Appendix Figures and Tables for Partners in Crime: Schools, Neighborhoods and the Formation of Criminal Networks
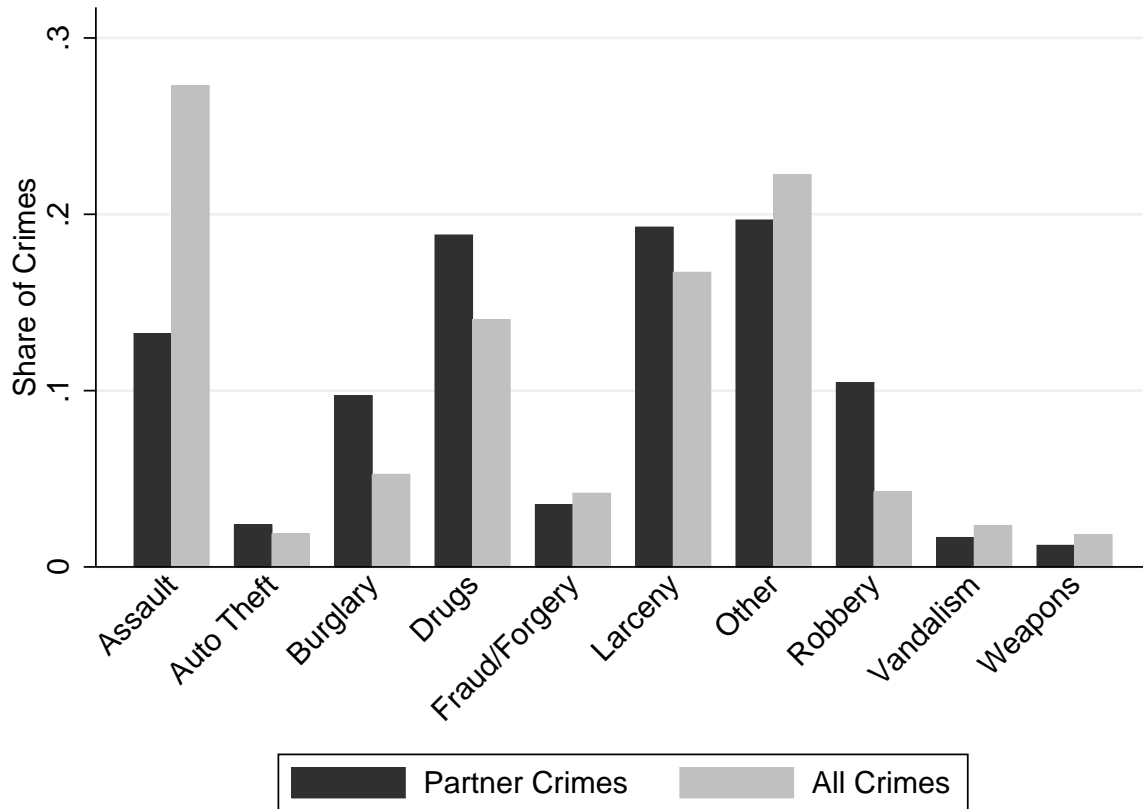
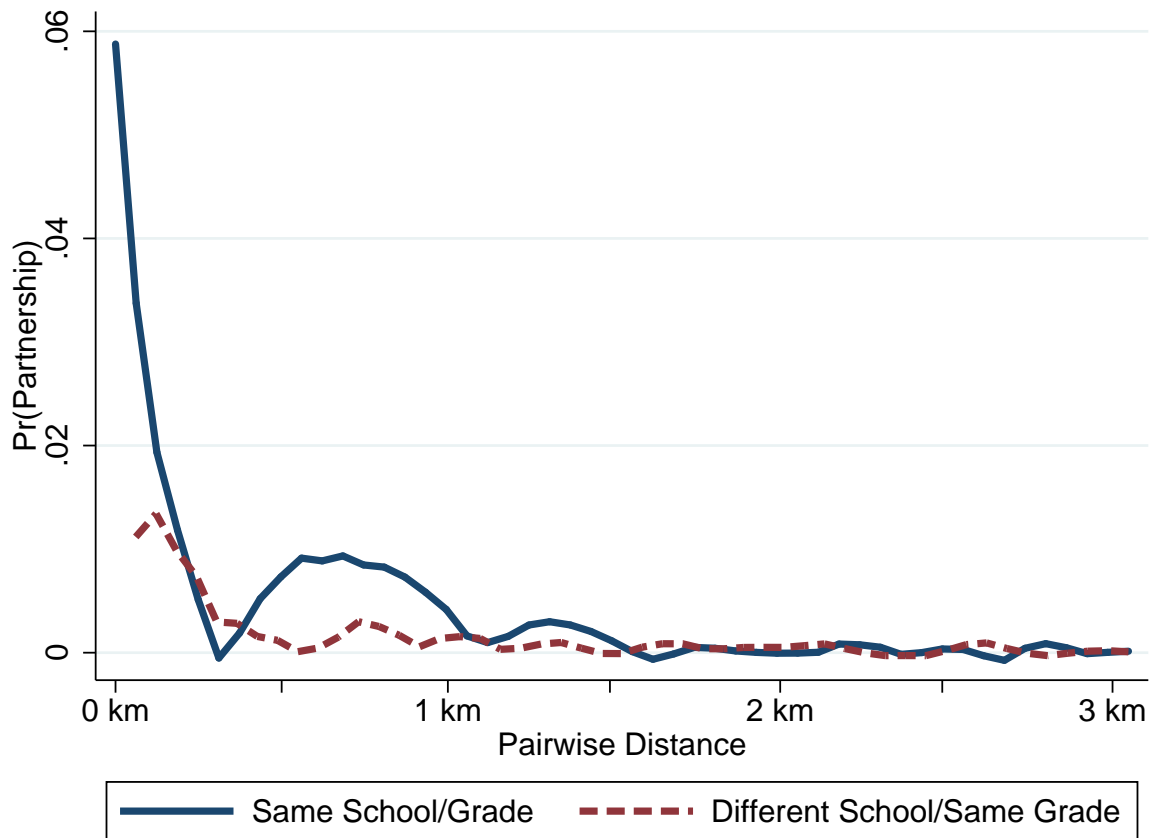*Stephen B. Billings*
David J. Deming
Stephen L. Ross

A. Appendix

Figure A.1: Distribution of Crime Types

This figure provides the distribution of crime categories for all crimes that led to an arrest of a 16-21 year old in 2005-2013 as well as only those crimes that involve criminal partnerships.

Figure A.2: Conditional Probabilities of Partnership - 2001 Address

This figure provides the distribution of partnership probabilities conditional on individual and neighborhood attributes for our sample of offender pairs. The solid line represents pairs assigned to the same middle or high school and the same grade while the dotted line represents pairs assigned to different schools. The x-axis indicates the pairwise distance between each individual's home address (based on 2001 school year) and conditional probabilities based on the residuals from a first stage regression which controls for individual attributes of person j (gender, race, test scores, absences, suspensions, assigned school fixed effects) , school year born fixed effects for k and CBG fixed effects for i. We also implement kernel-weighted local polynomial smoothing in order to generate a continuous distribution of conditional probabilities.

