

ONLINE APPENDIX

Appendix A: Supplementary Tables

Table A1: Log-Linear RD Effects: Optimal Bandwidth, Using a Uniform Kernel

	Male		Female	
	No BDay (1)	BDay (2)	No BDay (3)	BDay (4)
Violent				
All	0.0886*** (0.0275) [234]	0.113*** (0.0354) [128]	0.0100 (0.0237) [182]	0.0106 (0.0250) [166]
Homicide	-0.129 (0.0859) [187]	-0.0998 (0.0765) [232]	0.0120 (0.0344) [186]	0.0235 (0.0383) [163]
Sex Offenses	0.188** (0.0754) [120]	0.192** (0.0767) [118]	0.166 (0.127) [165]	0.183 (0.129) [158]
Robbery	0.117* (0.0603) [147]	0.146** (0.0633) [135]	0.00720 (0.0812) [166]	-0.0374 (0.0870) [147]
Assault	0.0734** (0.0342) [246]	0.0915** (0.0416) [168]	-0.0125 (0.0244) [194]	0.00340 (0.0274) [161]
Property				
All	0.0471 (0.0305) [147]	0.0577** (0.0243) [243]	0.163*** (0.0289) [90]	0.158*** (0.0287) [97]
Burglary	-0.0871 (0.0761) [149]	-0.101 (0.0636) [197]	0.0990* (0.0558) [168]	0.110* (0.0606) [144]
Larceny	0.0749* (0.0400) [166]	0.0620* (0.0345) [229]	0.207*** (0.0374) [102]	0.206*** (0.0396) [98]
Motor Vehicle Theft	0.126* (0.0649) [211]	0.145** (0.0690) [183]	0.0567 (0.0898) [113]	0.0350 (0.0879) [117]

This table contains estimates for the RD effect of the minimum legal drinking age on male and female victimization rates for each crime type. The estimates in this table are produced using the optimal bandwidth of Calonico et al (2014), a uniform kernel, and local linear regression to construct the point estimator. Odd numbered columns do not include birthday controls; even numbered columns control for the week around each birthday. Each observation is the natural log of the total number of victims in each age (days) relative to the 21st birthday. Adjustment from Chalfin and McCrary (2018) used when necessary. Robust standard errors in parentheses; optimal bandwidths (days) in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A2: Log-Linear RD Effects: Optimal Bandwidth, Using a Triangular Kernel

	Male		Female	
	No BDay (1)	BDay (2)	No BDay (3)	BDay (4)
Violent				
All	0.104*** (0.0309) [213]	0.105*** (0.0318) [190]	0.00983 (0.0258) [184]	0.00667 (0.0252) [199]
Homicide	-0.118 (0.0788) [278]	-0.113 (0.0854) [237]	0.0277 (0.0361) [224]	0.0264 (0.0315) [281]
Sex Offenses	0.200*** (0.0735) [156]	0.207*** (0.0765) [146]	0.275* (0.144) [157]	0.223* (0.127) [202]
Robbery	0.138** (0.0591) [182]	0.134** (0.0602) [173]	-0.00779 (0.0706) [262]	-0.0121 (0.0681) [278]
Assault	0.104** (0.0436) [180]	0.0757** (0.0342) [293]	-0.00510 (0.0245) [232]	-0.00379 (0.0259) [209]
Property				
All	0.0396 (0.0307) [174]	0.0465* (0.0276) [220]	0.172*** (0.0272) [110]	0.153*** (0.0270) [126]
Burglary	-0.105 (0.0723) [193]	-0.0979 (0.0656) [230]	0.0948* (0.0559) [197]	0.0893 (0.0577) [182]
Larceny	0.0640 (0.0410) [178]	0.0626 (0.0393) [199]	0.228*** (0.0382) [115]	0.207*** (0.0383) [126]
Motor Vehicle Theft	0.108* (0.0603) [296]	0.106 (0.0694) [222]	0.0200 (0.0752) [184]	0.0221 (0.0774) [173]

This table contains estimates for the RD effect of the minimum legal drinking age on male and female victimization rates for each crime type. The estimates in this table are produced using the optimal bandwidth of Calonico et al (2014), a triangular kernel, and local linear regression to construct the point estimator. Odd numbered columns do not include birthday controls; even numbered columns control for the week around each birthday. Each observation is the natural log of the total number of victims in each age (days) relative to the 21st birthday. Adjustment from Chalfin and McCrary (2018) used when necessary. Robust standard errors in parentheses; optimal bandwidths (days) in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A3: Poisson Male RD Effects, Excluding One City

	Excluded City							
	(1) Charlotte	(2) Dallas	(3) Denver	(4) Houston	(5) Kansas City	(6) Milwaukee	(7) San Diego	(8) St. Louis
Violent								
All	1.115 (0.0873)	1.083*** (0.0295)	1.071 (0.0559)	1.071 (0.0559)	1.103* (0.0598)	1.071 (0.0559)	1.007 (0.0645)	1.071 (0.0559)
Homicide	0.318 (0.245)	0.823 (0.178)	0.952 (0.481)	0.952 (0.481)	1.024 (0.565)	0.952 (0.481)	1.644 (0.976)	0.952 (0.481)
Sex Offenses	1.065 (1.188)	1.411 (0.463)	1.867 (1.247)	1.867 (1.247)	2.041 (1.367)	1.867 (1.247)	2.664 (2.234)	1.867 (1.247)
Robbery	1.042 (0.185)	1.081* (0.0468)	1.002 (0.0983)	1.002 (0.0983)	1.025 (0.104)	1.002 (0.0983)	0.961 (0.110)	1.002 (0.0983)
Assault	1.160* (0.104)	1.087** (0.0381)	1.093 (0.0662)	1.093 (0.0662)	1.126* (0.0711)	1.093 (0.0662)	1.012 (0.0763)	1.093 (0.0662)
Property								
All	1.112 (0.0757)	1.059** (0.0251)	1.093* (0.0505)	1.093* (0.0505)	1.081 (0.0520)	1.093* (0.0505)	1.098* (0.0623)	1.093* (0.0505)
Burglary	0.864 (0.112)	1.003 (0.0535)	0.903 (0.0789)	0.903 (0.0789)	0.889 (0.0790)	0.903 (0.0789)	0.957 (0.108)	0.903 (0.0789)
Larceny	1.236** (0.110)	1.069** (0.0326)	1.179*** (0.0696)	1.179*** (0.0696)	1.168** (0.0708)	1.179*** (0.0696)	1.159** (0.0832)	1.179*** (0.0696)
MV Theft	1.213 (0.337)	1.096 (0.0681)	1.118 (0.157)	1.118 (0.157)	1.107 (0.180)	1.118 (0.157)	1.100 (0.155)	1.118 (0.157)

This table contains IRR estimates for the RD effect of the minimum legal drinking age on male victimization rates for each rates for each crime type. All regressions include second order polynomials in age fully interacted with an indicator for age over 21. Column labels indicate the city whose data is excluded from the regressions. Each observation is the total number of victims in each age (days) relative to the 21st birthday. 2 year bandwidth used in all regressions.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A4: Poisson Female RD Effects, Excluding One City

