Sony Nghiem

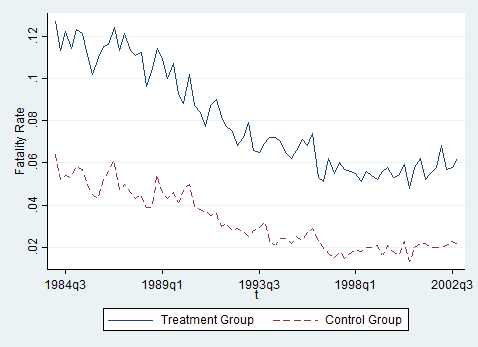
Exercise 2

Problem 1

Part A: Summary table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Obs | Mean | Std.Dev. | Min | Max |
| time | 0 |  |  |  |  |
| fr y | 76 | 0.0802 | 0.0245 | 0.0480 | 0.127 |
| fr o | 76 | 0.0324 | 0.0138 | 0.0130 | 0.0640 |
| t | 76 | 38.50 | 22.08 | 1 | 76 |
| first | 76 | 0.461 | 0.502 | 0 | 1 |
| second | 76 | 0.289 | 0.457 | 0 | 1 |

Part B: Figure 1



Part C: The policy effects are not statistically significant

Table I

|  |  |
| --- | --- |
|  | (1) |
| VARIABLES | fr\_y |
|  |  |
| first | -0.0016 |
|  | (0.003) |
| second | -0.0030 |
|  | (0.002) |
| fr\_o | 1.6033\*\*\* |
|  | (0.092) |
| Constant | 0.0299\*\*\* |
|  | (0.004) |
|  |  |
| Observations | 76 |
| R-squared | 0.934 |

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

post estimation

|  |  |
| --- | --- |
|  | (1) |
| VARIABLES | fr\_y |
|  |  |
| \_nl\_1 | -0.0552 |
|  | (0.087) |
| \_nl\_2 | -0.1054 |
|  | (0.074) |
|  |  |
| Observations | 76 |

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Part D: Table VII - The policy effects are significant now.

TableVII

|  |  |
| --- | --- |
|  | (1) |
| VARIABLES | fr\_y |
|  |  |
| first | -0.0031\*\*\* |
|  | (0.001) |
| second | -0.0005 |
|  | (0.001) |
| fr\_o | 1.2900\*\*\* |
|  | (0.086) |
| Constant | 0.0144\*\*\* |
|  | (0.001) |
|  |  |
| Observations | 228 |
| R-squared | 0.785 |

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Problem 2:

Part A: The paper uses panel data to estimate the causual effect of maternal smoking and birth weight on a birth outcome like birthweight.

y = X'\*beta + gamma\*s + epsilon, where x is a vector of explanatory variables, s is a smoking indicator variable, and epsilon is an error disturbance.

Part B: Summary table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Obs | Mean | Std.Dev. | Min | Max |
| momid3 | 296,218 | 70173 | 40854 | 1 | 141929 |
| idx | 296,218 | 1.563 | 0.574 | 1 | 3 |
| stateres | 296,218 | 26.65 | 14.59 | 1 | 51 |
| dmage | 296,218 | 28.48 | 5.447 | 13 | 50 |
| dmeduc | 296,218 | 13.88 | 2.275 | 0 | 17 |
| mplbir | 296,218 | 26.15 | 14.33 | 1 | 51 |
| nlbnl | 296,218 | 1.257 | 1.256 | 0 | 15 |
| gestat | 296,218 | 39.25 | 2.164 | 17 | 47 |
| dbirwt | 296,218 | 3457 | 539.6 | 227 | 8020 |
| cigar | 296,218 | 2.124 | 8.894 | 0 | 99 |
| smoke | 296,218 | 0.130 | 0.336 | 0 | 1 |
| male | 296,218 | 0.513 | 0.500 | 0 | 1 |
| year | 296,218 | 3.948 | 2.276 | 0 | 8 |
| married | 296,218 | 0.869 | 0.337 | 0 | 1 |
| hsgrad | 296,218 | 0.294 | 0.456 | 0 | 1 |
| somecoll | 296,218 | 0.234 | 0.423 | 0 | 1 |
| collgrad | 296,218 | 0.378 | 0.485 | 0 | 1 |
| agesq | 296,218 | 840.8 | 312.8 | 169 | 2500 |
| black | 296,218 | 0.0742 | 0.262 | 0 | 1 |
| adeqcode2 | 296,218 | 0.169 | 0.375 | 0 | 1 |
| adeqcode3 | 296,218 | 0.0398 | 0.195 | 0 | 1 |
| novisit | 296,218 | 0.00745 | 0.0860 | 0 | 1 |
| pretri2 | 296,218 | 0.113 | 0.317 | 0 | 1 |
| pretri3 | 296,218 | 0.0199 | 0.140 | 0 | 1 |
| proxy exists | 296,218 | 0.359 | 0.480 | 0 | 1 |
| proxy or p~t | 296,218 | 0.814 | 0.242 | 0 | 1 |