The sample included in this figure represents all pairs of arrested individuals (age 16-21) who are three years or less apart in age (less than 5% of criminal partners are more than 3 year apart), live within 3 km of each other based on 2001 school address and individual i resides in a CBG bisected by a new middle or high school attendance zone boundary in 2002. For computational ease, we limit non-partner pairs to only those ever arrested age 16-18, but results are similar with the use of non-partner pairs arrested age 19-21.

Figure A.3: Falsification Test
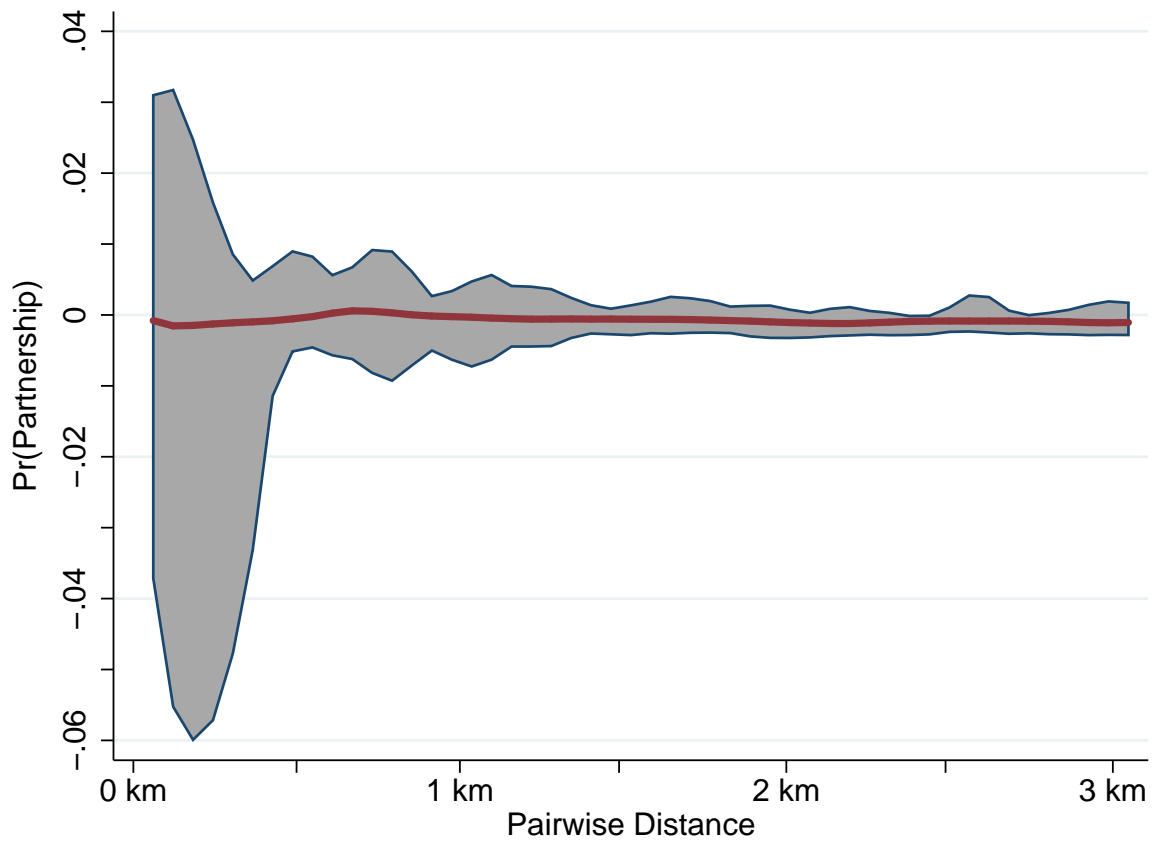
This figure provides differences in partnership probabilities based on school assignment using pseudo school attendance boundaries. We simply implement our calculations for Figure **??**, but randomly shift school attendance boundaries in all directions by between 1 and 2km. Our original sample of students are then reassigned as same/different schools based on the random boundary shift. With the new school assignments, we calculate the distribution of same school/grade and different school partnership probabilities by distance between offenders in a pair. The solid line indicates the mean difference between our pseudo same school/grade and different school conditional probabilities and shaded areas indicates the range of results (5-95%) based on 500 replications of these random school boundary shifts.

Conditional probabilities calculated using a first stage regression which controls for individual attributes of person j (gender, race, test scores, absences, suspensions, assigned school fixed effects), school year born fixed effects for j, and CBG fixed effects for i. We also implement kernel-weighted local polynomial smoothing in order to generate a continuous distribution of conditional probabilities.

Figure A.4: Conditional Probabilities of Partnership (Same vs. Different Schools)
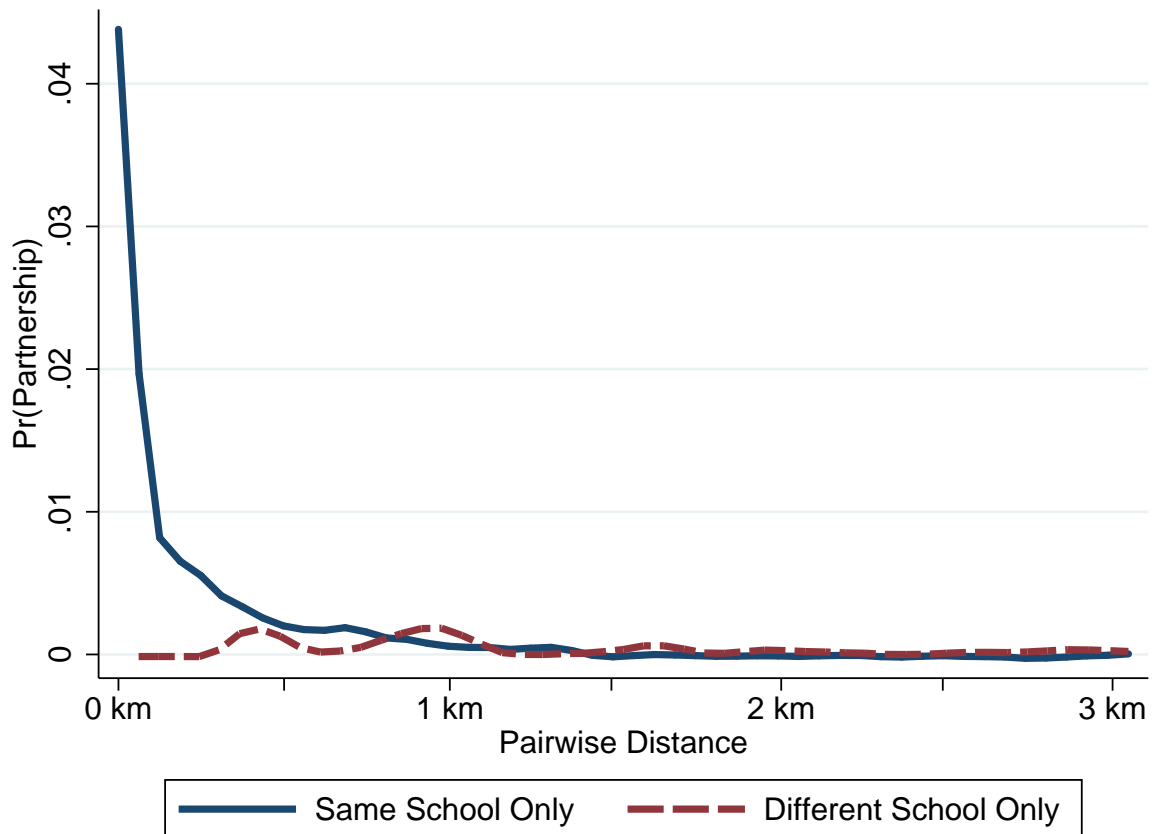
The sample used to construct this figure includes all pairs of arrested individuals (age 16-21) who are three years or less apart in age (less than 5% of criminal partners are more than 3 year apart), live within 3 km of each other based on school age 14 address and at least one offender resides in a Census Block Group (CBG) bisected by a new middle or high school attendance zone boundary. For computational ease, we limit non-partner pairs to only those ever arrested age 16-18, but results are similar with the use of non-partner pairs arrested age 19-21.

