## Appendix A

Table A.1: Robustness Checks: Regression of Changes in Urban Schools' Student Composition on Neighborhood Gentrification using Alternative Measures of Gentrification and Disinvestment, 2000-2014

|  | Total Enrollment |  | \# White Students |  | \# Black Students |  | \# Latinx Students |  | \# FRPL Students |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | unadjusted <br> (1) | adjusted <br> (2) | unadjusted <br> (3) | adjusted <br> (4) | unadjusted <br> (5) | adjusted <br> (6) | unadjusted <br> (7) | adjusted <br> (8) | unadjusted <br> (9) | adjusted <br> (10) |
| Baseline Disinvestment Criteria: 40th Percentile ( $\mathrm{n}=5,912$ ) |  |  |  |  |  |  |  |  |  |  |
| Gentrification | $\begin{gathered} -49.7 * * * \\ (14.8) \end{gathered}$ | $\begin{gathered} -16.5^{* *} \\ (6.3) \end{gathered}$ | $\underset{(7.3)}{13.2 \dagger}$ | $\begin{gathered} 2.2 \\ (3.4) \end{gathered}$ | $\begin{aligned} & -18.1 \\ & (12.3) \end{aligned}$ | $\begin{aligned} & 4.2 \\ & (3.7) \end{aligned}$ | $\begin{gathered} -55.7^{* *} \\ (18.3) \end{gathered}$ | $\begin{gathered} -20.2^{* *} \\ (5.6) \end{gathered}$ | $\begin{gathered} \hline-71.3 * * * \\ (14.2) \end{gathered}$ | $\begin{gathered} -22.5 * * * \\ (5.6) \end{gathered}$ |
| Alternative Gentrification | $\underset{(14.6)}{-55.8 * * *}$ | $\underset{(6.4)}{-12.7^{*}}$ | $\begin{gathered} 10.0 \\ (6.8) \end{gathered}$ | $\begin{aligned} & -0.6 \\ & (3.2) \end{aligned}$ | $\begin{gathered} -7.3 \\ (11.1) \end{gathered}$ | $\begin{gathered} 5.9 \\ (3.6) \end{gathered}$ | $\begin{gathered} -65.3 * * * \\ (18.5) \end{gathered}$ | $\underset{(4.8)}{-16.2^{* *}}$ | $\begin{gathered} -68.5 * * * \\ (13.9) \end{gathered}$ | $\underset{(6.2)}{-18.9 * *}$ |
| Baseline Disinvestment Criteria: 30th Percentile ( $\mathrm{n}=3,310$ ) |  |  |  |  |  |  |  |  |  |  |
| Gentrification | $\begin{gathered} \hline-38.6^{*} \\ (18.2) \end{gathered}$ | $\begin{gathered} -16.4 \dagger \\ \hline(8.7) \end{gathered}$ | $\begin{aligned} & 12.7 \\ & (7.9) \end{aligned}$ | $\begin{aligned} & -0.3 \\ & (3.4) \end{aligned}$ | $\begin{gathered} \hline 0.9 \\ (13.7) \end{gathered}$ | $\begin{gathered} 7.2 \\ (4.8) \end{gathered}$ | $\begin{gathered} -61.1^{* *} \\ (20.5) \end{gathered}$ | $\begin{gathered} -19.2^{*} \\ (6.7) \end{gathered}$ | $\begin{gathered} -54.2^{* * *} \\ \hline(14.3) \end{gathered}$ | $\begin{gathered} -16.7^{*} \\ (7.6) \end{gathered}$ |
| Alternative Gentrification | $\begin{gathered} -47.8^{* *} \\ (16.7) \end{gathered}$ | $\begin{gathered} -20.6^{* *} \\ (7.9) \end{gathered}$ | $\begin{aligned} & 11.3 \\ & (7.6) \end{aligned}$ | $\begin{aligned} & -0.7 \\ & (3.5) \end{aligned}$ | $\begin{gathered} 1.2 \\ (13.6) \end{gathered}$ | $\begin{gathered} 2.7 \\ (4.3) \end{gathered}$ | $\begin{gathered} -67.0 * * * \\ (19.4) \end{gathered}$ | $\begin{gathered} -18.8^{*} \\ (5.7) \end{gathered}$ | $\underset{(14.7)}{-61.3 * * *}$ | $\underset{(8.1)}{-25.1^{* *}}$ |

