

# Hanging Out with the Usual Suspects: Neighborhood Peer Effects and Recidivism

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## Online Appendix

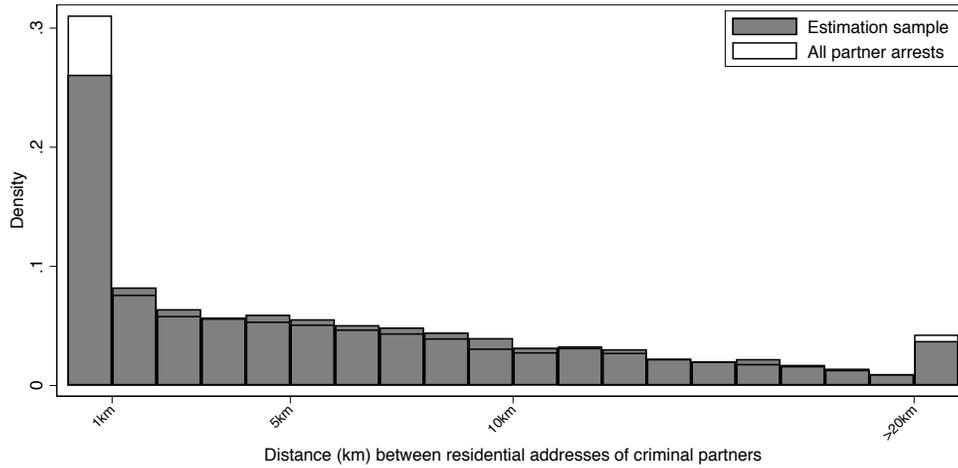
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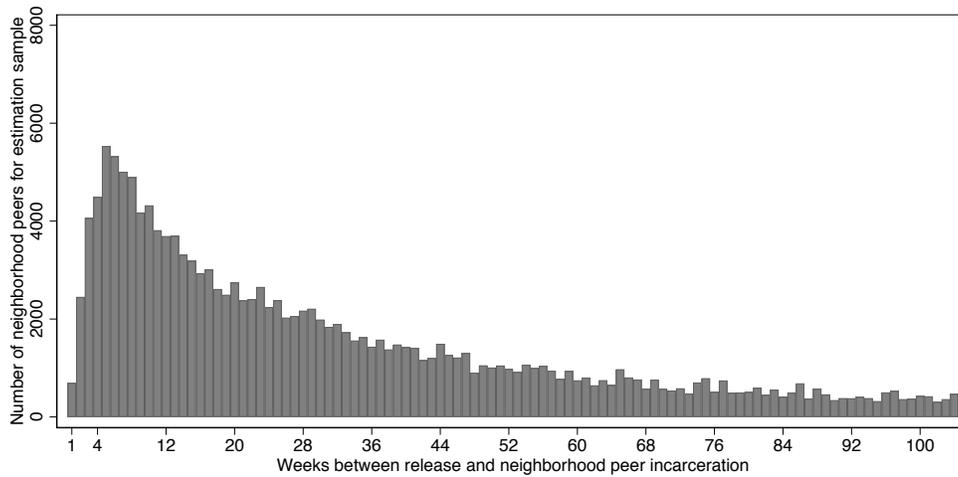
## A. Appendix

Figure A.1: Distance (km) between residential addresses of criminal partners



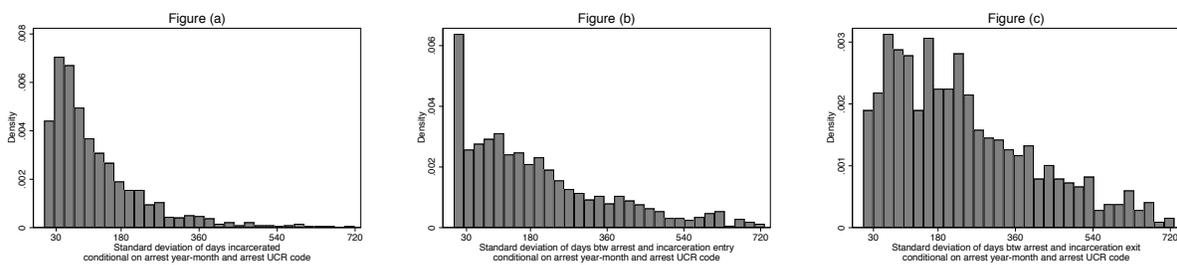
This figure plots the distance in kilometers between residential addresses of criminal partners in the partnership arrest data provided. We plot the distribution for individuals from our estimation sample that match with the partnership arrest data provided by the Charlotte Mecklenburg police as well as all partners in the police data.