This figure provides the distribution of partnership probabilities conditional on individual and neighborhood attributes for our sample of offender pairs. The solid line represents pairs assigned to the same middle or high school while the dotted line represents pairs assigned to different schools. The x-axis indicates the pairwise distance between each individual's home address (while in school) and conditional probabilities are based on the residuals from a first stage regression which controls for individual attributes of person j (gender, race, test scores, absences, suspensions, assigned school fixed effects) , school year born fixed effects for k and CBG fixed effects for i. We also implement kernel-weighted local polynomial smoothing in order to generate a continuous distribution of conditional probabilities.

Figure A.5: Distribution of Pairwise Distances - All
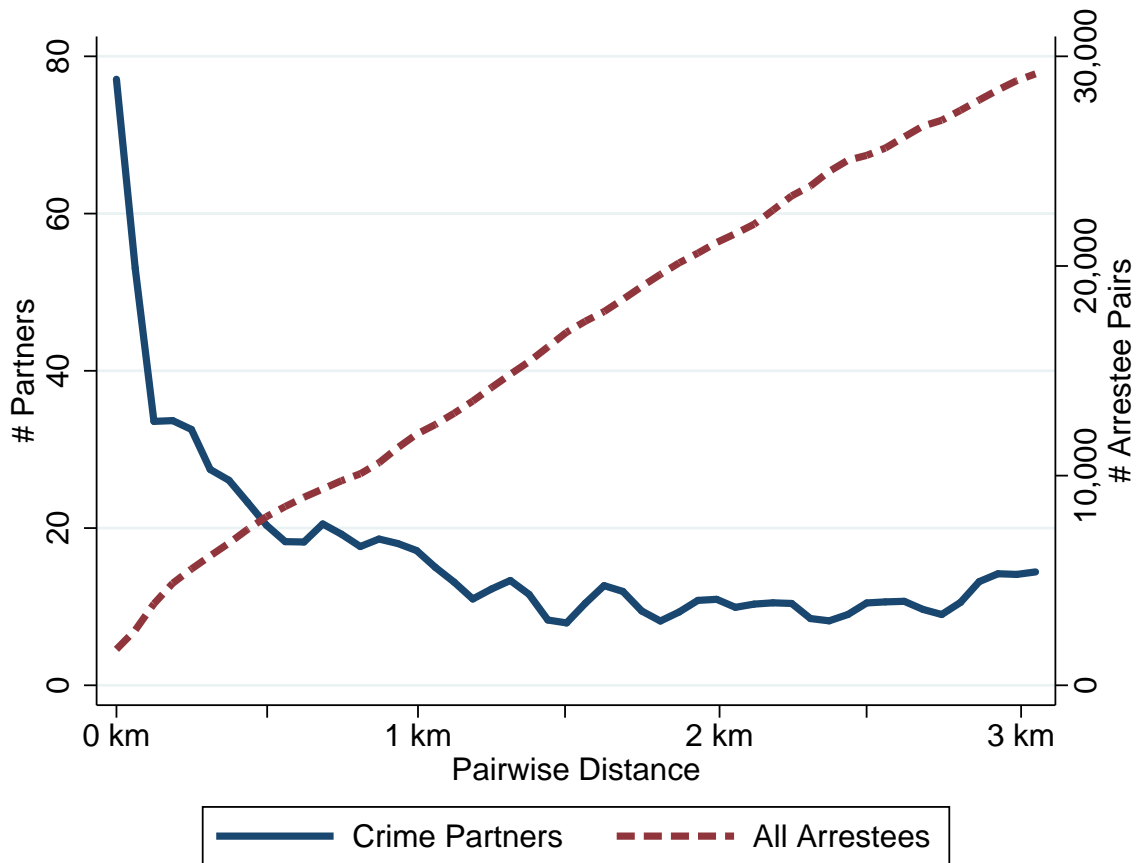
The sample included in this figure represents all unique pairs of individuals arrested between age 16-21 who are three years or less apart in age (less than 5% of criminal partners are more than 3 year apart) based on age 14 address and individual i resides in a CBG bisected by a new 2002 middle or high school attendance zone boundary. For computational ease, we limit non-partner pairs to only those ever arrested age 16-18, but results are similar with the use of only those arrested age 19-21.