	Excluded City							
	(1) Charlotte	(2) Dallas	(3) Denver	(4) Houston	(5) Kansas City	(6) Milwaukee	(7) San Diego	(8) St. Louis
Violent								
All	1.056 (0.0764)	1.029 (0.0227)	1.016 (0.0428)	1.016 (0.0428)	1.014 (0.0442)	1.016 (0.0428)	1.000 (0.0489)	1.016 (0.0428)
Homicide	6.778 (11.88)	1.755 (0.908)	1.076 (0.928)	1.076 (0.928)	0.956 (0.820)	1.076 (0.928)	0.592 (0.505)	1.076 (0.928)
Sex Offenses	1.292 (0.276)	1.268** (0.126)	1.426** (0.241)	1.426** (0.241)	1.495** (0.260)	1.426** (0.241)	1.453 (0.342)	1.426** (0.241)
Robbery	1.089 (0.273)	1.084 (0.0663)	1.134 (0.156)	1.134 (0.156)	1.180 (0.169)	1.134 (0.156)	1.099 (0.172)	1.134 (0.156)
Assault	1.021 (0.0789)	1.006 (0.0235)	0.978 (0.0447)	0.978 (0.0447)	0.967 (0.0463)	0.978 (0.0447)	0.972 (0.0509)	0.978 (0.0447)
Property								
All	1.146** (0.0778)	1.104*** (0.0242)	1.098** (0.0465)	1.098** (0.0465)	1.092** (0.0484)	1.098** (0.0465)	1.081 (0.0519)	1.098** (0.0465)
Burglary	1.175 (0.130)	1.093** (0.0473)	1.091 (0.0887)	1.091 (0.0887)	1.073 (0.0924)	1.091 (0.0887)	1.054 (0.109)	1.091 (0.0887)
Larceny	1.122 (0.100)	1.118* (0.0298)	1.107* (0.0583)	1.107* (0.0583)	1.113** (0.0595)	1.107* (0.0583)	1.094 (0.0645)	1.107* (0.0583)
MV Theft	1.301 (0.388)	1.032 (0.0649)	1.023 (0.185)	1.023 (0.185)	0.883 (0.195)	1.023 (0.185)	1.053 (0.197)	1.023 (0.185)

This table contains IRR estimates for the RD effect of the minimum legal drinking age on female victimization rates for each rates for each crime type. All regressions include second order polynomials in age fully interacted with an indicator for age over 21. Column labels indicate the city whose data is excluded from the regressions. Each observation is the total number of victims in each age (days) relative to the 21st birthday. 2 year bandwidth used in all regressions.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A5: Poisson RD Effects: Milwaukee and San Diego Supsample

	Male		Female	
	No BDay (1)	BDay (2)	No BDay (3)	BDay (4)
Violent				
All	1.178*** (0.0580)	1.177*** (0.0578)	1.044 (0.0422)	1.042 (0.0418)
Homicide	0.411** (0.169)	0.412** (0.167)	4.287 (4.171)	4.334 (4.126)
Sex Offenses	1.364 (0.891)	1.360 (0.880)	1.131 (0.186)	1.127 (0.184)
Robbery	1.158* (0.0889)	1.161* (0.0897)	1.361*** (0.149)	1.360*** (0.149)
Assault	1.217*** (0.0797)	1.214*** (0.0787)	0.988 (0.0437)	0.987 (0.0432)
Property				
All	1.039 (0.0486)	1.038 (0.0480)	1.186*** (0.0474)	1.183*** (0.0461)
Burglary	0.916 (0.0873)	0.916 (0.0872)	1.154* (0.0875)	1.149* (0.0853)
Larceny	1.057 (0.0622)	1.056 (0.0618)	1.207*** (0.0617)	1.204*** (0.0603)
Motor Vehicle Theft	1.180 (0.148)	1.173 (0.145)	1.139 (0.116)	1.141 (0.116)

This table contains IRR estimates for the RD effect of the minimum legal drinking age on male and female victimization rates for each crime type. All regressions include second order polynomials in age fully interacted with an indicator for age over 21. Odd numbered columns do not include birthday controls; even numbered columns control for the week around each birthday. Each observation is the total number of victims in each age (days) relative to the 21st birthday. Robust standard errors in parentheses. 2 year bandwidth used in all regressions. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A6: Log-Linear Male RD Effects

	(1)	(2)	(3)	(4)	(5)	(6)
	Order 1	Order 2	Order 3	Birthday 1	Birthday 2	Birthday 3
Violent						
All	0.0533*** (0.0158)	0.0695*** (0.0235)	0.0897*** (0.0309)	0.0677*** (0.0234)	0.0653*** (0.0229)	0.0687*** (0.0232)
Homicide	-0.00837 (0.0428)	-0.0893 (0.0647)	-0.124 (0.0863)	-0.0887 (0.0648)	-0.0947 (0.0646)	-0.0903 (0.0646)
Sex Offenses	0.0154 (0.0298)	0.0796* (0.0445)	0.105* (0.0602)	0.0803* (0.0446)	0.0808* (0.0447)	0.0795* (0.0445)
Robbery	0.0473* (0.0282)	0.0758* (0.0415)	0.139** (0.0544)	0.0765* (0.0416)	0.0782* (0.0417)	0.0765* (0.0417)
Assault	0.0620*** (0.0203)	0.0733** (0.0302)	0.0791* (0.0407)	0.0703** (0.0300)	0.0662** (0.0294)	0.0719** (0.0298)
Property						
All	0.0162 (0.0144)	0.0661*** (0.0211)	0.0733** (0.0284)	0.0644*** (0.0209)	0.0625*** (0.0209)	0.0651*** (0.0207)
Burglary	-0.0285 (0.0345)	0.0137 (0.0513)	-0.0637 (0.0685)	0.0108 (0.0513)	0.0142 (0.0515)	0.0136 (0.0514)
Larceny	0.0181 (0.0197)	0.0592** (0.0291)	0.0965** (0.0386)	0.0576** (0.0290)	0.0550* (0.0288)	0.0580** (0.0286)
Motor Vehicle Theft	0.0397 (0.0341)	0.121** (0.0512)	0.115* (0.0677)	0.119** (0.0511)	0.116** (0.0512)	0.120** (0.0507)

This table presents estimates for the RD effect of the minimum legal drinking age on male victimization rates for each crime type. The regressions in Columns (1) to (3) include first through third order polynomials in age fully interacted with an indicator for age over 21. The regressions in Columns (4) - (6) contain second order polynomials in age fully interacted with an indicator for age over 21 and birthday effects 1-3, respectively. Birthday 1 includes indicator variables for exact birthdays. Birthday 2 includes indicator variables for exact birthdays and the following three days. Birthday 3 includes indicators for the week around each birthday. Each observation is the natural log of the total number of victims in each age (days) relative to the 21st birthday. For homicide and rape, there are a small number of observations for which the count of the dependent variable is zero. To ensure that each the value of the dependent variable is defined for each observation, we approximate the natural logarithm function using a parametric correction suggested by [Chalfin and McCrary \(2018\)](#). Define $f(y) = a + by$ if $y < c$ and $f(y) = \ln(y)$ if else. We choose a and b to match the natural logarithm function at $y=c$. Note that the first derivative of $\ln(Y)$ at $y=c$ is $\frac{1}{c}$. Thus, $b = \frac{1}{c}$ and $a+bc = \ln(c)$. Therefore $a = \ln(c)-1$. We estimate all equations for $c = 2$. Estimates are virtually identical to those using the inverse hyperbolic sine transformation. Standard errors in parentheses. 2 year bandwidth used in all regressions. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A7: Log-Linear Female RD Effects