Note: Neighborhoods are defined in terms of school catchment areas. Gentrification is measured as an indicator of whether a neighborhood whose median household income in 2000 was below the $40^{\text {th }}$ percentile (Panel A) or $30^{\text {th }}$ percentile (Panel B) of its respective city and whose housing supply built in the 20 years preceding 2000 was below the $40^{\text {th }}$ percentile (Panel A) or $30^{\text {th }}$ percentile (Panel B) of its city underwent (a) an inflow of college-educated residents between 2000 and 2014 that exceeded the growth of collegeeducation persons in the city overall, and (b) an increase in real housing prices. The alternative measure of gentrification replaces stipulation (b) with an indicator of whether the neighborhood experienced an increase in inflation-adjusted median rent. Analytic sample is restricted to urban schools located in divested neighborhoods. Columns (1), (3), (5), (7), and (9) report unadjusted bivariate associations. Columns (2), (4), (6), (8), and (10) include controls at the school-, neighborhood-, district-, county-, and city-level. School controls are measured in 2000 and include the total number of students, school level (elementary, middle, high school), the proportion of students qualifying for free and reduced price lunch, student-teacher ratio, and the proportion of White students. School district controls are measured in 2000 and include student-teacher ratio, percent of children receiving free and reduced price lunch, proportion of district students who are non-White, and the density of charter and magnet schools. Neighborhood controls are measured in 2000 and include neighborhood poverty rates, proportion of residents who are children, percent of residents receiving government assistance, proportion of adult residents age 25 and over who have received a high school degree, proportion of adult residents who have received college degree, percent of residents who are Black, White, and Latinx, respectively, unemployment rates, housing prices, proportion of families who are female-headed, and density of persons per square mile. Pre-2000 neighborhood controls capture trends in gentrification prior to baseline and are measured during the 1990 Census and include the same neighborhood controls measured in 2000. City-level controls include metro area size, racial segregation, income segregation, and income inequality. Sampling weights constructed as the inverse probability that a school reported catchment area data based on observable characteristics. Estimates are based on 25 multiply imputed datasets, combined based on Rubin Rule's for MI inference (1987). $\dagger \mathrm{p}<.10,{ }^{*} \mathrm{p}<.05, * * \mathrm{p}<.01$, $* * * \mathrm{p}<.001$ for two-tailed tests of significance.

Table A.2: Regression of Changes in Student Composition on Neighborhood Gentrification Across Alternative Definition of School Neighborhoods, 2000-2014