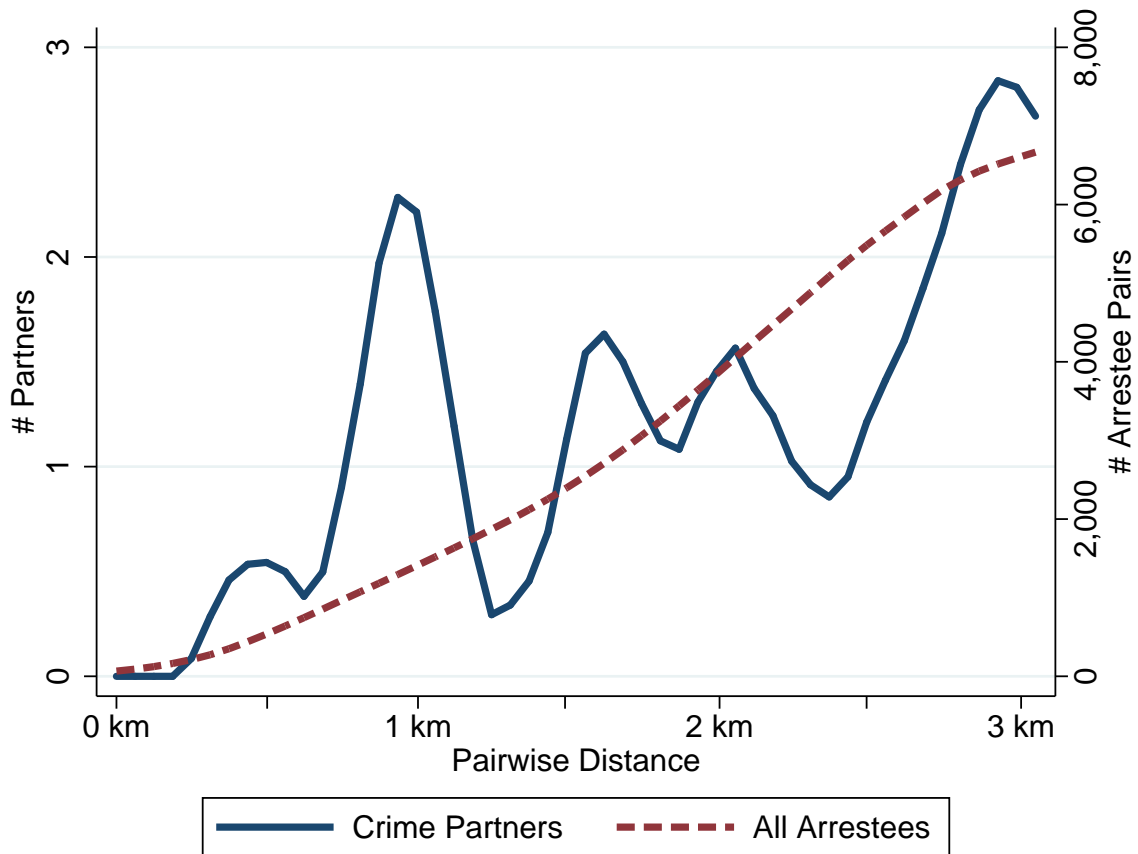Figure A.6: Distribution of Pairwise Distances - Same School Only
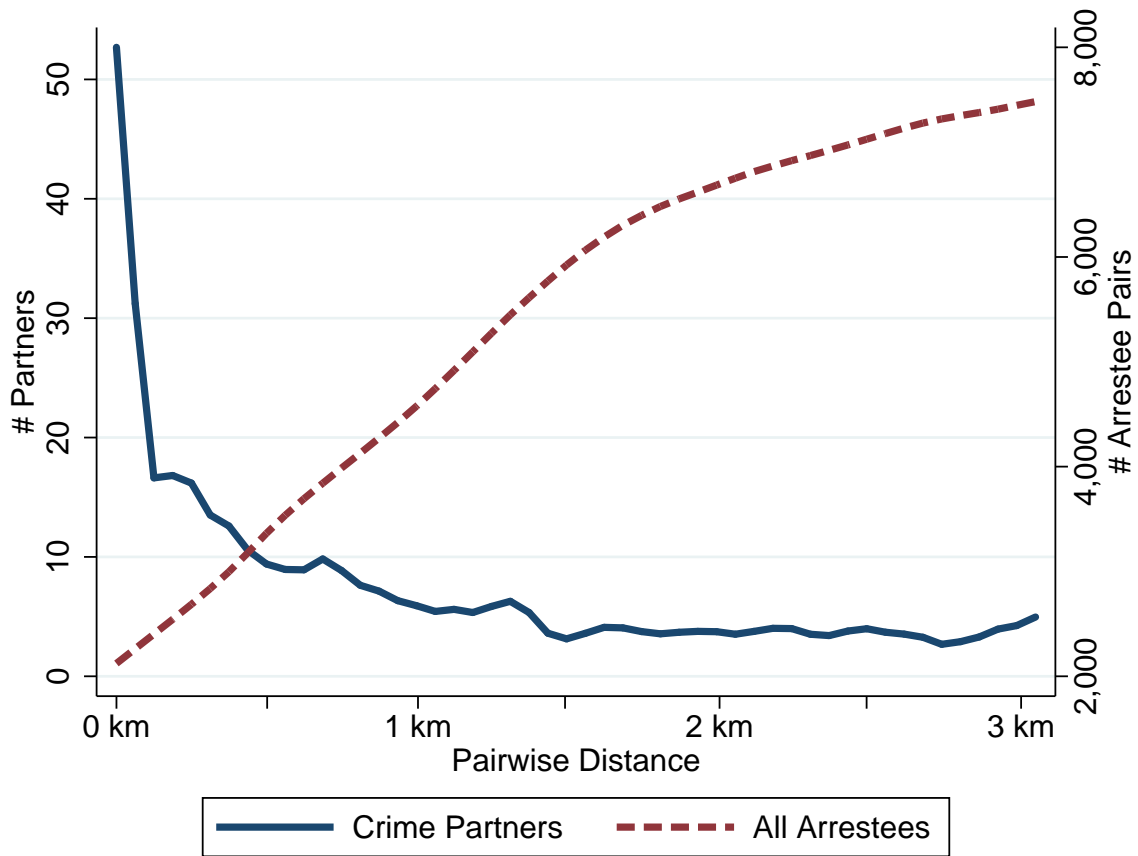
The sample included in this figure represents all unique pairs of individuals arrested between age 16-21 who are three years or less apart in age (less than 5% of criminal partners are more than 3 year apart) based on age 14 school address, assigned to the same schools and individual i resides in a CBG bisected by a new 2002 middle or high school attendance zone boundary. For computational ease, we limit non-partner pairs to only those ever arrested age 16-18, but results are similar with the use of only those arrested age 19-21.

Figure A.7: Distribution of Pairwise Distances - Different School Only

The sample included in this figure represents all unique pairs of individuals arrested between age 16-21 who are three years or less apart in age (less than 5% of criminal partners are more than 3 year apart) based on age 14 school address, assigned to different schools and individual i resides in a CBG bisected by a new 2002 middle or high school attendance zone boundary. For computational ease, we limit non-partner pairs to only those ever arrested age 16-18, but results are similar with the use of only those arrested age 19-21.

