

Figure B.3 Survey outcomes and matching: Common support

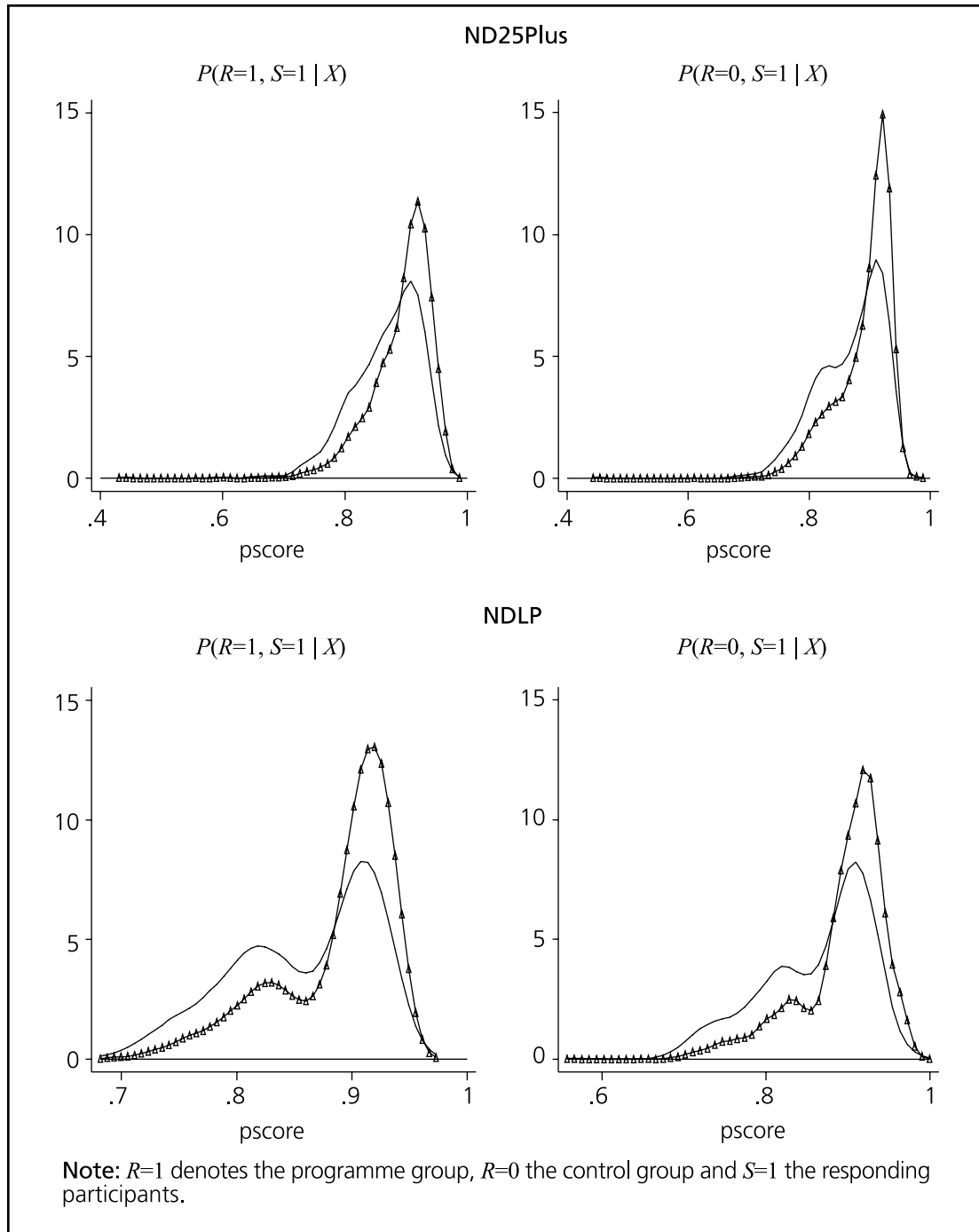


Table B.3 Survey outcomes: Matching quality allowing for non-response, separate common support