|  | Total Enrollment |  | \% White Students |  | \% Black Students |  | \% Latinx Students |  | \% FRPL Students |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | unadjusted <br> (1) | adjusted <br> (2) | unadjusted <br> (3) | adjusted <br> (4) | unadjusted <br> (5) | adjusted <br> (6) | unadjusted <br> (7) | adjusted <br> (8) | unadjusted <br> (9) | adjusted <br> (10) |
| Catchment Area ( $\mathrm{n}=5,912$ ) |  |  |  |  |  |  |  |  |  |  |
| Gentrification | $\begin{gathered} \hline-49.7 * * * \\ (14.8) \end{gathered}$ | $\begin{gathered} \hline-16.5^{* *} \\ (6.3) \end{gathered}$ | $\begin{aligned} & 13.2 \dagger \\ & (7.3) \end{aligned}$ | $\begin{gathered} \hline 2.2 \\ (3.4) \end{gathered}$ | $\begin{aligned} & -18.1 \\ & (12.3) \end{aligned}$ | $\begin{gathered} -1.2 \\ \hline 4.2 \\ (3.7) \end{gathered}$ | $\begin{gathered} \hline-55.7^{* *} \\ (18.3) \end{gathered}$ | $\begin{aligned} & -20.2 \\ & (5.6) \end{aligned}$ | $\begin{gathered} -71.3^{* * *} \\ (14.2) \end{gathered}$ | $\begin{gathered} -22.5 * * * \\ (5.6) \end{gathered}$ |
| Census Tract ( $\mathrm{n}=7,262$ ) |  |  |  |  |  |  |  |  |  |  |
| Gentrification | $\begin{gathered} -47.3^{* *} \\ (14.3) \end{gathered}$ | $\begin{gathered} -15.2^{* *} \\ (5.9) \end{gathered}$ | $\begin{aligned} & 15.4^{*} \\ & (7.5) \end{aligned}$ | $\begin{gathered} \hline 0.6 \\ (3.3) \end{gathered}$ | $\begin{gathered} \hline-21.3^{*} \\ (8.6) \end{gathered}$ | $\begin{gathered} -1.7 \\ (2.8) \end{gathered}$ | $\begin{gathered} -51.2^{* * *} \\ (15.4) \end{gathered}$ | $\begin{gathered} \hline-16.5^{* *} \\ (4.4) \end{gathered}$ | $\begin{gathered} \hline-71.7 * * * \\ (11.2) \end{gathered}$ | $\begin{gathered} \hline-22.1 * * * \\ (5.1) \end{gathered}$ |

Note: Figures refer to respective point estimates for gentrification across alternative specifications of school neighborhoods. Gentrification is measured as whether a neighborhood whose median household income in 2000 was below the 40 th percentile of its respective city average and whose housing supply built in the 20 years preceding 2000 was below the 40th percentile of its city underwent (a) an inflow of college-educated residents between 2000 and 2014 that exceeded the growth of college-education persons in the county overall, and (b) an increase in housing prices that exceeded the average housing price increase in the city. Analytic sample is restricted to schools located in divested neighborhoods. All models are covariate-adjusted. School controls are measured in 2000 and include the total number of students, the proportion of students qualifying for free and reduced price lunch, student-teacher ratio, and the proportion of White students. School district controls are measured in 2000 and include annual expenditures per student, student-teacher ratio, percent of children receiving free and reduced price lunch, proportion of district students who are non-White, a binary indicator of whether a district offered an intra- or inter-district choice programs, and the density of charter and magnet schools. Neighborhood controls are measured in 2000 and include neighborhood poverty rates, proportion of residents who are children, percent of residents receiving government assistance, proportion of adult residents age 25 and over who have received a high school degree, proportion of adult residents who have received college degree, percent of residents who are Black, White, and Latinx, respectively, unemployment rates, housing prices, proportion of families who are female-headed, and density of persons per square mile. Pre-2000 neighborhood controls capture trends in gentrification prior to baseline and are measured during the 1990 Census and include the same neighborhood controls measured in 2000. District controls include total enrollment; indicators for inter-district choice policy, intra-district choice policy, and magnet school offerings; number of charter schools; district poverty rates; student-teacher ratio; and average per-pupil expenditures. Citylevel controls include metro area size, racial segregation, income segregation, and income inequality. Sampling weights constructed as the inverse probability that a school reported catchment area data based on observable characteristics. Estimates are based on 25 multiply imputed datasets, combined based on Rubin Rule's for MI inference (1987). $\dagger \mathrm{p}<.10$, ${ }^{*} \mathrm{p}<.05,{ }^{* *} \mathrm{p}<.01,{ }^{* * *} \mathrm{p}<.001$ for two-tailed tests of significance.