	(1)	(2)	(3)	(4)	(5)	(6)
	Order 1	Order 2	Order 3	Birthday 1	Birthday 2	Birthday 3
Violent						
All	0.00516 (0.0123)	0.0160 (0.0187)	0.00125 (0.0252)	0.0139 (0.0187)	0.0127 (0.0185)	0.0153 (0.0186)
Homicide	0.0132 (0.0175)	0.0186 (0.0254)	0.0340 (0.0348)	0.0181 (0.0252)	0.0176 (0.0251)	0.0183 (0.0252)
Sex Offenses	0.174*** (0.0588)	0.236*** (0.0909)	0.153 (0.125)	0.229** (0.0904)	0.225** (0.0900)	0.234*** (0.0906)
Robbery	0.000943 (0.0387)	0.0411 (0.0591)	0.00140 (0.0813)	0.0405 (0.0593)	0.0414 (0.0597)	0.0407 (0.0591)
Assault	-0.00380 (0.0131)	0.00246 (0.0198)	-0.00726 (0.0262)	0.000585 (0.0198)	-0.000605 (0.0197)	0.00193 (0.0198)
Property						
All	0.0335** (0.0133)	0.106*** (0.0196)	0.0840*** (0.0264)	0.103*** (0.0190)	0.0996*** (0.0185)	0.105*** (0.0186)
Burglary	0.00367 (0.0294)	0.109** (0.0432)	0.0660 (0.0573)	0.105** (0.0431)	0.103** (0.0432)	0.107** (0.0430)
Larceny	0.0576*** (0.0165)	0.123*** (0.0248)	0.116*** (0.0338)	0.118*** (0.0240)	0.115*** (0.0234)	0.121*** (0.0237)
Motor Vehicle Theft	-0.0416 (0.0367)	0.0303 (0.0537)	-0.0401 (0.0694)	0.0320 (0.0538)	0.0266 (0.0538)	0.0293 (0.0536)

This table presents estimates for the RD effect of the minimum legal drinking age on female victimization rates for each crime type. The regressions in Columns (1) to (3) include first through third order polynomials in age fully interacted with an indicator for age over 21. The regressions in Columns (4) - (6) contain second order polynomials in age fully interacted with an indicator for age over 21 and birthday effects 1-3, respectively. Birthday 1 includes indicator variables for exact birthdays. Birthday 2 includes indicator variables for exact birthdays and the following three days. Birthday 3 includes indicators for the week around each birthday. Each observation is the natural log of the total number of victims in each age (days) relative to the 21st birthday. For homicide and rape, there are a small number of observations for which the count of the dependent variable is zero. To ensure that each the value of the dependent variable is defined for each observation, we approximate the natural logarithm function using a parametric correction suggested by [Chalfin and McCrary \(2018\)](#). Define $f(y) = a + by$ if $y < c$ and $f(y) = \ln(y)$ if else. We choose a and b to match the natural logarithm function at $y=c$. Note that the first derivative of $\ln(Y)$ at $y=c$ is $\frac{1}{c}$. Thus, $b = \frac{1}{c}$ and $a+bc = \ln(c)$. Therefore $a = \ln(c)-1$. We estimate all equations for $c = 2$. Estimates are virtually identical to those using the inverse hyperbolic sine transformation. Standard errors in parentheses. 2 year bandwidth used in all regressions. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A8: Negative Binomial RD Effects

	Male		Female	
	No BDay (1)	BDay (2)	No BDay (3)	BDay (4)
Violent				
All	1.069*** (0.0251)	1.068*** (0.0246)	1.016 (0.0190)	1.016 (0.0188)
Homicide	0.780 (0.148)	0.779 (0.147)	1.437 (0.685)	1.429 (0.674)
Sex Offenses	1.743* (0.530)	1.741* (0.529)	1.244** (0.107)	1.240** (0.105)
Robbery	1.078* (0.0423)	1.078* (0.0425)	1.034 (0.0568)	1.033 (0.0567)
Assault	1.067** (0.0325)	1.065** (0.0317)	1.002 (0.0198)	1.002 (0.0198)
Property				
All	1.071*** (0.0224)	1.069*** (0.0217)	1.109*** (0.0217)	1.106*** (0.0204)
Burglary	1.024 (0.0495)	1.023 (0.0495)	1.121*** (0.0447)	1.119*** (0.0442)
Larceny	1.067** (0.0298)	1.066** (0.0293)	1.127*** (0.0282)	1.124*** (0.0265)
Motor Vehicle Theft	1.124** (0.0545)	1.121** (0.0533)	1.019 (0.0480)	1.018 (0.0477)

This table contains IRR estimates for the RD effect of the minimum legal drinking age on male and female victimization rates for each crime type. All regressions include second order polynomials in age fully interacted with an indicator for age over 21. Odd numbered columns do not include birthday controls; even numbered columns control for the week around each birthday. Each observation is the total number of victims in each age (days) relative to the 21st birthday. Robust standard errors in parentheses. 2 year bandwidth used in all regressions. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A9: Poisson Male RD Effects–City FEs

	(1)	(2)	(3)	(4)	(5)	(6)
	Order 1	Order 2	Order 3	Birthday 1	Birthday 2	Birthday 3
Violent						
All	1.054*** (0.0165)	1.069*** (0.0251)	1.098*** (0.0343)	1.067*** (0.0250)	1.064*** (0.0241)	1.068*** (0.0246)
Homicide	0.992 (0.120)	0.779 (0.148)	0.706 (0.166)	0.781 (0.148)	0.769 (0.145)	0.779 (0.147)
Sex Offenses	1.119 (0.234)	1.744* (0.531)	2.204* (0.948)	1.753* (0.534)	1.762* (0.539)	1.742* (0.529)
Robbery	1.047* (0.0278)	1.078* (0.0423)	1.138** (0.0583)	1.078* (0.0424)	1.080* (0.0426)	1.078* (0.0425)
Assault	1.058*** (0.0213)	1.067** (0.0325)	1.083* (0.0452)	1.063** (0.0321)	1.058* (0.0309)	1.065** (0.0317)
Property						
All	1.021 (0.0144)	1.071*** (0.0224)	1.073** (0.0304)	1.069*** (0.0221)	1.066*** (0.0219)	1.069*** (0.0217)
Burglary	0.991 (0.0316)	1.024 (0.0495)	0.943 (0.0613)	1.021 (0.0493)	1.023 (0.0496)	1.023 (0.0495)
Larceny	1.022 (0.0192)	1.067** (0.0298)	1.100** (0.0415)	1.066** (0.0297)	1.063** (0.0294)	1.066** (0.0293)
Motor Vehicle Theft	1.049 (0.0332)	1.124** (0.0545)	1.120* (0.0712)	1.121** (0.0542)	1.113** (0.0534)	1.121** (0.0533)