Figure A.2: Relationship between timing of release and timing of peer incarceration



This figure plots a histogram of the number of weeks in between a peer’s incarceration entry and the timing of release for individuals in our estimation sample. For each individual in our estimation sample, we calculate the distance between release and entry for every peer who is incarcerated and is included in our key measure of neighborhood peers incarcerated.

Figure A.3: Variation in time between arrest date and release from incarceration



This figure the standard deviation (in days) conditional on the type of offense and the year-month of arrest between (a) incarceration entry and exit; (b) arrest date and incarceration entry; and, (c) arrest date and incarceration exit.

Table A.1: Alternative Balance Test

	Dependent variable = <i>Nbhd peers incarcerated: age w/in 1yr, same race &amp; gender</i>		
	No location FE	Census block FE	Census block race/ gender FE
Black	0.077** (0.037)	0.086** (0.044)	
Female	-0.111** (0.043)	-0.111*** (0.027)	
Age at release	0.005 (0.006)	0.004 (0.007)	0.005 (0.008)
Age at release squared	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Time in state prison	-0.001 (0.008)	0.002 (0.010)	0.009 (0.011)
Post release supervision	0.013 (0.026)	0.006 (0.025)	-0.008 (0.027)
Total prior arrests (since 1998)	0.003 (0.003)	-0.001 (0.001)	0.000 (0.001)
Total prior incarceration spells	0.004 (0.003)	0.001 (0.003)	-0.007 (0.006)
Total months incarcerated (county jail + state prison)	-0.000 (0.001)	0.001 (0.000)	0.001 (0.000)
Incarcerated for property crime	0.022 (0.022)	0.003 (0.006)	0.004 (0.007)
Incarcerated for violent crime	0.015** (0.007)	0.001 (0.008)	0.004 (0.007)
Incarcerated for drug/alc. crime	0.014 (0.011)	0.006 (0.011)	0.013 (0.012)
Total number of former criminal partners	0.003 (0.003)	0.002 (0.003)	0.005 (0.005)
Observations	17,361	17,361	17,361
R <sup>2</sup>	0.022	0.356	0.421

\* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01. Two-way cluster-robust standard errors within census tracts and individuals are reported in parentheses.

This table tests whether observable characteristics are correlated with our key regressor of interest measuring the number of neighborhood peers incarcerated. All specifications include fixed effects for year-by-month of release. The first column does not include any location fixed effects. The second column adds census block fixed effects and the third adds census block interacted with race and gender fixed effects. We find a significant correlation between fixed demographic characteristics of race and gender and the number of peers incarcerated which is driven by higher incarceration rates among male and minority populations. A potential identification concern arises if unobservable determinants of recidivism are correlated with these demographic characteristics. However, these concerns are mitigated by similar results from models holding all fixed unobservables within location-race-gender groups through including fixed effects for census block interacted with race and gender as reported in Table 4.

Table A.2: Full model results for primary specification

	Rearrest w/in 3mo	Rearrest w/in 6mo	Rearrest w/in 12mo
<b><u>Nbhd peers incarcerated, nbhd=census block</u></b>			
<i>Nbhd peers incarcerated: age w/in 1yr, same race &amp; gender</i>	-0.037*** (0.005)	-0.030*** (0.007)	-0.025*** (0.007)
Other nbhd peers incarcerated	-0.000 (0.002)	0.003 (0.002)	0.008*** (0.002)
<b><u>Demographic characteristics</u></b>			
Black	0.041*** (0.011)	0.077*** (0.012)	0.119*** (0.013)
Female	0.013 (0.012)	-0.007 (0.015)	-0.017 (0.016)
Age at release	-0.012*** (0.002)	-0.020*** (0.002)	-0.022*** (0.003)
Age at release squared	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
<b><u>Criminal justice characteristics</u></b>			
Time in state prison	-0.064*** (0.012)	-0.069*** (0.013)	-0.044*** (0.014)
Post release supervision	-0.001 (0.027)	0.017 (0.031)	0.061* (0.036)
Total prior arrests (since 1998)	0.013*** (0.001)	0.016*** (0.001)	0.018*** (0.002)
Total prior incarceration spells	0.004 (0.004)	0.011*** (0.004)	0.011*** (0.004)
Total months incarcerated (county jail + state prison)	-0.001*** (0.000)	-0.002*** (0.000)	-0.003*** (0.001)
Incarcerated for property crime	0.094*** (0.010)	0.106*** (0.011)	0.106*** (0.011)
Incarcerated for violent crime	0.039*** (0.010)	0.049*** (0.010)	0.066*** (0.011)
Incarcerated for drug/alc. crime	0.002 (0.012)	0.005 (0.013)	0.029** (0.012)
Total number of former criminal partners	0.020*** (0.004)	0.025*** (0.005)	0.030*** (0.004)
Observations	17,361	17,361	17,361
R <sup>2</sup>	0.291	0.326	0.349

\* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01. Two-way cluster-robust standard errors within census tracts and individuals are reported in parentheses.

This table presents the results for all control coefficients for our the specifications reported in Table 3. Note that the estimated impact of neighborhood peers differs slightly from the relevant row in Table 3, since in our main specifications we control flexibly for several covariates by including dummy variables for each integer value of age at exit, number of prior arrests, number of prior incarceration episodes, specific UCR codes for the arrest leading to incarceration, length (in months) of the incarceration spell, and the total number of former criminal partners. In the specification reported here we only include continuous measures for these variables to allow for the assessment of the correlations between these variables and the dependent variables of interest..

Table A.3: Effects of peers released from incarceration

	(1) Rearrest w/in 3mo	(2) Rearrest w/in 6mo	(3) Rearrest w/in 12mo
(A) Nbhd peers incarcerated: age w/in 1yr, same race & gender	-0.042*** (0.009)	-0.035*** (0.007)	-0.028*** (0.007)
(B) Nbhd peers recently released (w/in 3mo): age w/in 1yr, same race & gender	0.021** (0.009)	0.024** (0.010)	0.009 (0.008)
p-value of test (A)=- (B)	0.027	0.210	0.022
<u>Effects by timing of peer release</u>			
(A) Nbhd peers incarcerated: age w/in 1yr, same race & gender	-0.042*** (0.009)	-0.035*** (0.007)	-0.027*** (0.007)
(B) Nbhd peers recently released (w/in 1mo): age w/in 1yr, same race & gender	0.029** (0.014)	0.030* (0.017)	0.031** (0.015)
(C) Nbhd peers recently released (2 to 3mo): age w/in 1yr, same race & gender	0.016 (0.011)	0.020* (0.011)	-0.003 (0.008)
p-value of test (A)=- (B)	0.324	0.769	0.807
Observations	17,361	17,361	17,361

\* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01. Two-way cluster-robust standard errors within census tracts and individuals are reported in parentheses.

This table presents the results for the estimated impact of our key neighborhood peers incarcerated regressor also including a measure of the number of neighborhood peers released from incarceration just prior to the release of an individual in our estimation sample. We present these estimates to evaluate whether increases in the presence of criminal peers at the time of release have similar impacts as the lack of peers due to their incarceration at the time of release. We test whether the effects are symmetric and report the p-value of this test beneath each specification.

Table A.4: Effect of neighborhood peers incarcerated on relocation to same neighborhood for subsample of individuals rearrested post-release

	Distance btw rearrest location and pre-incar. location		
	Total distance km	Distance < 5km	Distance < 1km
Nbhd peers incarcerated: age w/in 1yr, same race & gender	-0.029 (0.130)	0.009 (0.012)	0.016 (0.013)
Mean of dependent var.	3.623	0.714	0.714
Observations	6,208	6,208	6,208

\* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01. Two-way cluster-robust standard errors within census tracts and individuals are reported in parentheses.

This table presents the results for a model that evaluates the correlation between our key regressors measuring neighborhood peers incarcerated at the time of release and the change in residential location pre- and post-incarceration. We only observe post-incarceration location for individuals who are rearrested and who have a residential address reported by police, so these results are based on a selected subsample. Each column title indicates the residential mobility regressor in terms of distance in kilometers between the pre- and post-incarceration residential addresses reported in the arrest data. Each specification includes controls from our baseline specification described in Table 3.

