 | -0.267 |
|  | (0.112) | (0.140) | (0.117) | (0.126) | (0.163) | (0.153) | (0.000) | (0.246) | (0.239) |
| 7-9 years | -0.599\*\*\* | -0.442\*\* | -0.334\* | -0.014 | -0.065 | -0.217 | 0.266 | -0.014 | -0.006 |
|  | (0.144) | (0.156) | (0.139) | (0.145) | (0.167) | (0.167) | (0.173) | (0.241) | (0.240) |
| 10-12 years | -0.487\*\*\* | -0.303 | -0.206 | -0.00002 | -0.054 | -0.154 | 0.130 | -0.136 | -0.123 |
|  | (0.106) | (0.153) | (0.146) | (0.099) | (0.149) | (0.161) | (0.147) | (0.228) | (0.222) |
| 13-15 years | -0.588\*\*\* | -0.454\*\* | -0.367\*\* | 0.024 | -0.012 | -0.157 | -0.088 | -0.259 | -0.250 |
|  | (0.067) | (0.132) | (0.108) | (0.134) | (0.159) | (0.158) | (0.135) | (0.218) | (0.204) |
| 16-24 years | -0.591\*\*\* | -0.446\*\* | -0.363\*\* | 0.035 | -0.116 | -0.227 | -0.081 | -0.323 | -0.311 |
|  | (0.082) | (0.147) | (0.128) | (0.115) | (0.154) | (0.161) | (0.117) | (0.217) | (0.211) |
| 25+ years | -0.514\*\*\* | -0.311\* | -0.176 | 0.003 | -0.128 | -0.261 | -0.005 | -0.153 | -0.135 |
|  | (0.067) | (0.146) | (0.145) | (0.128) | (0.163) | (0.162) | (0.136) | (0.215) | (0.207) |
|  | | | | | | | | | |
| Student Covariates | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Homeroom Covariates | No | Yes | Yes | No | Yes | Yes | No | Yes | Yes |
| Teacher Covariates | No | No | Yes | No | No | Yes | No | No | Yes |
| School FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| School-clustered SE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 4,754 | 4,754 | 4,754 | 4,855 | 4,855 | 4,855 | 4,887 | 4,887 | 4,887 |
| R2 | 0.083 | 0.087 | 0.092 | 0.259 | 0.264 | 0.267 | 0.244 | 0.248 | 0.248 |

Notes: \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05. Cells report coefficients and associated standard errors in parentheses. Each column presents results of a separate OLS regression where student outcome is regressed against teacher experience measures. For each sample, the outcome variable is estimated three times: the first model controls for student covariates that include cubic polynomial functions of baseline Chinese, English, math, and CEPS cognitive test scores, and student characteristics; the second model adds homeroom covariates that include homeroom size and averaged student characteristics at homeroom level; the third model further adds teacher gender and homeroom advisor status. All models also control for school fixed effects and cluster standard errors at school level.

**Appendix A. Data Description**

The China Education Panel Survey (CEPS) started in school year 2013-2014 and employed a stratified, four-step random sampling procedure to draw a random sample of middle schools, teachers, and students from the nation. First, they randomly selected 28 school districts/counties with probability proportional to size (PPS) from three stratified sample frames, specifically, 15 districts from 2,870 districts (frame 1) in the nation, 3 districts from 31 districts in Shanghai area (frame 2), and 10 districts from 120 migrant labor concentrated districts (frame 3). Second, within each district, they randomly selected four schools from all schools serving 7th and/or 9th grades with PPS. Third, within each school, they randomly selected two homerooms from 7th grade and another two from 9th grade. Fourth, within each homeroom, they included all students and administered separate surveys to students, parents, homeroom advisory teachers, classroom teachers for three core subjects (math, Chinese, and English), and school administrators.

Using this procedure, the CEPS team surveyed 10,279 7th grade and 9,568 9th grade students in school year 2013-14 and successfully followed up with 9,449 of the original 7th graders (follow-up rate 91.9%) along with 471 new students in school year 2014-15.