This table contains IRR estimates for the RD effect of the minimum legal drinking age on male victimization rates for each crime type. The regressions in Columns (1) to (3) include first through third order polynomials in age fully interacted with an indicator for age over 21 and city fixed effects. The regressions in Columns (4) - (6) contain second order polynomials in age fully interacted with an indicator for age over 21, city fixed effects, and birthday effects 1-3, respectively. Birthday 1 includes indicator variables for exact birthdays. Birthday 2 includes indicator variables for exact birthdays and the following three days. Birthday 3 includes indicators for the week around each birthday. Each observation is the total number of victims in each age (days) relative to the 21st birthday. Robust standard errors clustered at the relative age (days) level in parentheses. 2 year bandwidth used in all regressions. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A10: Poisson Female RD Effects–City FEs

	(1)	(2)	(3)	(4)	(5)	(6)
	Order 1	Order 2	Order 3	Birthday 1	Birthday 2	Birthday 3
Violent						
All	1.008 (0.0122)	1.016 (0.0190)	1.001 (0.0250)	1.014 (0.0189)	1.013 (0.0187)	1.016 (0.0188)
Homicide						
Over 21	1.274 (0.409)	1.437 (0.685)	2.007 (1.389)	1.428 (0.676)	1.418 (0.669)	1.429 (0.674)
Sex Offenses	1.169*** (0.0649)	1.244** (0.107)	1.134 (0.136)	1.233** (0.105)	1.226** (0.102)	1.240** (0.105)
Robbery	1.014 (0.0360)	1.034 (0.0568)	1.016 (0.0772)	1.033 (0.0569)	1.034 (0.0572)	1.033 (0.0567)
Assault	0.998 (0.0129)	1.002 (0.0198)	0.991 (0.0258)	1.000 (0.0198)	0.999 (0.0196)	1.002 (0.0198)
Property						
All	1.037*** (0.0136)	1.109*** (0.0217)	1.094*** (0.0292)	1.103*** (0.0207)	1.099*** (0.0200)	1.106*** (0.0204)
Burglary	1.014 (0.0272)	1.121*** (0.0447)	1.081 (0.0562)	1.117*** (0.0443)	1.115*** (0.0444)	1.119*** (0.0442)
Larceny	1.061*** (0.0173)	1.127*** (0.0282)	1.127*** (0.0388)	1.119*** (0.0265)	1.115*** (0.0256)	1.124*** (0.0265)
Motor Vehicle Theft	0.961 (0.0310)	1.019 (0.0480)	0.978 (0.0598)	1.021 (0.0482)	1.015 (0.0479)	1.018 (0.0477)

This table contains IRR estimates for the RD effect of the minimum legal drinking age on female victimization rates for each crime type. The regressions in Columns (1) to (3) include first through third order polynomials in age fully interacted with an indicator for age over 21 and city fixed effects. The regressions in Columns (4) - (6) contain second order polynomials in age fully interacted with an indicator for age over 21, city fixed effects, and birthday effects 1-3, respectively. Birthday 1 includes indicator variables for exact birthdays. Birthday 2 includes indicator variables for exact birthdays and the following three days. Birthday 3 includes indicators for the week around each birthday. Each observation is the total number of victims in each age (days) relative to the 21st birthday. Robust standard errors clustered at the relative age (days) level in parentheses. 2 year bandwidth used in all regressions. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A11: Log-Linear Birthday Effects

	(1)	(2)	(3)	(4)	(5)	(6)
	Male			Female		
	Birthday 1	Birthday 2	Birthday 3	Birthday 1	Birthday 2	Birthday 3
Violent						
All	0.146*** (0.0372)	0.116*** (0.0349)	0.0671** (0.0315)	0.164*** (0.0506)	0.0891*** (0.0313)	0.0532** (0.0232)
Homicide	-0.0465 (0.184)	0.147 (0.123)	0.0880 (0.0850)	0.0361 (0.0906)	0.0258 (0.0469)	0.0263 (0.0436)
Sex Offenses	-0.0544 (0.0825)	-0.0313 (0.0518)	0.00877 (0.0550)	0.560*** (0.173)	0.300** (0.129)	0.147 (0.104)
Robbery	-0.0618 (0.125)	-0.0669 (0.0704)	-0.0635 (0.0580)	0.0459 (0.224)	-0.0105 (0.115)	0.0298 (0.0855)
Assault	0.248*** (0.0396)	0.196*** (0.0383)	0.122*** (0.0363)	0.152*** (0.0413)	0.0844*** (0.0325)	0.0446* (0.0260)
Property						
All	0.146** (0.0616)	0.0995** (0.0452)	0.0891*** (0.0315)	0.297*** (0.0460)	0.188*** (0.0345)	0.125*** (0.0279)
Burglary	0.239*** (0.0455)	-0.0122 (0.0985)	0.0102 (0.0724)	0.287*** (0.0504)	0.150** (0.0628)	0.143*** (0.0437)
Larceny	0.113 (0.0790)	0.111*** (0.0395)	0.0923*** (0.0277)	0.368*** (0.0519)	0.221*** (0.0434)	0.138*** (0.0347)
Motor Vehicle Theft	0.349*** (0.0611)	0.202 (0.131)	0.206** (0.0818)	-0.283*** (0.0648)	0.0357 (0.0867)	0.00772 (0.0790)

This table contains estimates for the birthday effect on male and female victimization rates for each crime type. All regressions include second order polynomials in age fully interacted with an indicator for age over 21. Birthday 1 includes indicator variables for exact birthdays. Birthday 2 includes indicator variables for exact birthdays and the following three days. Birthday 3 includes indicators for the week around each birthday. Each observation is the natural log of the total number of victims in each age (days) relative to the 21st birthday. Adjustment from Chalfin and McCrary (2018) used when necessary. Robust standard errors in parentheses. 2 year bandwidth used in all regressions.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A12: Poisson Birthday Effects–City FEs

	(1)	(2)	(3)	(4)	(5)	(6)
	Male			Female		
	Birthday 1	Birthday 2	Birthday 3	Birthday 1	Birthday 2	Birthday 3
Violent						
All	1.149*** (0.0466)	1.129*** (0.0437)	1.073** (0.0311)	1.168** (0.0723)	1.093** (0.0489)	1.054 (0.0417)
Homicide	0.851 (0.558)	1.431** (0.224)	1.245 (0.209)	1.567 (1.716)	1.417 (0.761)	1.439 (0.604)
Sex Offenses	0.637 (0.637)	0.777 (0.357)	1.045 (0.371)	1.664** (0.387)	1.379*** (0.147)	1.208* (0.131)
Robbery	0.945 (0.0631)	0.943 (0.0505)	0.948 (0.0523)	1.076 (0.116)	1.007 (0.0430)	1.048 (0.0371)
Assault	1.261*** (0.0814)	1.218*** (0.0655)	1.131*** (0.0348)	1.150** (0.0701)	1.087* (0.0507)	1.045 (0.0415)
Property						
All	1.130* (0.0784)	1.112*** (0.0375)	1.101*** (0.0301)	1.362*** (0.0606)	1.230*** (0.0257)	1.142*** (0.0178)
Burglary	1.194 (0.247)	1.010 (0.129)	1.042 (0.0758)	1.291*** (0.116)	1.148** (0.0735)	1.132*** (0.0483)
Larceny	1.089 (0.0889)	1.099** (0.0408)	1.091*** (0.0304)	1.508*** (0.0757)	1.286*** (0.0446)	1.160*** (0.0316)
Motor Vehicle Theft	1.195** (0.0838)	1.240*** (0.0757)	1.182*** (0.0662)	0.825 (0.170)	1.090 (0.0998)	1.081 (0.0661)