Table A.5: Additional balance check: relationship between neighborhood peers incarcerated and neighborhood crime clearance rates and pre-incarceration crime severity

	(1) Severity of pre-incarceration offense	(2) Crime clearance rate in census block group
Nbhd peers incarcerated: age w/in 1yr, same race & gender	-0.021 (0.065)	
Nbhd peers incarcerated: nbhd = census block group		0.002 (0.001)
Mean of dep. var	8.299	0.193
Observations	17,200	17,319

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Two-way cluster-robust standard errors within census tracts and individuals are reported in parentheses.

This table presents the results for a model that evaluates the correlation between our key regressors measuring neighborhood peers incarcerated at the time of release and the severity of pre-incarceration crime in the first column and the crime clearance rate in the first column to help address endogeneity concerns. Each specification includes controls from our baseline specification described in Table 3 with the following exceptions: the specification reported in the first column excludes fixed effects for UCR crime codes since the dependent variable (severity of crime) is mechanically related to crime offense codes (and crime severity is missing for 119 observations); for the second column the dependent variable is the ratio of arrests to reported crimes (the crime clearance rate) and is measured at the census block group so we also adjust our measurement of the key regressor (neighborhood peers incarcerated at the time of release of similar age, race and gender) and location fixed effects to be measured at the census block group level.

Table A.6: Non-linear effects of neighborhood peers incarcerated

	(1) Rearrest w/in 3mo	(2) Rearrest w/in 6mo	(3) Rearrest w/in 12mo
(a) 1 nbhd peer incarcerated (relative to zero)	-0.030** (0.014)	-0.030* (0.016)	-0.022 (0.016)
(b) 2 nbhd peers incarcerated (relative to zero)	-0.064*** (0.023)	-0.083*** (0.031)	-0.071** (0.036)
(c) 3 or more nbhd peers incarcerated (relative to zero, avg = 4.2)	-0.181*** (0.035)	-0.134*** (0.029)	-0.113*** (0.031)
p-value of test: (b)=2*(a)	0.929	0.585	0.573
p-value of test: (c)=4.2*(a) p-value	0.313	0.878	0.749
Mean of dep. var	0.220	0.324	0.420
Observations	17,361	17,361	17,361

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Two-way cluster-robust standard errors within census tracts and individuals are reported in parentheses.

This table presents the results for a model that splits our key neighborhood peers incarcerated regressor by the number of individuals. The first measures the effect of one peer incarcerated relative to zero; the second measures the effect of two peers incarcerated relative to zero; the third coefficient measures the effect of three or more relative to zero peers incarcerated (only 121 individuals in our estimation sample have three or more peers incarcerated at the time of release and the average number among this group is 4.2 peers incarcerated). We report p-values from tests where the null hypothesis is linear effects (e.g. the effect of two peers incarcerated is twice as large as one). All other details of the specifications are as described in Table 3.

Table A.7: Heterogeneous effects by neighborhood

	(1) Effects split by Nbhd crime levels	(2) Effects split by Nbhd recid levels	(3) Effects split by Nbhd incar. levels
(a) Above median nbhd: peers incarcerated	-0.041*** (0.007)	-0.036*** (0.008)	-0.038*** (0.007)
(b) Below median nbhd: peers incarcerated	-0.025** (0.013)	-0.049*** (0.014)	-0.046 (0.064)
p-value of test: (a)=(b)	0.289	0.445	0.904
Mean of dep. var, above median	0.240	0.267	0.224
Mean of dep. var, below median	0.198	0.127	0.181
Observations	17,361	17,361	17,361

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Two-way cluster-robust standard errors within census tracts and individuals are reported in parentheses.

This table presents the results for the outcome of arrest within 3 months allowing for heterogeneous effects across different types of neighborhoods. In the first column, we split our treatment variable by whether an individual is tied to a neighborhood above or below median crime rates. The second specification splits treatment by whether the individual is tied to a neighborhood above the median recidivism rate for our estimation sample. The third specification allows for different effects across neighborhood incarceration levels as measured by the number of individuals in our estimation sample released into a particular neighborhood over the analysis period. We report the p-value of a test of equality between the coefficients and means for each group. All other details of the specifications are as described in Table 3.