Table A.1: Other Models - 2001 Address

	(1)	(2) Dist. FE	(3) *1/2 km*	(4) Dist. FE *1/2 km*	(5) Student FE	(6) *Same HS only*	(7) Student FE *Same HS only*	(8) Student by CBG FE
Assigned Same School & Grade	0.0033**	0.0032**	−0.0018	−0.0019	0.0029**	0.0015	0.0010	0.0037
	(0.0015)	(0.0015)	(0.0026)	(0.0026)	(0.0014)	(0.0016)	(0.0012)	(0.0028)
Assigned Same School	0.0025***	0.0023***	0.0034**	0.0033**	0.0015***	0.0032***	0.0019***	0.0021
	(0.0006)	(0.0006)	(0.0013)	(0.0013)	(0.0005)	(0.0007)	(0.0005)	(0.0014)
In Same Course	0.0075***	0.0075***	0.0098**	0.0098**	0.0040**	0.0049***	0.0022**	0.0017
	(0.0025)	(0.0025)	(0.0048)	(0.0048)	(0.0017)	(0.0014)	(0.0010)	(0.0035)
In Same School & Grade	0.0006	0.0005	−0.0009	−0.0011	0.0014*	−0.0004	0.0014	0.0014
	(0.0010)	(0.0010)	(0.0024)	(0.0024)	(0.0008)	(0.0013)	(0.0012)	(0.0021)
In Same School	0.0020***	0.0019***	0.0037**	0.0037**	0.0008*	0.0019**	0.0010	0.0014
	(0.0007)	(0.0007)	(0.0018)	(0.0018)	(0.0005)	(0.0008)	(0.0006)	(0.0015)
Dep. Var (mean)	0.0030	0.0030	0.0049	0.0049	0.0030	0.0030	0.0030	0.0030
Observations	85,195	85,195	29,351	29,351	85,249	85,195	85,249	85,249

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors robust to arbitrary within-CBG correlation in parentheses.

The sample included in this table represents all pairs of arrested individuals (age 16-21) who are three years or less apart in age (less than 5% of criminal partners are more than 3 year apart), live within 1 km of each other based on 2001-2002 school address and live at least 130 feet apart (minimum distance between two students assigned to different schools) and individual i resides in a CBG bisected by a new 2002 middle or high school attendance zone boundary. We limit analysis to pairs where both individuals are enrolled in CMS in 2001 as well as at age 14. Consistent with figures, we limit non-partner pairs to only those ever arrested age 16-18 and results are similar with the use of non-partner pairs arrested age 19-21.

All regressions include controls for gender, race, 5th grade reading and math test scores, indicator if missing a test score or other 5th grade information, days suspended (5th grade), total days absent (5th grade), single family home indicator, indicator for year individual j turned age 5 as of 9/1, assigned middle and high school fixed effects, and CBG fixed effects for person i.

School attended models include fixed effects for each school attended (6-10th grade) by person j, except in cases of individual fixed effects. We also include an indicator in individuals i and j are the same age or in the same grade. Dependent Variable is an indicator for a pair ever being criminal partners. Dist. FE indicates a series of indicator variables for 200 foot intervals of pairwise distances. Same HS indicates that same school only defined based on high schools. Student FE is based on individual j.

Table A.2: Pairs by School Assigned

	Non-Partners			Partners		
	All	Assigned Same School	Assigned Different School	All	Assigned Same School	Assigned Different School
Same Grade	0.186	0.187	0.180	0.287	0.301	0.048
	(0.39)	(0.39)	(0.38)	(0.45)	(0.46)	(0.22)
One Year Apart in Age	0.329	0.329	0.326	0.434	0.423	0.619
	(0.47)	(0.47)	(0.47)	(0.50)	(0.49)	(0.50)
Two or Three Years Apart in Age	0.485	0.483	0.494	0.279	0.275	0.333
	(0.50)	(0.50)	(0.50)	(0.45)	(0.45)	(0.48)
Both Male	0.494	0.500	0.458	0.842	0.852	0.667
	(0.50)	(0.50)	(0.50)	(0.37)	(0.36)	(0.48)
Both Female	0.092	0.090	0.106	0.060	0.052	0.190
	(0.29)	(0.29)	(0.31)	(0.24)	(0.22)	(0.40)
One Male, One Female	0.414	0.410	0.436	0.098	0.096	0.143
	(0.49)	(0.49)	(0.50)	(0.30)	(0.29)	(0.36)
Same Race	0.705	0.698	0.743	0.825	0.820	0.905
	(0.46)	(0.46)	(0.44)	(0.38)	(0.38)	(0.30)
Different Race	0.295	0.302	0.257	0.175	0.180	0.095
	(0.46)	(0.46)	(0.44)	(0.38)	(0.38)	(0.30)
Both Suspended	0.097	0.096	0.105	0.090	0.090	0.095
	(0.30)	(0.29)	(0.31)	(0.29)	(0.29)	(0.30)
One Suspended, One Not Suspended	0.427	0.425	0.440	0.459	0.455	0.524
	(0.49)	(0.49)	(0.50)	(0.50)	(0.50)	(0.51)
Neither Suspended	0.475	0.479	0.455	0.451	0.455	0.381
	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)
Both in SF Homes	0.550	0.555	0.525	0.743	0.742	0.762
	(0.50)	(0.50)	(0.50)	(0.44)	(0.44)	(0.44)
One SF, One Not in SF	0.289	0.276	0.362	0.175	0.174	0.190
	(0.45)	(0.45)	(0.48)	(0.38)	(0.38)	(0.40)
Neither in SF Homes	0.160	0.169	0.114	0.082	0.084	0.048
	(0.37)	(0.37)	(0.32)	(0.27)	(0.28)	(0.22)
Observations	123,616	104,825	18,791	366	345	21

Means and standard deviations are reported above. We define assigned to the same school as two individuals being assigned to the same middle or high school based on 2002-2003 school attendance boundaries. Same age based on cohort and determined by the school year an individual turned 5 as of September 1st.

The sample included in this table represents all pairs of arrested individuals (age 16-21) who are three years or less apart in age (less than 5% of criminal partners are more than 3 year apart), live within 1 km of each other based on school age 14 address and live at least 130 feet apart (minimum distance between two students assigned to different schools) and individual i resides in a CBG bisected by a new 2002 middle or high school attendance zone boundary. Consistent with figures, we limit non-partner pairs to only those ever arrested age 16-18 and results are similar with the use of non-partner pairs arrested age 19-21.

Table A.3: Crime Agglomeration Models by Residents since 2001

	(1) Ever Arrested	(2) Ever Arrested Violent	(3) Ever Arrested Property
Peers = All			
Same School Peers	−0.0045	0.0013	0.0071
	(0.0120)	(0.0053)	(0.0078)
*Resident since 2001	0.0046	−0.0009	−0.0103
	(0.0104)	(0.0065)	(0.0067)
Peers = Same Age			
Same School Peers	0.0081	0.0166	0.0364***
	(0.0225)	(0.0123)	(0.0131)
*Resident since 2001	0.0136	0.0045	−0.0025
	(0.0108)	(0.0066)	(0.0071)
Peers = Same Age-Race-Gender			
Same School Peers	0.0275	0.0208**	0.0301**
	(0.0166)	(0.0086)	(0.0116)
*Resident since 2001	0.0261*	0.0030	−0.0028
	(0.0143)	(0.0088)	(0.0104)
Peers = Same Age-Race-Gender High Risk			
Same School Peers	0.0233	0.0312***	0.0260
	(0.0214)	(0.0111)	(0.0157)
*Resident since 2001	0.0239	−0.0023	−0.0033
	(0.0208)	(0.0133)	(0.0172)
Dep. Var (mean)	0.1678	0.0326	0.0713
Observations	34,958	34,958	34,958

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Models are unchanged from Table ?? except for the inclusion of a dummy that indicates a student lived at the same address in 2001 as they are living at school age 14. Interaction terms provide a test of differences between existing residents and residents that recently moved to the neighborhood. Standard errors robust to arbitrary correlation within CBG.