Table A.3: Robustness Check: OLS Regression of Urban Schools' Student Composition on Gentrification and Interactions Between Gentrification and School Level, 2000-2014

|  | Total Enrollment |  | \#White Students |  | \#Black Students |  | \# Latinx Students |  | \# Poor Students |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | unadjusted <br> (1) | adjusted <br> (2) | unadjusted <br> (3) | adjusted <br> (4) | unadjusted <br> (5) | adjusted <br> (6) | unadjusted <br> (7) | adjusted <br> (8) | unadjusted <br> (9) | adjusted <br> (10) |
| Gentrification | $\begin{aligned} & -60.4 \\ & (12.0) \end{aligned}$ | $\begin{aligned} & -13.6 \\ & (6.5) \end{aligned}$ | $\begin{aligned} & 12.6 \\ & (6.3) \end{aligned}$ | $\begin{aligned} & -0.3 \\ & (2.9) \end{aligned}$ | $\begin{aligned} & -17.8 \\ & (9.7) \end{aligned}$ | $\begin{aligned} & 5.4 \\ & (3.5) \end{aligned}$ | $\begin{aligned} & -64.0 \\ & (15.5) \end{aligned}$ | $\begin{aligned} & -16.3 \\ & (5.5) \end{aligned}$ | $\begin{gathered} -77.4 \\ (12.0) \end{gathered}$ | $\begin{aligned} & -16.4 \\ & (6.1) \end{aligned}$ |
| Elementary | ref | ref | ref | ref | ref | ref | ref | ref | ref | ref |
| Middle High | $\begin{aligned} & 164.3 * * * \\ & (19.0) \\ & 713.3 * * \\ & (47.3) \end{aligned}$ | $\begin{aligned} & 19.1 \\ & (12.7) \\ & 143.4^{* * *} \\ & (25.9) \end{aligned}$ | $\begin{aligned} & 28.2^{* * *} \\ & (7.9) \\ & 130.4^{* * *} \\ & (15.6) \end{aligned}$ | $\begin{aligned} & 3.6 \\ & (4.8) \\ & 12.4 \\ & (8.4) \end{aligned}$ | $\begin{aligned} & 42.8^{* * *} \\ & (12.5) \\ & 269.7^{* * *} \\ & (28.0) \end{aligned}$ | $\begin{aligned} & 0.4 \\ & (6.9) \\ & 52.4^{* * *} \\ & (15.1) \end{aligned}$ | $\begin{aligned} & 85.1^{* * *} \\ & (21.0) \\ & 258.8^{* * *} \\ & (48.1) \end{aligned}$ | $\begin{aligned} & 22.8^{* *} \\ & (9.7) \\ & 82.7^{* * *} \\ & (19.9) \end{aligned}$ | $\begin{aligned} & 132.0^{* * *} \\ & (18.2) \\ & 490.7^{* * *} \\ & (41.1) \end{aligned}$ | $\begin{aligned} & 18.5 \\ & (11.3) \\ & 76.5^{* * *} \\ & (22.6) \end{aligned}$ |
| Gent*Elem | ref | ref | ref | ref | ref | ref | ref | ref | ref | ref |
| Gent*Middle Gent*High | $\begin{aligned} & 27.2 \\ & (25.9) \\ & 31.0 \\ & (68.9) \end{aligned}$ | $\begin{aligned} & 15.2 \\ & (16.1) \\ & -49.6 \\ & (33.4) \end{aligned}$ | $\begin{aligned} & 3.6 \\ & (13.5) \\ & -5.9 \\ & (25.9) \end{aligned}$ | $\begin{aligned} & 5.6 \\ & (6.4) \\ & 19.3 \\ & (16.8) \end{aligned}$ | $\begin{aligned} & 28.5 \dagger \\ & (15.8) \\ & -53.3 \\ & (33.1) \end{aligned}$ | $\begin{aligned} & 7.9 \\ & (9.0) \\ & -22.3 \\ & (20.3) \end{aligned}$ | $\begin{aligned} & -1.8 \\ & (28.6) \\ & 71.0 \\ & (57.9) \end{aligned}$ | $\begin{aligned} & 6.4 \\ & (11.0) \\ & -48.2 \dagger \\ & (24.7) \end{aligned}$ | $\begin{aligned} & 16.5 \\ & (24.0) \\ & 11.8 \\ & (53.3) \end{aligned}$ | $\begin{aligned} & 5.6 \\ & (14.0) \\ & -71.2^{*} \\ & (31.0) \end{aligned}$ |

