Additional file 1: Table S1 Estimates of Minimum Wage Effects on Wages by Age Cohort

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Dependent Variable:  log (Employment/Population) | Age 15-29 | | Age 30-39 | | Age 40-49 | | Age 50-64 | |
| Independent Variables (log) | Male | Female | Male | Female | Male | Female | Male | Female |
|  | A. All Regions | | | | | | | |
| MW level | .433\*\*\* | .442\*\*\* | .442\*\*\* | .356\*\*\* | .345\*\*\* | .239\*\*\* | .498\*\*\* | .368\*\* |
|  | (.126) | (.117) | (.071) | (.078) | (.071) | (.086) | (.082) | (.156) |
| MW level, lagged 1 year | .245\* | .051 | .272\*\*\* | .089 | .255\*\*\* | .143\* | .143\* | -.082 |
|  | (.127) | (.116) | (.065) | (.078) | (.062) | (.076) | (.079) | (.142) |
| Other controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| County fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
|  | .470 | .492 | .627 | .557 | .583 | .459 | .428 | .181 |
| Number of counties per year | 632 | 626 | 654 | 653 | 655 | 653 | 653 | 598 |
| Average obs. per county per year | 113 | 114 | 253 | 260 | 309 | 272 | 231 | 100 |
|  | B. East | | | | | | | |
| MW level | .999\*\*\* | .895\*\*\* | .664\*\*\* | .393\*\*\* | .196 | .256 | .252 | .442 |
|  | (.186) | (.194) | (.118) | (.127) | (.125) | (.158) | (.147) | (.324) |
| MW level, lagged 1 year | .057 | .177 | .230\* | .085 | .398\*\*\* | .315\*\*\* | .113 | .011 |
|  | (.154) | (.174) | (.121) | (.139) | (.093) | (.115) | (.102) | (.233) |
| Other controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| County fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
|  | .617 | .635 | .712 | .673 | .639 | .561 | .495 | .210 |
| Number of counties per year | 280 | 280 | 285 | 287 | 288 | 285 | 286 | 269 |
| Average obs. per county per year | 131 | 144 | 299 | 308 | 337 | 302 | 266 | 108 |
|  | C. Central | | | | | | | |
| MW level | .425\* | .114\* | .295\*\*\* | .311\*\*\* | .290\*\*\* | .260\*\* | .346 | .500\*\*\* |
|  | (.222) | (.068) | (.092) | (.109) | (.096) | (.123) | (.239) | (.125) |
| MW level, lagged 1 year | .389\* | .146 | .027 | .160 | .021 | .130 | .105 | .362 |
|  | (.225) | (.191) | (.088) | (.121) | (.095) | (.124) | (.137) | (.234) |
| Other controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| County fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
|  | .285 | .296 | .447 | .364 | .454 | .329 | .232 | .127 |
| Number of counties per year | 265 | 260 | 276 | 273 | 275 | 277 | 276 | 246 |
| Average obs. per county per year | 87 | 94 | 211 | 212 | 276 | 235 | 186 | 95 |
|  | D. West | | | | | | | |
| MW level | .610 | .511\*\* | .624 | .553\*\* | .399 | .442 | .388\*\*\* | .217\*\*\* |
|  | (.893) | (.246) | (.482) | (.269) | (.520) | (.549) | (.133) | (.048) |
| MW level, lagged 1 year | .153 | .193 | .671\* | .088 | .612 | .778 | .064 | .736 |
|  | (1.007) | (.677) | (.407) | (.422) | (.512) | (.496) | (.481) | (.816) |
| Other controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| County fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
|  | .282 | .347 | .331 | .256 | .377 | .262 | .271 | .210 |
| Number of counties per year | 87 | 86 | 93 | 93 | 92 | 91 | 91 | 93 |
| Average obs. per county per year | 101 | 107 | 237 | 255 | 316 | 288 | 253 | 107 |

*Note*: \*\*\* statistically significant at the 1 percent level; \*\* at the 5 percent level; \* at the 10 percent level. Cluster-robust standard errors at the county level are in parentheses.

