**Online Appendix 3: Balance Improvement[[1]](#footnote-1)**

Table A3: Balance Improvement Statistics

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Pre-matching | |  | Post-matching | |  | % balance |
| Variable | TV | EV |  | TV | EV |  | improvement |
| Propensity score | 0.6 | 0.6 |  | 0.6 | 0.6 |  | 93% |
| Age group | 2.5 | 2.4 |  | 2.5 | 2.5 |  | 100% |
| Age group^2 | 7.9 | 7.7 |  | 7.8 | 7.8 |  | 96% |
| Age group^3 | 29.5 | 28.2 |  | 28.5 | 28.5 |  | 95% |
| Education | 4.8 | 4.1 |  | 4.2 | 4.2 |  | 98% |
| Education^2 | 28.1 | 21.2 |  | 22.0 | 21.8 |  | 97% |
| Technology count | 4.2 | 3.9 |  | 4.0 | 3.9 |  | 76% |
| Technology count^2 | 20.2 | 17.9 |  | 18.6 | 18.2 |  | 81% |
| Political information | 1.5 | 1.3 |  | 1.4 | 1.3 |  | 77% |
| White collar | 0.3 | 0.3 |  | 0.3 | 0.3 |  | 68% |
| Not full time worker | 0.3 | 0.3 |  | 0.3 | 0.3 |  | 79% |
| Male | 0.5 | 0.5 |  | 0.5 | 0.5 |  | 100% |
| Age group | 11.2 | 9.4 |  | 9.7 | 9.6 |  | 92% |
| Age group \* Technology count | 9.4 | 8.7 |  | 8.9 | 8.7 |  | 73% |
| Education \* Political information | 7.7 | 5.9 |  | 6.3 | 6.1 |  | 88% |
| Age group \* Political information | 3.8 | 3.3 |  | 3.4 | 3.3 |  | 79% |
| Technology count \* Political information | 6.5 | 5.4 |  | 5.7 | 5.5 |  | 79% |

Note: The table gives covariate means for traditional voting (TV) and e-voting (EV) polling places, before and after matching, as well as the percentage balance improvement (last column).

Figure A3.1: Distribution of Propensity Scores (Histograms)



Note: Plots gives the distribution of propensity scores pre-matching (left column) and post-matching (right column), at e-voting (upper row) and traditional voting (lower row) polling places. To evaluate overall balance improvement, first compare the distribution of propensity scores pre-matching at traditional versus e-voting polling places (left column); and then compare the distribution of propensity scores post-matching at traditional versus e-voting polling places (right column). If the distribution of propensity scores at traditional and e-voting polling places becomes more similar after matching, this can be interpreted as an indicator of overall balance improvement.

Figure A3.2: Distribution of Propensity Scores (Jitter plot)



Note: The plot gives the distribution of propensity scores for unmatched e-voters (Unmatched Treated Unites), matched e-voters (Matched Treated Units), matched traditional voters (Matched Control Units), and unmatched traditional voters (Matched Control Units). Points were “jittered” (small random noise added to the vertical location of the point), to avoid overlap and improve visualization.

Figure A3.3: Distribution of Propensity Scores (Q-Q plots)

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Note: Quantile-Quantile (Q-Q) plots can be used to compare the distribution of covariates among traditional voters (Control Units) and e-voters (Treated Units), before (first column) and after matching (second column). Each Q-Q plot gives the relationship between quantiles in the control group and quantiles in the treatment group, for a particular covariate. When a point is located on the 45º line, the corresponding quantile is identical in the control and treatment group. In an ideal situation (with perfect balance improvement), all points in the matched Q-Q plot are located on the 45º degree line.

Figure A3.3: Distribution of Propensity Scores (Q-Q plots, contd.)



Figure A3.3: Distribution of Propensity Scores (Q-Q plots, contd.)



Figure A3.3: Distribution of Propensity Scores (Q-Q plots, contd.)



Figure A3.3: Distribution of Propensity Scores (Q-Q plots, contd.)



Figure A3.3: Distribution of Propensity Scores (Q-Q plots, contd.)



1. Balance improvement statistics and plots reported in this appendix where computed using R package *MatchIt* (Ho et al. 2011). [↑](#footnote-ref-1)