This table contains IRR estimates for the birthday effect on male and female victimization rates for each crime type. All regressions include city fixed effects, second order polynomials in age fully interacted with an indicator for age over 21. Birthday 1 includes indicator variables for exact birthdays. Birthday 2 includes indicator variables for exact birthdays and the following three days. Birthday 3 includes indicators for the week around each birthday. Each observation is the total number of victims in each age (days) relative to the 21st birthday. Robust standard errors clustered at the city level in parentheses. 2 year bandwidth used in all regressions * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A13: Poisson RD Effects by University Schedule

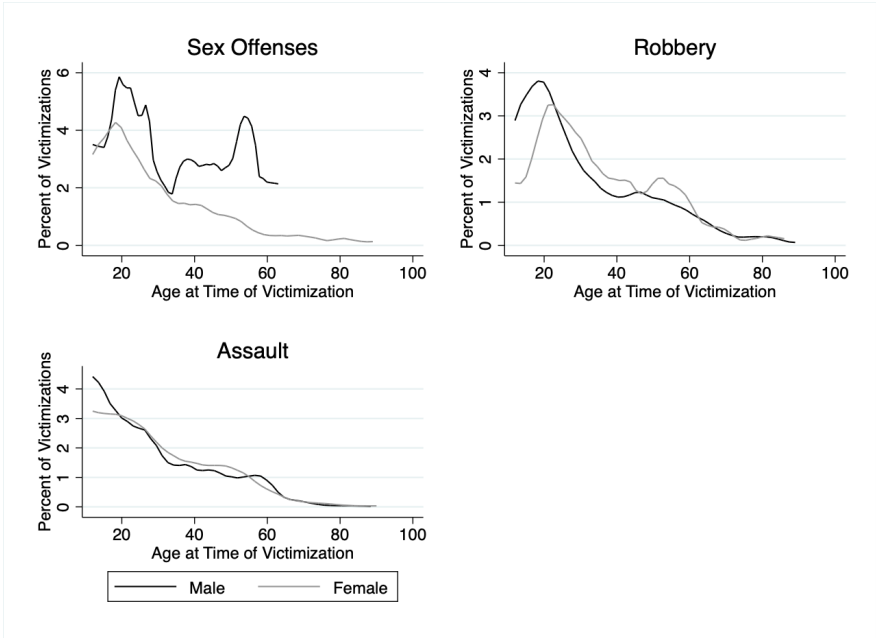
	Male				Female			
	In Session (1)	On Break (2)	On Break (3)	On Break (4)	In Session (5)	On Break (6)	On Break (7)	On Break (8)
Violent								
All	1.075** (0.0323)	1.074** (0.0319)	1.060 (0.0399)	1.060 (0.0396)	1.027 (0.0227)	1.026 (0.0226)	1.002 (0.0314)	1.001 (0.0312)
Homicide	0.932 (0.231)	0.931 (0.230)	0.614 (0.185)	0.614 (0.185)	1.136 (0.750)	1.129 (0.735)	1.690 (1.172)	1.684 (1.157)
Sex Offenses	1.813 (0.680)	1.809 (0.678)	1.651 (0.815)	1.652 (0.815)	1.250** (0.131)	1.246** (0.129)	1.234 (0.162)	1.231 (0.160)
Robbery	1.042 (0.0538)	1.042 (0.0540)	1.134** (0.0670)	1.136** (0.0672)	1.040 (0.0689)	1.039 (0.0686)	1.029 (0.0912)	1.028 (0.0911)
Assault	1.089** (0.0416)	1.087** (0.0411)	1.036 (0.0529)	1.035 (0.0522)	1.014 (0.0245)	1.013 (0.0245)	0.985 (0.0324)	0.984 (0.0322)
Property								
All	1.094*** (0.0288)	1.093*** (0.0281)	1.034 (0.0341)	1.033 (0.0338)	1.136*** (0.0273)	1.133*** (0.0258)	1.067** (0.0330)	1.066** (0.0325)
Burglary	1.045 (0.0674)	1.043 (0.0670)	0.991 (0.0774)	0.992 (0.0774)	1.088 (0.0564)	1.087 (0.0563)	1.173** (0.0802)	1.168** (0.0790)
Larceny	1.095*** (0.0378)	1.094*** (0.0374)	1.027 (0.0441)	1.025 (0.0436)	1.160*** (0.0365)	1.157*** (0.0344)	1.075* (0.0406)	1.075* (0.0401)
MV Theft	1.137** (0.0708)	1.134** (0.0698)	1.102 (0.0831)	1.100 (0.0822)	1.095 (0.0660)	1.094 (0.0656)	0.912 (0.0668)	0.911 (0.0667)

This table contains IRR estimates for the RD effect of the minimum legal drinking age on male and female victimization rates for each crime and university schedule. All regressions include second order polynomials in age fully interacted with an indicator for age over 21. Even numbered columns include indicator variables for the week around birthdays. Each observation is the total number of victims in each age (days) relative to the 21st birthday. Robust standard errors in parentheses. 2 year bandwidth used in all regressions.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix B: Supplementary Figures

Age Profile of Victimization: NCVS Urban Respondents
 Panel A: Violent Victimizations



Panel B: Property Victimizations

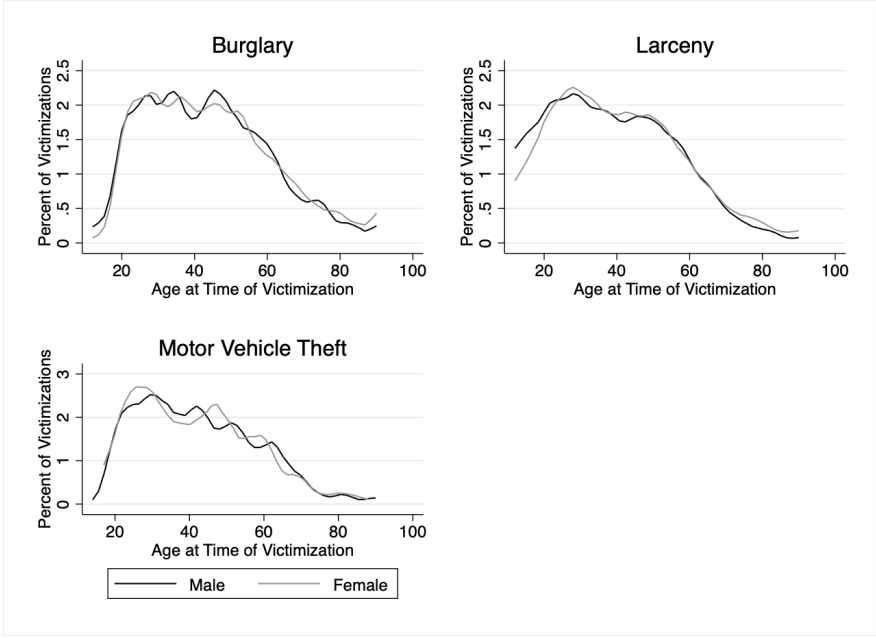
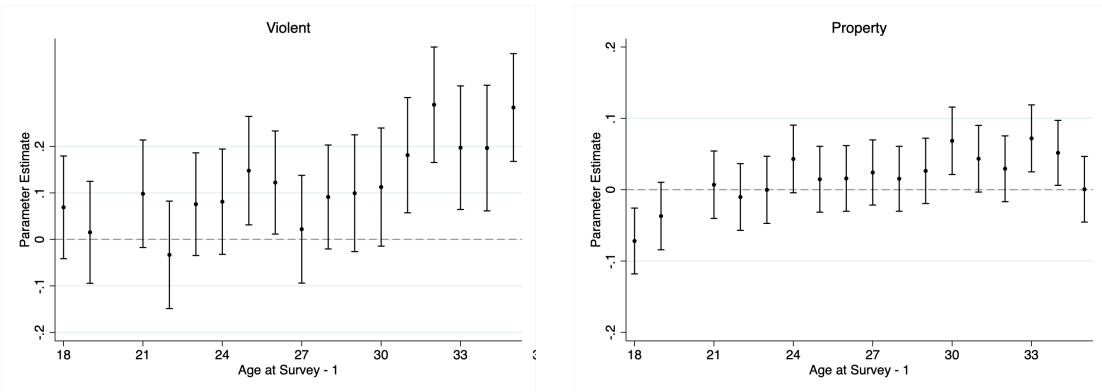