Table A.4: Crime Agglomeration Models - *Falsification Test*

	Ever Arrested	Ever Arrested Violent	Ever Arrested Property
Peers = All			
Same School Peers	−0.003	0.005	−0.003
	(0.014)	(0.007)	(0.008)
Peers = Same Age			
Same School Peers	0.013	0.001	0.003
	(0.030)	(0.019)	(0.014)
Peers = Same Age-Race-Gender			
Same School Peers	−0.001	−0.002	−0.003
	(0.018)	(0.014)	(0.010)
Peers = Same Age-Race-Gender-High Risk			
Same School Peers	0.006	0.003	0.004
	(0.011)	(0.008)	(0.010)

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. This table indicates the mean and standard deviation of our main coefficients reported in Table ?? for a series of 100 random shifts of school attendance boundaries in all directions by between 1 and 2km. These random shifted boundaries are then used to compute school assignment and all remaining information is unchanged. We removed cases where boundary shifts removed school assignment near the boundaries of the county.

Table A.5: Impact of School Assignment on Partnerships by Types of Crime

	(1) Assault Crime Partner	(2) Burglary Crime Partner	(3) Drug Crime Partnership	(4) Robbery Crime Partnership	(5) Theft Crime Partnership	(6) Other Crime Partnership
Pairs $\leqslant$ 1 km						
Assigned Same	0.0010***	0.0017***	0.0005	0.0002	−0.0000	0.0006**
School & Grade	(0.0003)	(0.0006)	(0.0004)	(0.0003)	(0.0003)	(0.0003)
Assigned	0.0003	0.0010**	0.0001	0.0002*	0.0005	−0.0000
Same School	(0.0002)	(0.0005)	(0.0002)	(0.0001)	(0.0003)	(0.0002)
Dep. Var (mean) for Diff. School	0.00011	0.00037	0.00021	0.00005	0.00027	0.00027
Observations	123,982	123,982	123,982	123,982	123,982	123,982

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors robust to arbitrary within-CBG correlation in parentheses.

All regressions include controls for gender, race, 5th grade reading and math test scores, indicator if missing a test score, days suspended (5th grade), total days absent (5th grade), single family home indicator, indicator for year individual k turned age 5 as of 9/1, assigned middle and high school fixed effects, and CBG fixed effects for person i. We also include an indicator in individuals i and j are the same assigned grade.

Dependent Variable is an indicator based on column heading.

Table A.6: Other Models

	(1)	(2) Dist. FE	(3) *1/2 km*	(4) Dist. FE *1/2 km*	(5) Student FE	(6) *Same HS only*	(7) Student FE *Same HS only*	(8) Student by CBG FE
Assigned Same School & Grade	0.0033*** (0.0007)	0.0034*** (0.0007)	0.0034** (0.0016)	0.0035** (0.0016)	0.0031*** (0.0007)	0.0022** (0.0011)	0.0018* (0.0010)	0.0029*** (0.0007)
Assigned Same School	0.0021*** (0.0007)	0.0011 (0.0007)	0.0045*** (0.0017)	0.0032** (0.0016)	0.0018** (0.0007)	0.0017*** (0.0007)	0.0014** (0.0007)	0.0013 (0.0008)
Observations	123,982	123,982	42,593	42,593	123,982	123,982	123,982	123,982

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors robust to arbitrary within-CBG correlation in parentheses.

All regressions include controls for gender, race, 5th grade reading and math test scores, indicator if missing a test score or other 5th grade information, days suspended (5th grade) , total days absent (5th grade), single family home indicator, indicator for year individual j turned age 5 as of 9/1, assigned middle and high school fixed effects, and CBG fixed effects for person i.

Dependent Variable is an indicator for a pair ever being criminal partners. School attended models include fixed effects for each school attended (6-10th grade) by person j, except in cases of individual fixed effects (FE). We also include an indicator if individuals i and j are the same assigned or actual grade. Dist. FE indicates a series of indicator variables for 200 foot intervals of pairwise distances. Same HS indicates that same school only defined based on high schools. Student FE and student by CBG FE is based on individual j.

Table A.7: Impact of School Assignment by Resident since 2001

	(1) Any Crime Partner	(2) 16-18 yr old Partnership	(3) 19-21 yr old Partnership	(4) Violent Crime Partners	(5) Property Crime Partners
Pairs ≤ 1 km					
Assigned to Same School/Grade	0.0007	0.0003	−0.0003	0.0003	0.0004
	(0.0007)	(0.0006)	(0.0003)	(0.0004)	(0.0006)
*Resident since 2001	0.0036***	0.0030***	0.0010	0.0014*	0.0022**
	(0.0012)	(0.0009)	(0.0009)	(0.0008)	(0.0009)
Assigned to Same School	0.0022***	0.0016***	0.0011***	0.0007**	0.0014***
	(0.0006)	(0.0006)	(0.0004)	(0.0003)	(0.0005)
*Resident since 2001	0.0002	−0.0004	0.0003	−0.0003	0.0003
	(0.0006)	(0.0005)	(0.0004)	(0.0003)	(0.0003)
"Dep. Var (mean) for Diff. School"	0.00112	0.00106	0.00037	0.00037	0.00053
Observations	123,982	123,982	123,982	123,982	123,982

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors robust to arbitrary within-CBG correlation in parentheses.

All regressions include controls for gender, race, 5th grade reading and math test scores, indicator if missing a test score, days suspended (5th grade) , total days absent (5th grade), single family home indicator, indicator for year individual j turned age 5 as of 9/1, assigned middle and high school fixed effects, and CBG fixed effects for person i. We also include an indicator in individuals i and j are the same assigned grade.

Dependent Variable is an indicator based on column heading. Resident since 2001 based on the years at the same address prior to school age 14 for person i. We also include but do not report the variable *Resident since 2001*, which has a mean of 0.35.