Part C: Table III

|  |  |  |
| --- | --- | --- |
|  | (1) | (2) |
|  | dbirwt | smoke |
| smoke | -239.2\*\*\* |  |
|  | (-77.61) |  |
|  |  |  |
| male | 126.5\*\*\* |  |
|  | (66.46) |  |
|  |  |  |
| dmage | 21.57\*\*\* | 0.0314\*\*\* |
|  | (12.97) | (31.69) |
|  |  |  |
| agesq | -0.271\*\*\* | -0.000502\*\*\* |
|  | (-9.54) | (-29.75) |
|  |  |  |
| hsgrad | 33.23\*\*\* | -0.168\*\*\* |
|  | (8.53) | (-73.04) |
|  |  |  |
| somecoll | 49.79\*\*\* | -0.268\*\*\* |
|  | (11.61) | (-106.92) |
|  |  |  |
| collgrad | 40.46\*\*\* | -0.336\*\*\* |
|  | (9.15) | (-131.05) |
|  |  |  |
| married | 60.91\*\*\* | -0.192\*\*\* |
|  | (17.78) | (-95.60) |
|  |  |  |
| black | -231.6\*\*\* | -0.124\*\*\* |
|  | (-59.17) | (-53.55) |
|  |  |  |
| adeqcode2 | -96.53\*\*\* | 0.0147\*\*\* |
|  | (-25.00) | (6.38) |
|  |  |  |
| adeqcode3 | -160.3\*\*\* | 0.0490\*\*\* |
|  | (-17.62) | (9.04) |
|  |  |  |
| novisit | -12.12 | 0.0558\*\*\* |
|  | (-0.85) | (6.58) |
|  |  |  |
| pretri2 | 101.1\*\*\* | 0.0232\*\*\* |
|  | (21.76) | (8.38) |
|  |  |  |
| pretri3 | 162.1\*\*\* | 0.00985 |
|  | (14.44) | (1.47) |
|  |  |  |
| \_cons | 2971.6\*\*\* | 0.0660\*\*\* |
|  | (130.77) | (4.88) |
| *N* | 296218 | 296218 |

*t* statistics in parentheses

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

Part D & E: Table IV

1. OLS
2. Fixed effect (FE)
3. Random Effect (RE)

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  | dbirwt | dbirwt | dbirwt |
| smoke | -239.2\*\*\* | -143.6\*\*\* | -227.9\*\*\* |
|  | (-77.61) | (-30.10) | (-74.82) |
|  |  |  |  |
| male | 126.5\*\*\* | 133.5\*\*\* | 129.6\*\*\* |
|  | (66.46) | (63.98) | (73.40) |
|  |  |  |  |
| dmage | 21.57\*\*\* | 19.40\*\*\* | 37.08\*\*\* |
|  | (12.97) | (6.46) | (22.18) |
|  |  |  |  |
| agesq | -0.271\*\*\* | -0.0232 | -0.473\*\*\* |
|  | (-9.54) | (-0.45) | (-16.33) |
|  |  |  |  |
| hsgrad | 33.23\*\*\* |  |  |
|  | (8.53) |  |  |
|  |  |  |  |
| somecoll | 49.79\*\*\* |  |  |
|  | (11.61) |  |  |
|  |  |  |  |
| collgrad | 40.46\*\*\* |  |  |
|  | (9.15) |  |  |
|  |  |  |  |
| married | 60.91\*\*\* |  |  |
|  | (17.78) |  |  |
|  |  |  |  |
| black | -231.6\*\*\* |  |  |
|  | (-59.17) |  |  |
|  |  |  |  |
| adeqcode2 | -96.53\*\*\* | -81.84\*\*\* | -98.31\*\*\* |
|  | (-25.00) | (-18.31) | (-26.90) |
|  |  |  |  |
| adeqcode3 | -160.3\*\*\* | -139.9\*\*\* | -188.0\*\*\* |
|  | (-17.62) | (-13.56) | (-22.06) |
|  |  |  |  |
| novisit | -12.12 | -42.71\* | -51.38\*\*\* |
|  | (-0.85) | (-2.57) | (-3.80) |
|  |  |  |  |
| pretri2 | 101.1\*\*\* | 66.71\*\*\* | 76.57\*\*\* |
|  | (21.76) | (12.62) | (17.53) |
|  |  |  |  |
| pretri3 | 162.1\*\*\* | 114.3\*\*\* | 144.1\*\*\* |
|  | (14.44) | (9.12) | (13.72) |
|  |  |  |  |
| \_cons | 2971.6\*\*\* | 2883.8\*\*\* | 2773.8\*\*\* |
|  | (130.77) | (65.66) | (116.76) |
| N | 296218 | 296218 | 296218 |

*t* statistics in parentheses

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

Hausman test for FE vs RE: significant systematic differences between FE and RE coefficients

|  |  |
| --- | --- |
|  | (1) |
| VARIABLES | dbirwt |
|  |  |
| smoke | -227.9396\*\*\* |
|  | (3.047) |
| male | 129.5803\*\*\* |
|  | (1.765) |
| dmage | 37.0828\*\*\* |
|  | (1.672) |
| agesq | -0.4733\*\*\* |
|  | (0.029) |
| adeqcode2 | -98.3143\*\*\* |
|  | (3.655) |
| adeqcode3 | -188.0200\*\*\* |
|  | (8.522) |
| novisit | -51.3827\*\*\* |
|  | (13.527) |
| pretri2 | 76.5676\*\*\* |
|  | (4.367) |
| pretri3 | 144.0581\*\*\* |
|  | (10.503) |
| Constant | 2,773.8262\*\*\* |
|  | (23.756) |
|  |  |
| Observations | 296,218 |
| Number of momid3 | 141,929 |