Figure A1: This figure contains local polynomial regressions of age in years at the time of survey on percent of victimizations at that age for urban respondents to the 2006-2016 waves of the NCVS. Each observation is the percent of all victimizations within crime type and gender that occur at a given age.

Reported Victimization by Age, Urban Respondents Using NCVS Age Minus 1

Panel A: Males



Panel B: Females

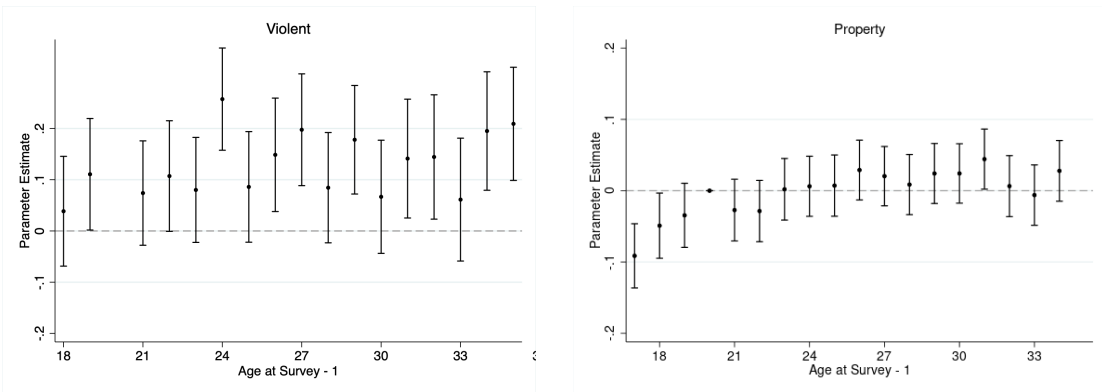


Figure A2: This figure presents estimates of β_k from $Report_{ikt} = \alpha + \sum_{18}^{35} \beta_k Age_Ind_{ik} + \gamma_{tw} + \epsilon_{ikt}$ where i is individual, k is age in years at time of survey minus one year, and t crime type. $Report_{ikt}$ is an indicator variable that is 1 if an individual reported his or her victimization to the police and 0 otherwise. Age_Ind_{ik} is an indicator variable that is 1 if individual i was age k at the time of survey wave w . 95% confidence intervals included based on robust standard errors. Estimates are based on urban respondent to the 2006-2016 waves of the National Crime Victimization Survey and relative to age 20.

Placebo Test of Birthday Effect on Male Victimization

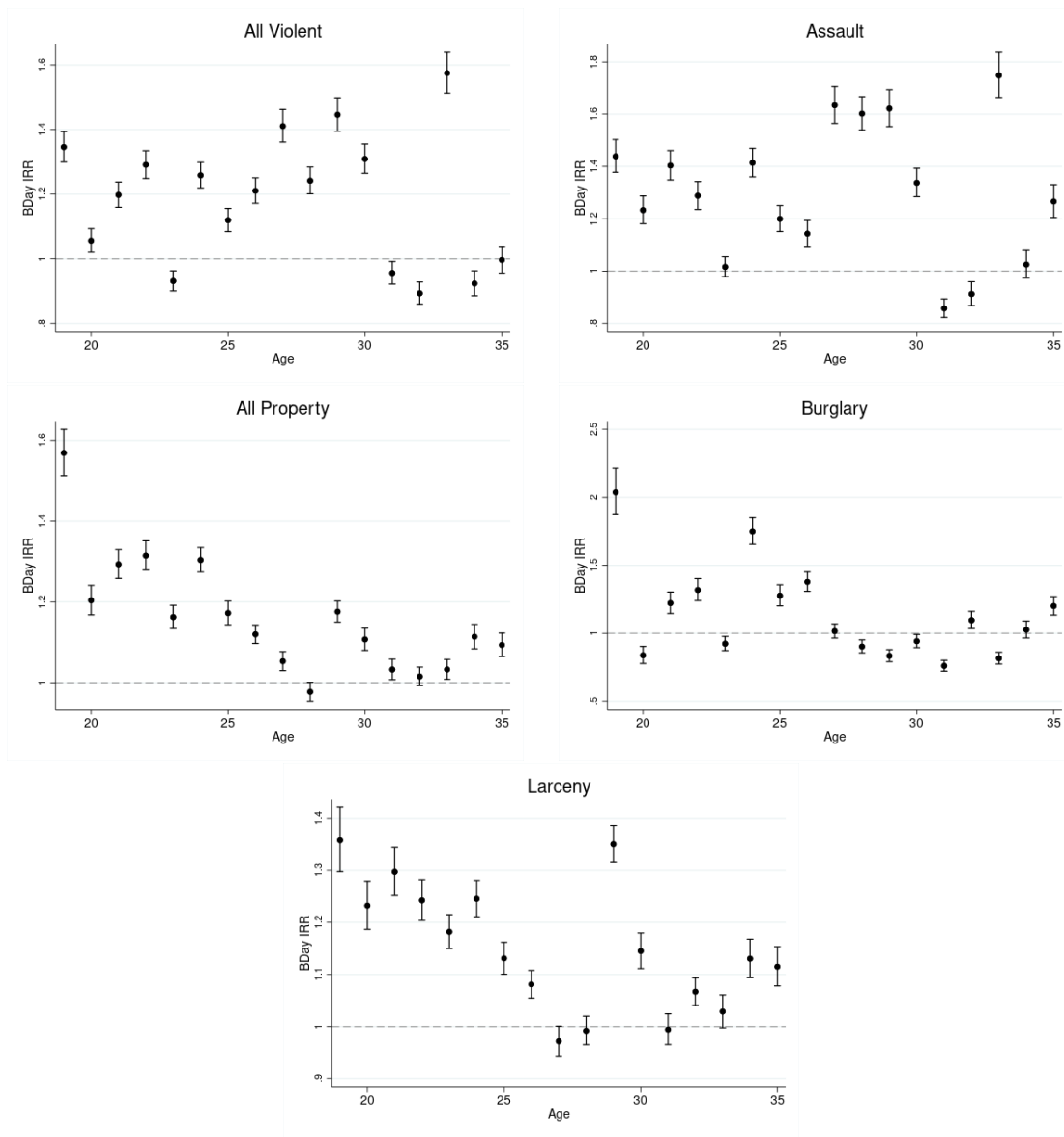


Figure A3: This figure contains IRR estimates for the birthday celebration effect for each age from 19 to 35 for male victims. Regressions include a second order polynomial in age fully interacted with an indicator for age over the cutoff age as well as an indicator for the exact birthday of the cutoff age.