Table A.8: Impact of School Attended on Criminal Partnerships

	(1) Any Crime Partner	(2) Number of Partner Crimes	(3) 16-18 yr old Partnership	(4) 19-21 yr old Partnership	(5) Violent Crime Partners	(6) Property Crime Partners	(7) Felony Partners	(8) Misdemeanor Partners
Pairs ⩽ 1 km								
In Same Course	0.0073**	0.0131*	0.0057**	0.0017*	0.0002	0.0039*	0.0036	0.0041**
	(0.0029)	(0.0078)	(0.0026)	(0.0009)	(0.0008)	(0.0023)	(0.0026)	(0.0016)
In Same School & Same Grade	0.0015**	0.0018*	0.0019**	−0.0002	0.0012***	0.0002	0.0007	0.0012***
	(0.0008)	(0.0010)	(0.0007)	(0.0004)	(0.0004)	(0.0006)	(0.0007)	(0.0004)
In Same School	0.0009*	0.0006	0.0004	0.0008**	0.0002	0.0006	0.0007	0.0003
	(0.0005)	(0.0007)	(0.0004)	(0.0004)	(0.0002)	(0.0004)	(0.0005)	(0.0003)
Dep. Var (mean) for Diff. School	0.00158	0.00188	0.00119	0.00070	0.00043	0.00098	0.00125	0.00045
Observations	123,982	123,982	123,982	123,982	123,982	123,982	123,982	123,982

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors robust to arbitrary within-CBG correlation in parentheses.

All regressions include fixed effects for individual j, CBG fixed effects for individual i. We define attended the same school as two individuals matriculating for at least one year at the same middle or high school. Same grade is based on a pair of students attending the same grade. Same course indicates if two individuals took at least two courses together in grades 6-10. We also include an indicator in individuals j and k are in the same grade.

Dependent Variable is an indicator based on column heading. Number of partner crimes indicates the number of times a pair of individuals were arrested for the same crime. 16-18 and 19-21 yr old indicates the age group for which one of the partners belonged at the time of arrest. Property Crime Partnerships include partnerships where at least one individual was arrested for auto theft, burglary, fraud/forgery or larceny. Violent Crime Partnerships include partnerships where at least one individual was arrested for aggravated/sexual/simple assault, rape or robbery. Felony and Misdemeanor based on the severity of the charge at arrest and coded accordingly by the Mecklenburg County Sheriff's Department.

Table A.9: Pairs by School Attended

	Non-Partners			Partners		
	All	Attended Same School	Attended Different School	All	Attended Same School	Attended Different School
In Same Course	0.030	0.084	0.000	0.175	0.267	0.000
	(0.17)	(0.28)	(0.00)	(0.38)	(0.44)	(0.00)
In Same Grade	0.186	0.256	0.148	0.287	0.313	0.238
	(0.39)	(0.44)	(0.35)	(0.45)	(0.46)	(0.43)
One Year Apart in Age	0.329	0.409	0.285	0.434	0.492	0.325
	(0.47)	(0.49)	(0.45)	(0.50)	(0.50)	(0.47)
Two or Three Years Apart in Age	0.485	0.335	0.568	0.279	0.196	0.437
	(0.50)	(0.47)	(0.50)	(0.45)	(0.40)	(0.50)
Both Male	0.494	0.512	0.483	0.842	0.858	0.810
	(0.50)	(0.50)	(0.50)	(0.37)	(0.35)	(0.39)
Both Female	0.092	0.084	0.097	0.060	0.058	0.063
	(0.29)	(0.28)	(0.30)	(0.24)	(0.23)	(0.24)
One Male, One Female	0.414	0.405	0.420	0.098	0.083	0.127
	(0.49)	(0.49)	(0.49)	(0.30)	(0.28)	(0.33)
Same Race	0.705	0.688	0.714	0.825	0.808	0.857
	(0.46)	(0.46)	(0.45)	(0.38)	(0.39)	(0.35)
Different Race	0.295	0.312	0.286	0.175	0.192	0.143
	(0.46)	(0.46)	(0.45)	(0.38)	(0.39)	(0.35)
Both Suspended	0.097	0.095	0.099	0.090	0.092	0.087
	(0.30)	(0.29)	(0.30)	(0.29)	(0.29)	(0.28)
One Suspended, One Not Suspended	0.427	0.406	0.439	0.459	0.404	0.563
	(0.49)	(0.49)	(0.50)	(0.50)	(0.49)	(0.50)
Neither Suspended	0.475	0.500	0.462	0.451	0.504	0.349
	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.48)
Both in SF Homes	0.550	0.567	0.541	0.743	0.750	0.730
	(0.50)	(0.50)	(0.50)	(0.44)	(0.43)	(0.45)
One SF, One Not in SF	0.289	0.281	0.294	0.175	0.150	0.222
	(0.45)	(0.45)	(0.46)	(0.38)	(0.36)	(0.42)
Neither in SF Homes	0.160	0.152	0.165	0.082	0.100	0.048
	(0.37)	(0.36)	(0.37)	(0.27)	(0.30)	(0.21)
Observations	123,616	44,056	79,560	366	240	126

Means and standard deviations are reported above. We define attended the same school as two individuals matriculating for at least one year at the same middle or high school. Same age based on cohort and determined by the school year an individual turned 5 as of the first day of school. Same course indicates if two individuals took at least two courses together in grades 6-10.

The sample included in this table represents all pairs of arrested individuals (age 16-21) who are three years or less apart in age (less than 5% of criminal partners are more than 3 year apart), live within 1 km of each other based on school age 14 address and live at least 130 feet apart (minimum distance between two students assigned to different schools) and individual i resides in a CBG bisected by a new 2002 middle or high school attendance zone boundary. Consistent with figures, we limit non-partner pairs to only those ever arrested age 16-18 and results are similar with the use of non-partner pairs arrested age 19-21.

Table A.10: Impact of School Attended *with only required courses*

	(1) Any Crime Partner	(2) 16-18 yr old Partnership	(3) 19-21 yr old Partnership	(4) Felony Partners	(5) Misdemeanor Partners
Pairs ⩽ 1 km					
In Same Course (required)	0.0079**	0.0065**	0.0019	0.0012	0.0037
	(0.0039)	(0.0032)	(0.0013)	(0.0012)	(0.0028)
In Same School & Same Grade	0.0018**	0.0021***	−0.0001	0.0011**	0.0004
	(0.0008)	(0.0007)	(0.0004)	(0.0004)	(0.0006)
In Same School	0.0009*	0.0004	0.0008**	0.0002	0.0006
	(0.0005)	(0.0004)	(0.0004)	(0.0002)	(0.0004)
Dep. Var (mean) for Diff. School	0.00158	0.00119	0.00070	0.00043	0.00098
Observations	123,982	123,982	123,982	123,982	123,982

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors robust to arbitrary within-CBG correlation in parentheses.

All regressions include fixed effects for individual j, CBG fixed effects for individual i. We also include an indicator in individuals i and j are the same grade. Dependent Variable is an indicator based on column heading. We define attended the same school as two individuals matriculating for at least one year at the same middle or high school. Same grade is based on a pair of students being assigned to the same grade. Same course indicates if two individuals took at least two courses together in grades 6-10.

Same course in these models is restricted to required courses in english, math, science and social studies.