| | Eligibles vs responding programme group | | | | Eligibles vs responding control group | | | | | | | | | | | | |
|--------------------|---|-------|-----------|-------|---------------------------------------|-------|--------------|-------|----------|-------|-----------|-------|-------------|-------|--------------|-------|--|
| | Prob>chi | | Pseudo R2 | | Median bias | | % lost to CS | | Prob>chi | | Pseudo R2 | | Median bias | | % lost to CS | | |
| | Before | After | Before | After | Before | After | Before | After | Before | After | Before | After | Before | After | Before | After | |
| ND25 | | | | | | | | | | | | | | | | | |
| All | 0.000 | 0.000 | 0.030 | 0.005 | 4.2 | 1.3 | 0.3 | 0.000 | 0.000 | 0.033 | 0.006 | 3.9 | 1.4 | 1.2 | | | |
| Scotland | 0.976 | 1.000 | 0.029 | 0.007 | 4.4 | 1.3 | 1.8 | 0.896 | 1.000 | 0.037 | 0.005 | 5.3 | 1.9 | 4.0 | | | |
| North East England | 0.387 | 1.000 | 0.045 | 0.003 | 5.3 | 1.0 | 11.5 | 0.628 | 0.969 | 0.041 | 0.009 | 5.0 | 1.8 | 3.5 | | | |
| North West England | 0.915 | 0.610 | 0.031 | 0.009 | 7.0 | 2.7 | 3.2 | 0.675 | 0.022 | 0.038 | 0.015 | 6.1 | 2.3 | 1.7 | | | |
| Wales | 0.930 | 1.000 | 0.043 | 0.004 | 6.1 | 1.5 | 9.9 | 0.994 | 1.000 | 0.032 | 0.002 | 5.2 | 0.8 | 6.3 | | | |
| East Midlands | 0.888 | 0.352 | 0.028 | 0.010 | 4.4 | 2.0 | 1.4 | 0.775 | 0.077 | 0.030 | 0.012 | 3.1 | 1.4 | 1.3 | | | |
| London | 0.461 | 0.000 | 0.037 | 0.017 | 5.0 | 2.1 | 1.4 | 0.269 | 0.090 | 0.044 | 0.011 | 7.2 | 2.1 | 7.4 | | | |
| NDLP | | | | | | | | | | | | | | | | | |
| All | 0.000 | 0.000 | 0.036 | 0.006 | 2.9 | 1.1 | 0.1 | 0.000 | 0.000 | 0.042 | 0.008 | 3.4 | 1.1 | 0.6 | | | |
| Scotland | 1.000 | 1.000 | 0.034 | 0.004 | 6.3 | 1.3 | 2.7 | 0.985 | 1.000 | 0.046 | 0.003 | 6.8 | 1.5 | 14.2 | | | |
| North East England | 0.988 | 0.987 | 0.025 | 0.007 | 4.0 | 1.4 | 6.9 | 0.990 | 1.000 | 0.028 | 0.005 | 5.9 | 1.1 | 7.6 | | | |
| North West England | 0.975 | 1.000 | 0.033 | 0.004 | 6.0 | 1.6 | 5.2 | 0.804 | 1.000 | 0.047 | 0.009 | 7.8 | 1.4 | 5.4 | | | |
| Wales | 0.950 | 1.000 | 0.043 | 0.004 | 5.1 | 1.5 | 3.9 | 0.752 | 1.000 | 0.054 | 0.005 | 5.6 | 1.7 | 9.1 | | | |
| East Midlands | 0.974 | 0.447 | 0.027 | 0.009 | 5.4 | 1.6 | 1.7 | 0.980 | 0.258 | 0.027 | 0.010 | 3.5 | 1.6 | 9.7 | | | |
| London | 0.953 | 0.002 | 0.029 | 0.017 | 4.7 | 2.4 | 3.0 | 0.849 | 0.978 | 0.034 | 0.007 | 7.4 | 2.0 | 10.6 | | | |

Notes:

Prob>chi: *p*-value of the likelihood-ratio test before (after) matching, testing the hypothesis that the regressors are jointly insignificant, i.e. well balanced in the two (matched) groups.