Additional file 1: Table S2 Estimates of Minimum Wage Effects on Wages by Educational Attainment

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Dependent Variable:  log (Employment/Population) | High School  or Below | | Vocational School | | Junior  College | | College  or Above | |
| Independent Variables (log) | (1) | (2) | (1) | (2) | (1) | (2) | (1) | (2) |
|  | A. All Regions | | | | | | | |
| MW level | .541\*\*\* | .326\*\*\* | .560\*\*\* | .391\*\*\* | .056 | .053 | .157\* | .187 |
|  | (.056) | (.066) | (.072) | (.078) | (.084) | (.088) | (.095) | (.119) |
| MW level, lagged 1 year | .314\*\*\* | .151\*\*\* | .375\*\*\* | .309\*\*\* | .030 | .028 | .080 | .104 |
|  | (.051) | (.055) | (.070) | (.078) | (.068) | (.072) | (.083) | (.090) |
| Other controls | No | Yes | No | Yes | No | Yes | No | Yes |
| County fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
|  | .545 | .577 | .438 | .448 | .212 | .388 | .330 | .536 |
| Number of counties per year | 659 | 659 | 636 | 636 | 653 | 653 | 632 | 632 |
| Average obs. per county per year | 744 | 744 | 196 | 196 | 408 | 408 | 277 | 277 |
|  | B. East | | | | | | | |
| MW level | .720\*\*\* | .300\*\*\* | .619\*\*\* | .419\*\*\* | .044 | .005 | .335 | .346 |
|  | (.087) | (.110) | (.110) | (.143) | (.186) | (.182) | (.258) | (.254) |
| MW level, lagged 1 year | .370\*\*\* | .172\* | .607\*\*\* | .456\*\*\* | .016 | .064 | .078 | .020 |
|  | (.080) | (.096) | (.120) | (.133) | (.106) | (.115) | (.101) | (.115) |
| Other controls | No | Yes | No | Yes | No | Yes | No | Yes |
| County fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
|  | .640 | .660 | .575 | .581 | .143 | .560 | .392 | .597 |
| Number of counties per year | 289 | 289 | 281 | 281 | 286 | 286 | 284 | 284 |
| Average obs. per county per year | 819 | 819 | 224 | 224 | 476 | 476 | 355 | 355 |
|  | C. Central | | | | | | | |
| MW level | .391\*\*\* | .326\*\*\* | .434\*\*\* | .409\*\*\* | .024 | .070 | .016 | .051 |
|  | (.084) | (.091) | (.107) | (.107) | (.105) | (.118) | (.130) | (.143) |
| MW level, lagged 1 year | .187\*\*\* | .144\* | .060 | .029 | .107 | .135 | .044 | .009 |
|  | (.081) | (.087) | (.106) | (.114) | (.108) | (.117) | (.147) | (.153) |
| Other controls | No | Yes | No | Yes | No | Yes | No | Yes |
| County fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
|  | .453 | .477 | .260 | .265 | .339 | .346 | .356 | .434 |
| Number of counties per year | 277 | 277 | 263 | 263 | 274 | 274 | 259 | 259 |
| Average obs. per county per year | 650 | 650 | 170 | 170 | 341 | 341 | 197 | 197 |
|  | D. West | | | | | | | |
| MW level | .365 | .060 | .436 | .605 | .424 | .232 | .498 | .343 |
|  | (.348) | (.461) | (.398) | (.607) | (.294) | (.411) | (.386) | (.451) |
| MW level, lagged 1 year | .298 | .290 | .094 | 1.103 | .061 | .054 | .157 | .034 |
|  | (.292) | (.403) | (.304) | (.706) | (.260) | (.420) | (.232) | (.421) |
| Other controls | No | Yes | No | Yes | No | Yes | No | Yes |
| County fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
|  | .248 | .344 | .159 | .187 | .265 | .280 | .339 | .389 |
| Number of counties per year | 93 | 93 | 92 | 92 | 93 | 93 | 89 | 89 |
| Average obs. per county per year | 791 | 791 | 183 | 183 | 394 | 394 | 258 | 258 |

*Note*: \*\*\* statistically significant at the 1 percent level; \*\* at the 5 percent level; \* at the 10 percent level. Cluster-robust standard errors at the county level are in parentheses.