Table A.11: Impact of School Attended on Partnerships by Types of Crime

	(1) Assault Crime Partner	(2) Burglary Crime Partner	(3) Drug Crime Partnership	(4) Robbery Crime Partnership	(5) Theft Crime Partnership	(6) Other Crime Partnership
Pairs ≤ 1 km						
In Same Course	0.0008	0.0015	0.0025**	0.0000	0.0023	−0.0004
	(0.0009)	(0.0014)	(0.0011)	(0.0004)	(0.0019)	(0.0004)
In Same School & Same Grade	0.0008**	−0.0002	0.0004	0.0002	0.0005	0.0005*
	(0.0003)	(0.0004)	(0.0003)	(0.0003)	(0.0004)	(0.0003)
In Same School	0.0001	0.0004	0.0002	0.0003	0.0002	−0.0001
	(0.0001)	(0.0003)	(0.0002)	(0.0002)	(0.0003)	(0.0001)
Dep. Var (mean) for Diff. School	0.00014	0.00072	0.00014	0.00019	0.00029	0.00018
Observations	123,982	123,982	123,982	123,982	123,982	123,982

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors robust to arbitrary within-CBG correlation in parentheses.

All regressions include fixed effects for individual j, CBG fixed effects for individual i. We also include an indicator in individuals i and j are the same grade. Dependent Variable is an indicator based on column heading. We define attended the same school as two individuals matriculating for at least one year at the same middle or high school. Same grade is based on a pair of students being assigned to the same grade. Same course indicates if two individuals took at least two courses together in grades 6-10.

Table A.12: Other Models - School Attended

	(1)	(2) Dist. FE	(3) 1/2 km	(4) Dist. FE 1/2 km	(5) Student FE	(6) Same HS only	(7) Student FE Same HS only	(8) Student by CBG FE
In Same Course	0.0114***	0.0114***	0.0148**	0.0148**	0.0073**	0.0064***	0.0037**	0.0069**
	(0.0034)	(0.0034)	(0.0061)	(0.0061)	(0.0029)	(0.0020)	(0.0018)	(0.0031)
In Same School & Grade	0.0011	0.0010	0.0007	0.0005	0.0015**	0.0000	0.0013	0.0016*
	(0.0010)	(0.0010)	(0.0023)	(0.0023)	(0.0008)	(0.0012)	(0.0011)	(0.0008)
In Same School	0.0018***	0.0018***	0.0038**	0.0038**	0.0009*	0.0014*	0.0006	0.0008
	(0.0006)	(0.0006)	(0.0019)	(0.0019)	(0.0005)	(0.0008)	(0.0007)	(0.0006)
Observations	123,982	123,982	42,593	42,593	123,982	123,982	123,982	123,982

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors robust to arbitrary within-CBG correlation in parentheses.

All regressions include controls for gender, race, 5th grade reading and math test scores, indicator if missing a test score or other 5th grade information, days suspended (5th grade) , total days absent (5th grade), single family home indicator, indicator for year individual j turned age 5 as of 9/1, assigned middle and high school fixed effects, and CBG fixed effects for person i.

Dependent Variable is an indicator for a pair ever being criminal partners. School attended models include fixed effects for each school attended (6-10th grade) by person j, except in cases of individual fixed effects (FE). We also include an indicator if individuals i and j are the same assigned or actual grade. Dist. FE indicates a series of indicator variables for 200 foot intervals of pairwise distances. Same HS indicates that same school only defined based on high schools. Student FE and student by CBG FE is based on individual j.

Table A.13: Interaction Effects of School Attended on Criminal Partnerships

	(1) Any Crime Partner	(2) 16-18 yr old Partnership	(3) 19-21 yr old Partnership	(4) Violent Crime Partners	(5) Property Crime Partners
Attend to Same School	0.0003	−0.0000	0.0007*	−0.0000	0.0004
	(0.0005)	(0.0005)	(0.0004)	(0.0002)	(0.0004)
*Same Grade	0.0025**	0.0026***	0.0000	0.0011***	0.0007
	(0.0010)	(0.0009)	(0.0004)	(0.0004)	(0.0007)
*Same Grade-Race-Gender*Minority Male	0.0082***	0.0064***	0.0014*	0.0036***	0.0037**
	(0.0021)	(0.0020)	(0.0008)	(0.0013)	(0.0016)
*Same Grade-Race-Gender*Minority Female	0.0057**	0.0058**	−0.0002	0.0043*	0.0015
	(0.0027)	(0.0027)	(0.0002)	(0.0025)	(0.0016)
*Same Grade-Race-Gender*NonMinority Male	0.0224	0.0231	0.0128	−0.0010	0.0111
	(0.0213)	(0.0213)	(0.0107)	(0.0007)	(0.0131)
*Same Grade-Race-Gender*NonMinority Female	−0.0011**	−0.0010**	0.0000	−0.0005*	−0.0005*
	(0.0005)	(0.0005)	(0.0002)	(0.0002)	(0.0003)
Observations	123,982	123,982	123,982	123,982	123,982

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors robust to arbitrary within-CBG correlation in parentheses.

All regressions include fixed effects for individual j, CBG fixed effects for individual i. All regressions include, but do not report, indicators for all variables used as an interaction with the assigned to same school variable.

Table A.14: Impact of School Attended *with elementary schools*

	(1) Any Crime Partner	(2) 16-18 yr old Partnership	(3) 19-21 yr old Partnership	(4) Violent Crime Partners	(5) Property Crime Partners
Pairs ≤ 1 km					
In Same Elem. School/Grade	0.0011	0.0026	−0.0010	0.0008	−0.0003
	(0.0025)	(0.0024)	(0.0014)	(0.0013)	(0.0021)
In Same Elem. School	0.0026**	0.0013	0.0020**	0.0006	0.0019*
	(0.0012)	(0.0009)	(0.0010)	(0.0005)	(0.0011)
In Same Course	0.0072**	0.0055**	0.0016*	0.0004	0.0037
	(0.0029)	(0.0026)	(0.0009)	(0.0010)	(0.0023)
In Same School & Same Grade	0.0016**	0.0018**	−0.0002	0.0012***	0.0003
	(0.0008)	(0.0008)	(0.0004)	(0.0004)	(0.0006)
In Same School	0.0008	0.0004	0.0007**	0.0002	0.0006
	(0.0005)	(0.0004)	(0.0004)	(0.0002)	(0.0004)
Dep. Var (mean) for Diff. School	0.00112	0.00106	0.00037	0.00037	0.00053
Observations	123,982	123,982	123,982	123,982	123,982

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors robust to arbitrary within-CBG correlation in parentheses.

All regressions include fixed effects for individual j, CBG fixed effects for individual i. We also include an indicator in individuals i and j are the same grade. Dependent Variable is an indicator based on column heading. We define attended the same school as two individuals matriculating for at least one year at the same middle or high school. Same grade is based on a pair of students being in the same grade. Same course indicates if two individuals took at least two courses together in grades 6-10.

Same school elementary and Same school/grade elementary are based on attending the same elementary school.