Note: Gentrification is measured as whether a neighborhood whose median household income in 2000 was below the 40th percentile of its respective city average and whose housing supply built in the 20 years preceding 2000 was below the 40 th percentile of its city underwent (a) an inflow of college-educated residents between 2000 and 2014 that exceeded the growth of college-education persons in the county overall, and (b) an increase in housing prices that exceeded the average housing price increase in the city. Analytic sample is restricted to schools located in gentrifiable neighborhoods. School controls are measured in 2000 and include the total number of students, school level (elementary, middle, high school), the proportion of students qualifying for free and reduced price lunch, student-teacher ratio, and the proportion of White students. School district controls are measured in 2000 and include annual expenditures per student, student-teacher ratio, percent of children receiving free and reduced price lunch, proportion of district students who are non-White, a binary indicator of whether a district offered an intra- or inter-district choice programs, and the density of charter and magnet schools. Neighborhood controls are measured in 2000 and include neighborhood poverty rates, proportion of residents who are children, percent of residents receiving government assistance, proportion of adult residents age 25 and over who have received a high school degree, proportion of adult residents who have received college degree, percent of residents who are Black, White, and Latinx, respectively, unemployment rates, housing prices, proportion of families who are female-headed, and density of persons per square mile. Pre-2000 neighborhood controls capture trends in gentrification prior to baseline and are measured during the 1990 Census and include the same neighborhood controls measured in 2000. District controls include total enrollment; indicators for inter-district choice policy, intra-district choice policy, and magnet school offerings; number of charter schools; district poverty rates; student-teacher ratio; and average per-pupil expenditures. City-level controls include metro area size, racial segregation, income segregation, and income inequality. Estimates are based on 25 multiply imputed datasets, combined based on Rubin Rule's for MI inference (1987). $\dagger \mathrm{p}<.10,{ }^{*} \mathrm{p}<.05$, ${ }^{* *} \mathrm{p}<.01$, ${ }^{* * *} \mathrm{p}<.001$ for two-tailed tests of significance.

Table A.4: Robustness Check: OLS Regression of Student Composition on Gentrification in Metro Versus Central City Areas, 2000-2014