Pseudo R²: from probit estimation of the conditional probability of being a non-participant (before and after matching), giving an indication of how well the observables explain non-participation.

Median bias: median absolute standardised bias before and after matching, median taken over all the regressors. Following Rosenbaum and Rubin (1985), for a given covariate, the standardised difference **before** matching is the difference of the sample means in the non-participant and participant subsamples as a percentage of the square root of the average of the sample variances in the two groups. The standardised difference **after** matching is the difference of the sample means in the matched non-participants (i.e. falling within the common support) and matched participant subsamples as a percentage of the square root of the average of the sample variances in the two original groups.

% lost to CS: Share of the group of non-participants falling outside of the common support.

Sample sizes: see Tables A.12 and A.13.

Table B.4 Survey outcomes: Matching quality not allowing for non-response, joint common support

| | Non-participants vs responding programme group | | | | Non-participants vs responding control group | | | | % lost to CS | | | | |
|--------------------|--|-------|-----------------------|-------|--|-------|----------|-------|--------------|-----------------------|-------|-------------|-------|
| | Prob>chi | | Pseudo R ² | | Median bias | | Prob>chi | | | Pseudo R ² | | Median bias | |
| | Before | After | Before | After | Before | After | Before | After | | Before | After | Before | After |
| ND25 | | | | | | | | | | | | | |
| All | 0.000 | 1.000 | 0.094 | 0.003 | 4.5 | 1.2 | 0.000 | 1.000 | 0.098 | 0.004 | 5.3 | 1.4 | 0.8 |
| Scotland | 0.573 | 1.000 | 0.148 | 0.043 | 13.3 | 4.1 | 0.667 | 1.000 | 0.142 | 0.040 | 10.4 | 3.9 | 16.7 |
| North East England | 0.006 | 1.000 | 0.108 | 0.018 | 9.5 | 2.3 | 0.004 | 0.997 | 0.112 | 0.022 | 11.1 | 3.6 | 12.7 |
| North West England | 0.264 | 1.000 | 0.093 | 0.014 | 7.2 | 3.6 | 0.273 | 1.000 | 0.095 | 0.023 | 7.7 | 3.5 | 3.7 |
| Wales | 0.659 | 1.000 | 0.116 | 0.043 | 9.8 | 5.9 | 0.456 | 1.000 | 0.128 | 0.035 | 9.4 | 4.6 | 15.6 |
| East Midlands | 0.411 | 0.999 | 0.059 | 0.015 | 5.5 | 2.8 | 0.048 | 0.996 | 0.078 | 0.017 | 6.9 | 3.8 | 2.7 |
| London | 0.176 | 0.999 | 0.067 | 0.013 | 5.6 | 2.6 | 0.016 | 0.999 | 0.090 | 0.013 | 10.2 | 2.2 | 5.2 |
| NDLP | | | | | | | | | | | | | |
| All | 0.000 | 0.997 | 0.182 | 0.005 | 3.5 | 1.2 | 0.000 | 0.740 | 0.193 | 0.008 | 4.7 | 2.3 | 1.0 |
| Scotland | 0.999 | 1.000 | 0.216 | 0.255 | 10.7 | 6.5 | 0.779 | 0.458 | 0.358 | 1.000 | 20.5 | 13.5 | 40.0 |
| North East England | 0.576 | 1.000 | 0.063 | 0.018 | 6.4 | 3.0 | 0.685 | 0.999 | 0.066 | 0.022 | 5.8 | 4.0 | 12.7 |
| North West England | 0.997 | 1.000 | 0.113 | 0.029 | 8.8 | 5.1 | 0.641 | 1.000 | 0.209 | 0.092 | 14.0 | 7.8 | 26.5 |
| Wales | 0.937 | 1.000 | 0.089 | 0.026 | 5.1 | 4.8 | 0.171 | 1.000 | 0.164 | 0.066 | 10.0 | 6.1 | 24.4 |
| East Midlands | 0.785 | 1.000 | 0.044 | 0.008 | 6.7 | 1.9 | 0.828 | 0.953 | 0.043 | 0.013 | 3.8 | 1.8 | 8.7 |
| London | 0.094 | 1.000 | 0.084 | 0.013 | 5.7 | 2.5 | 0.052 | 0.973 | 0.090 | 0.024 | 9.2 | 4.3 | 13.8 |

Notes:

Prob>chi: p -value of the likelihood-ratio test before (after) matching, testing the hypothesis that the regressors are jointly insignificant, i.e. well balanced in the two (matched) groups.