Placebo Test of Birthday Effect on Female Victimization

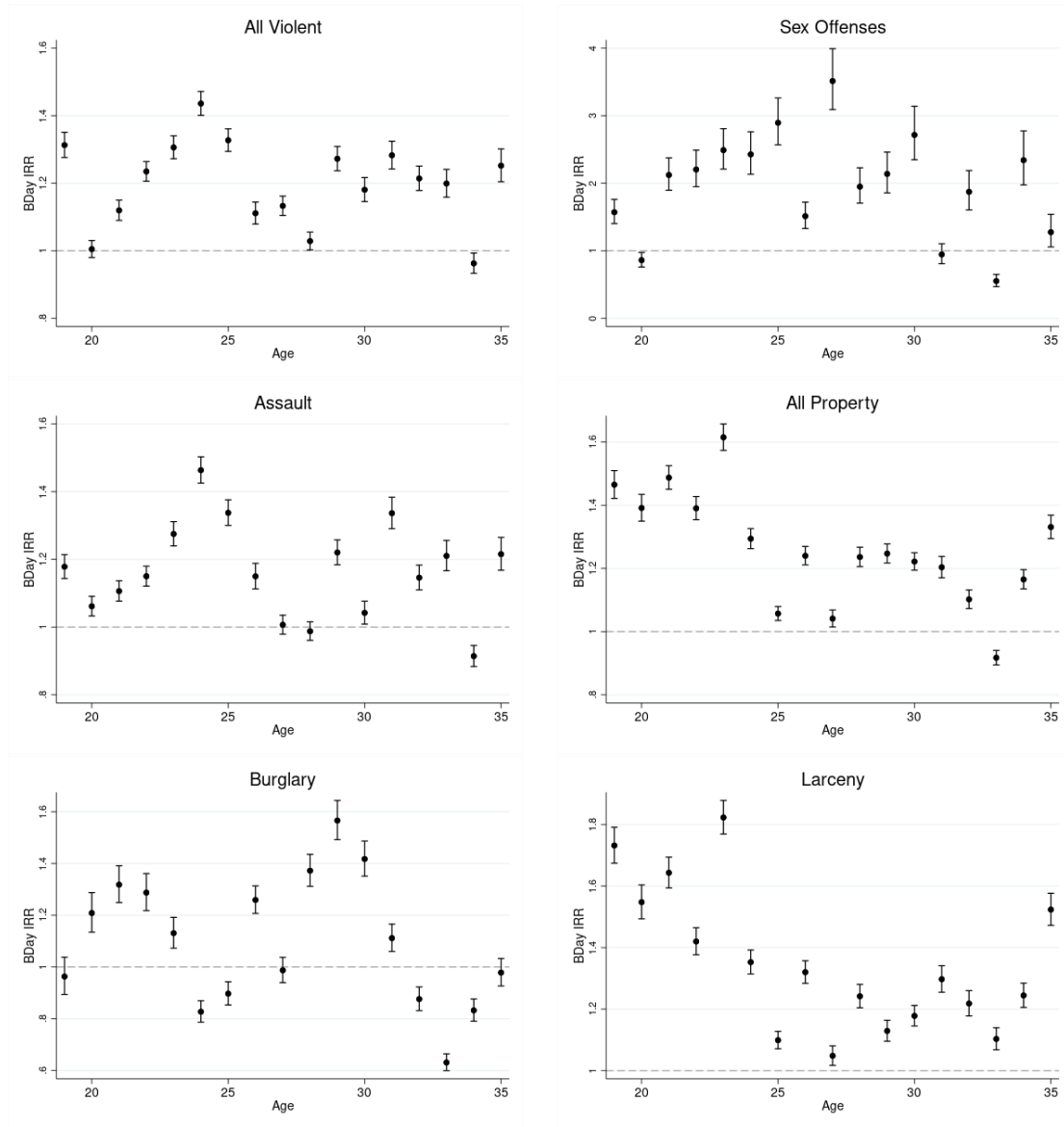


Figure A4: This figure contains IRR estimates for the birthday celebration effect for each age from 19 to 35 for female victims. Regressions include a second order polynomial in age fully interacted with an indicator for age over the cutoff age as well as an indicator for the exact birthday of the cutoff age.

Appendix C: Sex Offenses, by Police Department

Charlotte-Mecklenburg: forcible rape, forcible fondling, forcible sodomy, sexual assault with object

Dallas: rape, sex offenses and indecent conduct

Denver: harassment - sexual in nature, sex aslt - fondle adult victim, sex aslt - fondle child, sex aslt - fondle-child by pot, sex aslt - non-rape, sex aslt - non-rape pot, sex aslt rape, sex aslt - rape pot, sex aslt w/ object, sex off incest, sexual exploitation of child

Houston: other sex, rape, sex offenses

Kansas city, mo: forcible fondling, forcible rape, forcible sodomy, sexual assault with an object

Milwaukee: ejaculation, forcible fondling, forcible rape, forcible sodomy, sexual assault with object

San Diego: act in concert to commit rape w/foreign object, aggravated sexual assault of a minor with a foreign object, aggravated sexual assault:minor under 14 and 10+ yrs younger, assault w/intent to commit rape/other sex acts, assault with intent to rape, assault with intent to rape in commission of 459, attempted rape, burglary/unspecified, continuous sexual abuse of child, crime against nature/sodomy not specified, oral cop:victim unconscious or asleep, oral copulation, oral copulation / victim unconscious of the nature of the act, oral copulation by force or fear, oral copulation in concert: victim incapable of giving consent, oral copulation w/person under 16, oral copulation w/person under 18 years, oral copulation: victim intoxicated/etc, oral copulation:minor under 14 10+ years younger, oral copulation:victim unaware act occurred, oral copulation:victim under 10 years of age, rape, rape by fear or force, rape by threat of retaliation, rape by threats to use authority of public official, rape of drugged victim, rape of spouse by force/fear/threat, rape of spouse unable to resist: under controlled sub/etc, rape of spouse under controlled sub/etc, unable to resist, rape of spouse unable to resist: under controlled sub/etc, rape spouse by force/fear/etc, rape where victim is incapable of giving consent, rape/etc in concert with, orce/violence, rape/etc in concert with force/violence:minor 14 yrs or older, rape: force/fear/etc., rape: spouse unconscious of nature of act, rape: victim believed person is spouse, rape: victim believes person is spouse, rape: victim drugged, rape: victim incapable of consent, rape: victim unconscious of nature of act, rape:victim unconscious of the nature of the act, sex penetration:foreign obj/etc victim unaware:nature of, sex penetration:foreign obj/etc:victim unconscious/asleep, sex penetration:victim unaware act occurred, sexual battery, sexual battery as defined in this section, sexual battery involving restrained/institutionalized person, sexual battery of restrained or incapacitated person (f), sexual battery of restrained or incapacitated person (m), sexual battery on institutionalized person, sexual penetration by threat of retaliation victim/etc, sexual penetration w/ foreign object w/ force, sexual penetration w/force/etc 14 years or older, sexual penetration w/force/etc under 14 years old, sexual penetration w/foreign object w/victim under 18 yrs, sexual penetration w/foreign object w/intoxicated victim, sexual penetration w/foreign object w/victim under 16 yrs, sexual penetration w/foreign object w/victim under 18 yrs, sexual penetration w/foreign object: vic believes is spouse, sexual penetration w/foreign object:threat by auth to arrest, sexual penetration w/foreign object; victim incapable confined, sexual penetration w/foreign object; victim incapable of consent, sodomy by force or fear, sodomy by force/violence/fear, sodomy by force/violent/fear victim 14 yrs of age or older (f), sodomy w/person under 18 yrs, sodomy/concert/force, sodomy/victim unconscious of the nature of act, sodomy:minor under 14 10+ years younger, sodomy:victim under