Additional file 1: Table S3 Estimates of Effects of the Minimum Wage Enforcement on Wages

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Dependent Variable:  log (Wages) | Young Adults | | At-Risk Group | | Entire Sample | |
| Independent Variables (log) | (1) | (2) | (1) | (2) | (1) | (2) |
|  | A. All Regions | | | | | |
| MW(level) | .587\*\*\* | .367\*\*\* | .977\*\*\* | .959\*\*\* | .229\*\*\* | .034\*\*\* |
|  | (.086) | (.093) | (.006) | (.093) | (.048) | (.013) |
| Enforcement\*MW interaction | .005\*\* | .008\*\*\* | .003\*\*\* | .010\*\*\* | .003\*\*\* | .003\*\*\* |
|  | (.002) | (.002) | (.000) | (.000) | (.001) | (.001) |
| Other controls | No | Yes | No | Yes | No | Yes |
| County fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
|  | .345 | .640 | .987 | .989 | .380 | .700 |
| Number of counties per year | 649 | 649 | 562 | 562 | 661 | 661 |
| Average obs. per county per year | 270 | 270 | 170 | 170 | 1658 | 1658 |
|  | B. East | | | | | |
| MW(level) | .646\*\*\* | .484\*\*\* | 1.208\*\*\* | 1.302\*\*\* | .190\*\*\* | .119\*\*\* |
|  | (.118) | (.161) | (.005) | (.010) | (.065) | (.009) |
| Enforcement\*MW interaction | .005\* | .009\*\*\* | .003\*\*\* | .003\*\*\* | .001\*\*\* | .001\*\*\* |
|  | (.003) | (.003) | (.000) | (.000) | (.000) | (.000) |
| Other controls | No | Yes | No | Yes | No | Yes |
| County fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
|  | .219 | .701 | .993 | .994 | .281 | .734 |
| Number of counties per year | 286 | 286 | 253 | 253 | 289 | 289 |
| Average obs. per county per year | 329 | 329 | 180 | 180 | 1917 | 1917 |
|  | C. Central | | | | | |
| MW(level) | .554\*\*\* | .226\*\*\* | .927\*\*\* | .915\*\*\* | .167\*\*\* | .106\*\*\* |
|  | (.120) | (.104) | (.018) | (.022) | (.048) | (.048) |
| Enforcement\*MW interaction | .005\* | .007\* | .002\*\*\* | .002\*\*\* | .006\*\*\* | .006\*\*\* |
|  | (.003) | (.003) | (.000) | (.000) | (.001) | (.001) |
| Other controls | No | Yes | No | Yes | No | Yes |
| County fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
|  | .410 | .500 | .978 | .979 | .480 | .588 |
| Number of counties per year | 273 | 273 | 230 | 230 | 279 | 279 |
| Average obs. per county per year | 214 | 214 | 154 | 154 | 1385 | 1385 |
|  | D. West | | | | | |
| MW(level) | .226 | .135 | 1.002 | 1.003 | .464 | .330 |
|  | (.140) | (.191) | (.714) | (.759) | (.297) | (.214) |
| Enforcement\*MW interaction | .001 | .006 | .004 | .004 | .006 | .008 |
|  | (.004) | (.005) | (.005) | (.005) | (.004) | (.005) |
| Other controls | No | Yes | No | Yes | No | Yes |
| County fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
|  | .655 | .755 | .986 | .991 | .554 | .574 |
| Number of counties per year | 90 | 90 | 79 | 79 | 93 | 93 |
| Average obs. per county per year | 250 | 250 | 181 | 181 | 1673 | 1673 |

*Note*: \*\*\* statistically significant at the 1 percent level; \*\* at the 5 percent level; \* at the 10 percent level. Cluster-robust standard errors at the county level are in parentheses.

Additional file 1: Table S4 Estimates of Effects of the Minimum Wage Enforcement on the Employment-to-Population Ratio