|  | Total Enrollment |  | \% White Students |  | \% Black Students |  | \% Latinx Students |  | \% FRPL Students |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | unadjusted <br> (1) | adjusted <br> (2) | unadjusted <br> (3) | adjusted <br> (4) | unadjusted <br> (5) | adjusted <br> (6) | unadjusted <br> (7) | adjusted <br> (8) | unadjusted <br> (9) | adjusted <br> (10) |
| Urbanized Areas ( $\mathrm{n}=5,912$ ) |  |  |  |  |  |  |  |  |  |  |
| Gentrification | $\begin{gathered} \hline-49.7 * * * \\ (14.8) \end{gathered}$ | $\begin{gathered} -16.5^{* *} \\ (6.3) \end{gathered}$ | $\begin{gathered} 13.2 \dagger \\ (7.3) \end{gathered}$ | $\begin{aligned} & \hline 2.2 \\ & (3.4) \end{aligned}$ | $\begin{gathered} \hline-18.1 \\ (12.3) \end{gathered}$ | $\begin{aligned} & \hline 4.2 \\ & (3.7) \end{aligned}$ | $\begin{gathered} -55.7 * * \\ (18.3) \end{gathered}$ | $\begin{gathered} -20.2^{* *} \\ (5.6) \end{gathered}$ | $\begin{gathered} \hline-71.3 * * * \\ (14.2) \end{gathered}$ | $\begin{gathered} \hline-22.5^{* * *} \\ (5.6) \end{gathered}$ |
| Central Cities ( $\mathrm{n}=4,286$ ) |  |  |  |  |  |  |  |  |  |  |
| Gentrification | $\begin{gathered} \hline-33.7^{*} \\ (15.9) \end{gathered}$ | $\begin{gathered} -20.1^{* *} \\ (7.1) \end{gathered}$ | $\begin{aligned} & 10.3 \\ & (7.2) \end{aligned}$ | $\begin{aligned} & \hline-0.6 \\ & (3.2) \end{aligned}$ | $\begin{gathered} \hline-14.0 \\ (15.1) \end{gathered}$ | $\begin{gathered} \hline 3.9 \\ (4.3) \end{gathered}$ | $\begin{gathered} \hline-40.8 \dagger \\ (21.3) \end{gathered}$ | $\begin{gathered} -20.3^{* *} \\ (5.8) \end{gathered}$ | $\begin{gathered} \hline-58.3 * * * \\ (14.5) \end{gathered}$ | $\begin{gathered} \hline-24.6^{* * *} \\ (6.2) \end{gathered}$ |

Note: Urbanized area and central city classifications were developed by the U.S. census and are made available for school locations through the National Center for Educational Statistics. An urbanized area is a densely settled core area with a population equal to or exceeding 50,000 . To qualify as a central city, a given territory must either be the largest incorporated place in a given core based statistical area (CBSA), or must include at least one of the following: (a) the presence of at least 100,000 working persons, or a Census population of at least 250,000 , (b) a Census population less than 250,000 but more than 50,000 and in which the number of workers working in a given incorporated place exceeds the number of workers living in that same incorporated place, (c) a Census population less than 50,000 but more than 10,000 that is at least a third the size of the largest incorporated place in its same urbanized area and in which the number of workers working in the incorporated place is at least as large as the number of workers living in the incorporated place. Gentrification is measured as whether a neighborhood whose median household income in 2000 was below the 40th percentile of its respective city average and whose housing supply built in the 20 years preceding 2000 was below the 40 th percentile of its city underwent (a) an inflow of college-educated residents between 2000 and 2014 that exceeded the growth of college-education persons in the county overall, and (b) an increase in housing prices that exceeded the average housing price increase in the city. Analytic sample is restricted to schools located in divested neighborhoods. School controls are measured in 2000 and include the total number of students, school level (elementary, middle, high school), the proportion of students qualifying for free and reduced price lunch, student-teacher ratio, and the proportion of White students. School district controls are measured in 2000 and include annual expenditures per student, student-teacher ratio, percent of children receiving free and reduced price lunch, proportion of district students who are non-White, a binary indicator of whether a district offered an intra- or inter-district choice programs, and the density of charter and magnet schools. Neighborhood controls are measured in 2000 and include neighborhood poverty rates, proportion of residents who are children, percent of residents receiving government assistance, proportion of adult residents age 25 and over who have received a high school degree, proportion of adult residents who have received college degree, percent of residents who are Black, White, and Latinx, respectively, unemployment rates, housing prices, proportion of families who are female-headed, and density of persons per square mile. Pre-2000 neighborhood controls capture trends in gentrification prior to baseline and are measured during the 1990 Census and include the same neighborhood controls measured in 2000. District controls include total enrollment; indicators for inter-district choice policy, intra-district choice policy, and magnet school offerings; number of charter schools; district poverty rates; student-teacher ratio; and average per-pupil expenditures. City-level controls include metro area size, racial segregation, income segregation, and income inequality. Sampling weights constructed as the inverse probability that a school reported catchment area data based on observable characteristics. Estimates are based on 25 multiply imputed datasets, combined based on Rubin Rule's for MI inference (1987). $\dagger \mathrm{p}<.10,{ }^{*} \mathrm{p}<.05,{ }^{* *} \mathrm{p}<.01,{ }^{* * *} \mathrm{p}<.001$ for two-tailed tests of significance.