10 years of age, sodomy:victim under influence anesthetic/etc/any control s, sodomyw/o consent:
drugged victim defendant in mental fa, touch person intimately against will for sexual arousal/e,
unlawful sexual intercourse w/minor: 3 yrs old or younger, unlawful sexual intercourse / victim un-
der 18, unlawful sexual intercourse w / minor 18, unlawful sexual intercourse w/minor: more than
3 years old, unlawful sexual intercourse w/minor: perp 21+ victim -16

St. Louis: forcible fondling, forcible rape, forcible sodomy, human trafficking - commercial sex acts,
human trafficking, commercial sex acts, sex offenses - forcible fondling, sex offenses - forcible sodomy,
sex offenses incest, sex offenses - statutory rape

Appendix D: Sample Period, by Police Department

We obtained data from the following municipal law enforcement agencies for each of the following time periods:

- Charlotte-Mecklenburg, NC: 1/1/2008 - 12/31/2017
- Dallas, TX: 1/1/2007-12/31/2017
- Denver, CO: 1/1/2008-12/31/2017
- Houston, TX: 1/1/2007 - 12/31/2015
- Kansas City, MO: 1/1/2007-4/26/2018
- Milwaukee, WI: 1/1/2007-12/31/2017
- San Diego, CA: 1/1/2008-12/31/2017
- St. Louis, MO: 1/1/2007 - 12/31/2017

Appendix E: Residential Locations, by Police Department

- Dallas: apartment complex/building, apt, condomin, foster home, mobile home, single family, residential property
- Denver: residence/home
- Houston: home/apartment, home/residence
- Milwaukee: offender residence, offender temporary, other residence, other temporary, victim residence, victim temporary
- St. Louis: apartment/condo, housing shelter, other residence, public housing, residence/home

Appendix F: NCVS Urban Victim Counts, 2006-2016

Male Victims

Age at Survey	Report to Police?	All Violent	Sex Offenses	Robbery	Assault	All Property	Burglary	Theft	Motor
18	No	80	1	22	57	455	46	402	7
18	Yes	102	0	36	65	166	19	130	17
19	No	76	0	18	57	487	68	411	8
19	Yes	86	2	31	54	202	41	133	28
20	No	86	2	19	66	453	45	395	13
20	Yes	78	0	20	57	216	58	140	18
21	No	85	4	16	68	494	63	426	5
21	Yes	70	0	18	51	284	78	176	30
22	No	57	0	19	37	433	47	381	5
22	Yes	77	0	32	44	256	60	165	31
23	No	73	1	7	65	473	54	406	13
23	Yes	53	0	16	36	260	46	178	36
24	No	79	0	20	58	462	62	394	6
24	Yes	85	0	13	71	260	41	188	31
25	No	65	3	14	50	423	51	367	5
25	Yes	74	0	26	47	291	75	188	28
26	No	51	0	9	41	494	83	401	10
26	Yes	76	2	23	52	313	73	203	37
27	No	71	0	6	64	481	72	405	4
27	Yes	90	0	17	72	301	77	189	35
28	No	72	0	15	56	505	60	437	8
28	Yes	63	0	15	47	318	71	212	35
29	No	66	0	8	57	518	65	441	12
29	Yes	78	0	28	49	321	69	214	38
30	No	46	2	9	36	500	59	431	10
30	Yes	55	0	12	42	322	61	222	39
31	No	44	1	5	38	411	51	358	2
31	Yes	55	0	9	45	322	84	204	34
32	No	38	2	6	31	431	37	383	11
32	Yes	62	0	8	53	306	76	186	44
33	No	22	0	9	12	484	63	413	8
33	Yes	65	1	25	39	320	90	203	27
34	No	29	0	8	20	421	57	355	9
34	Yes	53	0	14	38	343	94	211	38
35	No	28	0	5	22	474	53	414	7
35	Yes	50	0	9	40	345	90	212	43

Female Victims

Age at Survey	Report to Police?	All Violent	Sex Offenses	Robbery	Assault	All Property	Burglary	Theft	Motor
18	No	59	14	4	53	444	45	396	3
18	Yes	89	7	14	73	181	25	143	13
19	No	59	20	6	51	430	65	360	5
19	Yes	65	7	17	46	232	50	158	24
20	No	48	14	6	40	478	51	417	10
20	Yes	75	4	12	61	280	73	184	23
21	No	81	25	10	69	463	64	389	10
21	Yes	73	10	14	57	321	76	212	33
22	No	67	20	4	61	543	66	465	12
22	Yes	85	6	21	62	327	88	205	34
23	No	46	15	5	39	537	78	447	12
23	Yes	78	1	20	56	324	86	206	32
24	No	74	11	11	61	515	71	437	7
24	Yes	96	3	23	71	365	91	229	45
25	No	45	3	5	38	562	76	479	7
25	Yes	112	10	21	89	406	96	269	41
26	No	64	6	10	52	539	58	472	9
26	Yes	73	8	15	56	355	82	237	36
27	No	56	5	4	50	588	66	515	7
27	Yes	70	15	10	58	453	114	284	55
28	No	40	8	7	31	609	51	543	15
28	Yes	80	10	22	56	427	101	277	49
29	No	57	15	10	45	593	67	515	11
29	Yes	75	8	15	58	396	110	254	32
30	No	50	7	5	43	563	74	484	5
30	Yes	89	10	19	68	439	124	273	42
31	No	61	10	5	54	531	51	475	5
31	Yes	70	4	13	55	415	104	263	48
32	No	38	7	7	29	555	63	486	6
32	Yes	67	2	16	49	448	92	305	51
33	No	35	10	8	25	572	68	499	5
33	Yes	53	8	7	44	362	70	263	29
34	No	50	6	5	43	579	79	492	8
34	Yes	50	6	9	39	362	101	237	24
35	No	34	6	3	29	533	81	446	6
35	Yes	69	2	12	55	400	118	241	41