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Dependent Variable:  log (Employment/Population) | Young Adults | | At-Risk Group | | Entire Sample | |
| Independent Variables (log) | (1) | (2) | (1) | (2) | (1) | (2) |
|  | A. All Regions | | | | | |
| MW | -.421\*\*\* | -.336\*\*\* | -.387\*\*\* | -.243\*\*\* | -.066\*\*\* | -.049\*\*\* |
|  | (.069) | (.088) | (.138) | (.137) | (.015) | (.016) |
| Enforcement | -.125\*\*\* | -.123\*\*\* | -.003\*\*\* | -.002\*\*\* | .008 | .010 |
|  | (.036) | (.040) | (.001) | (.000) | (.012) | (.013) |
| MW\*Enforcement (interaction) | -.099\*\* | -.100\*\* | -.040\*\*\* | -.121\*\*\* | .011 | .012 |
|  | (.040) | (.043) | (.010) | (.010) | (.010) | (.010) |
| MW enforcement on wages | .587\*\*\* | .367\*\*\* | .977\*\*\* | .959\*\*\* | .229\*\*\* | .034\*\*\* |
|  | (.086) | (.093) | (.006) | (.093) | (.048) | (.013) |
| Other controls | No | Yes | No | Yes | No | Yes |
|  | .222 | .278 | .020 | .046 | .076 | .103 |
| Number of counties per year | 649 | 649 | 562 | 562 | 661 | 661 |
| Average obs. per county per year | 270 | 270 | 170 | 170 | 1658 | 1658 |
|  | B. East | | | | | |
| MW | -.383\*\*\* | -.313\*\*\* | -.271\*\*\* | -.221\*\*\* | -.060\*\*\* | -.040\* |
|  | (.056) | (.081) | (.021) | (.026) | (.019) | (.023) |
| Enforcement | -.096\*\* | -.090\*\* | -.002\*\*\* | -.001\*\*\* | .002 | .004 |
|  | (.038) | (.040) | (.000) | (.000) | (.017) | (.017) |
| MW\*Enforcement (interaction) | -.076\*\* | -.071\* | -.038\*\*\* | -.045\*\*\* | .004 | .005 |
|  | (.036) | (.037) | (.014) | (.014) | (.013) | (.012) |
| MW enforcement on wages | .646\*\*\* | .484\*\*\* | 1.208\*\*\* | 1.302\*\*\* | .190\*\*\* | .119\*\*\* |
|  | (.118) | (.161) | (.005) | (.010) | (.065) | (.009) |
| Other controls | No | Yes | No | Yes | No | Yes |
|  | .270 | .302 | .018 | .089 | .065 | .102 |
| Number of counties per year | 286 | 286 | 253 | 253 | 289 | 289 |
| Average obs. per county per year | 329 | 329 | 180 | 180 | 1917 | 1917 |
|  | C. Central | | | | | |
| MW | -.436\*\* | -.499\*\* | -.460\*\*\* | -.413\*\*\* | -.115\*\*\* | -.108\*\*\* |
|  | (.184) | (.202) | (.224) | (.227) | (.028) | (.030) |
| Enforcement | -.204\*\* | -.270\*\*\* | -.003\*\*\* | -.004\*\*\* | -.008 | -.007 |
|  | (.092) | (.103) | (.001) | (.002) | (.018) | (.019) |
| MW\*Enforcement (interaction) | -.200\* | -.269\*\* | -.336\* | -.329\* | .002 | .001 |
|  | (.121) | (.136) | (.187) | (.190) | (.015) | (.016) |
| MW enforcement on wages | .554\*\*\* | .226\*\*\* | .927\*\*\* | .915\*\*\* | .167\*\*\* | .106\*\*\* |
|  | (.120) | (.104) | (.018) | (.022) | (.048) | (.048) |
| Other controls | No | Yes | No | Yes | No | Yes |
|  | .170 | .220 | .045 | .056 | .126 | .180 |
| Number of counties per year | 273 | 273 | 230 | 230 | 279 | 279 |
| Average obs. per county per year | 214 | 214 | 154 | 154 | 1385 | 1385 |
|  | D. West | | | | | |
| MW | -.377 | -.185 | -.182 | .068 | .048 | .073 |
|  | (.230) | (.410) | (.434) | (.656) | (.057) | (.060) |
| Enforcement | -.021 | .016 | -.001 | .007 | .053 | .075 |
|  | (.148) | (.234) | (.015) | (.021) | (.048) | (.059) |
| MW\*Enforcement (interaction) | .008 | .025 | .297 | -.112 | .045 | .064 |
|  | (.182) | (.270) | (.292) | (.362) | (.042) | (.049) |
| MW enforcement on wages | .226 | .135 | 1.002 | 1.003 | .464 | .330 |
|  | (.140) | (.191) | (.714) | (.759) | (.297) | (.214) |
| Other controls | No | Yes | No | Yes | No | Yes |
|  | .163 | .400 | .012 | .073 | .074 | .147 |
| Number of counties per year | 90 | 90 | 79 | 79 | 93 | 93 |
| Average obs. per county per year | 250 | 250 | 181 | 181 | 1673 | 1673 |

*Note:* \*\*\* statistically significant at the 1 percent level; \*\* at the 5 percent level; \* at the 10 percent level. Cluster-robust standard errors at the county level are in parentheses. Each estimation has controlled for year and county fixed effects. In each panel, the estimates of MW enforcement on wages are taken from Appendix Table 3.