Pseudo R²: from probit estimation of the conditional probability of being a non-participant (before and after matching), giving an indication of how well the observables explain non-participation.

Median bias: median absolute standardised bias before and after matching, median taken over all the regressors. Following Rosenbaum and Rubin (1985), for a given covariate, the standardised difference **before** matching is the difference of the sample means in the non-participant and participant subsamples as a percentage of the square root of the average of the sample variances in the two groups. The standardised difference **after** matching is the difference of the sample means in the matched non-participants (i.e. falling within the common support) and matched participant subsamples as a percentage of the square root of the average of the sample variances in the two original groups.

% lost to CS: Share of the group of non-participants falling outside of the common support.

Sample sizes: see Table A.17.

Appendix C

Power and validity of the instrument

Table C.1 First stage of the instrument

| | ND25Plus | | NDLP | |
|---|--------------|-----------------|--------------|-----------------|
| | F- statistic | <i>p</i> -value | F- statistic | <i>p</i> -value |
| Full sample (administrative outcome) | | | | |
| Non-interacted linear model | 11.8 | 0.001 | 19.0 | 0.000 |
| Interacted non-linear model | | | | |
| All Z terms | 2.0 | 0.000 | 2.3 | 0.000 |
| Z, Z ² , Z ³ | 1.4 | 0.231 | 3.8 | 0.009 |
| XZ interactions | 1.7 | 0.007 | 2.1 | 0.000 |
| Survey-eligible sample (survey outcome) | | | | |
| Non-interacted linear model | 6.1 | 0.013 | 10.8 | 0.001 |
| Interacted non-linear model | | | | |
| All Z terms | 2.0 | 0.000 | 2.2 | 0.000 |
| Z, Z ² , Z ³ | 1.7 | 0.157 | 4.0 | 0.007 |
| XZ interactions | 1.8 | 0.002 | 2.1 | 0.000 |

Note: Sample sizes for full sample: 7,796 for ND25 Plus and 7,261 for NDLP.

Sample sizes for survey-eligible sample (i.e. sample of both participants and non-participants eligible for survey): 7,399 for ND25 Plus and 6,809 for NDLP.

Table C.2 Share of explained variance accounted for by the instrument in the participation equation (full sample)

| | Share | <i>p</i> -value | (Pseudo)-R ² |
|-------------|-------|-----------------|-------------------------|
| ND25 | | | |
| Logit | 12.4 | 0.001 | 0.062 |
| Regression | 14.0 | 0.001 | 0.065 |
| NDLP | | | |
| Logit | 5.8 | 0.000 | 0.111 |
| Regression | 7.2 | 0.000 | 0.122 |

Note: Sample sizes: see Table C.1.

Table C.3 Testing part of the exclusion restriction

| | ND25 | | NDLP | |
|-------------------------------|--------|-----------------|--------|-----------------|
| | F-test | <i>p</i> -value | F-test | <i>p</i> -value |
| Full sample | | | | |
| Days employed | 0.8 | 0.364 | 0.5 | 0.502 |
| Ever employed | 0.1 | 0.731 | 0.0 | 0.998 |
| Days on benefits | 0.0 | 0.899 | 1.4 | 0.238 |
| Survey-eligible sample | | | | |
| Days employed | 1.6 | 0.201 | 0.8 | 0.377 |
| Ever employed | 0.0 | 0.955 | 0.1 | 0.796 |
| Days on benefits | 0.0 | 0.915 | 2.3 | 0.129 |

Note: Sample sizes: see Table C.1.

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