Table A.5: Robustness Check: Regression of Changes in Urban Schools' Student Composition on Neighborhood Gentrification with and without Sampling Weights, 2000-2014


Note: Gentrification is measured as whether a neighborhood whose median household income in 2000 was below the 40th percentile of its respective city average and whose housing supply built in the 20 years preceding 2000 was below the 40 th percentile of its city underwent (a) an inflow of college-educated residents between 2000 and 2014 that exceeded the growth of college-education persons in the county overall, and (b) an increase in housing prices that exceeded the average housing price increase in the city. Analytic sample is restricted to schools located in divested neighborhoods. School controls are measured in 2000 and include the total number of students, school level (elementary, middle, high school), the proportion of students qualifying for free and reduced price lunch, student-teacher ratio, and the proportion of White students. School district controls are measured in 2000 and include annual expenditures per student, student-teacher ratio, percent of children receiving free and reduced price lunch, proportion of district students who are non-White, a binary indicator of whether a district offered an intra- or inter-district choice programs, and the density of charter and magnet schools. Neighborhood controls are measured in 2000 and include neighborhood poverty rates, proportion of residents who are children, percent of residents receiving government assistance, proportion of adult residents age 25 and over who have received a high school degree, proportion of adult residents who have received college degree, percent of residents who are Black, White, and Latinx, respectively, unemployment rates, housing prices, proportion of families who are female-headed, and density of persons per square mile. Pre-2000 neighborhood controls capture trends in gentrification prior to baseline and are measured during the 1990 Census and include the same neighborhood controls measured in 2000. District controls include total enrollment; indicators for inter-district choice policy, intra-district choice policy, and magnet school offerings; number of charter schools; district poverty rates; student-teacher ratio; and average per-pupil expenditures. City-level controls include metro area size, racial segregation, income segregation, and income inequality. Sampling weights constructed as the inverse probability that a school reported catchment area data based on observable characteristics. Estimates are based on 25 multiply imputed datasets, combined based on Rubin Rule's for MI inference (1987). $\dagger \mathrm{p}<.10,{ }^{*} \mathrm{p}<.05,{ }^{* *} \mathrm{p}<.01,{ }^{* * *} \mathrm{p}<.001$ for two-tailed tests of significance.

Table A.6: Regression of Changes in Student Composition on Neighborhood Gentrification With and Without Charter Schools in the Analytic Sample and in which School Neighborhoods are Defined Based on Census Tracts, 2000-2014

|  | Total Enrollment |  | \# White Students |  | \# Black Students |  | \# Latinx Students |  | \# FRPL Students |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | unadjusted <br> (1) | adjusted <br> (2) | unadjusted <br> (3) | adjusted <br> (4) | unadjusted <br> (5) | adjusted <br> (6) | unadjusted <br> (7) | adjusted <br> (8) | unadjusted <br> (9) | adjusted <br> (10) |
| Without Charter Schools ( $\mathrm{n}=7,262$ ) |  |  |  |  |  |  |  |  |  |  |
| Gentrification | $\begin{gathered} \hline-47.3^{* *} \\ (14.3) \end{gathered}$ | $\begin{gathered} -15.2^{* *} \\ (5.9) \end{gathered}$ | $\begin{aligned} & 15.4^{*} \\ & (7.5) \end{aligned}$ | $\begin{gathered} \hline 0.6 \\ (3.3) \end{gathered}$ | $\begin{gathered} -21.3^{*} \\ (8.6) \end{gathered}$ | $\begin{gathered} \hline-1.7 \\ (2.8) \end{gathered}$ | $\begin{gathered} \hline-51.2^{* * *} \\ (15.4) \end{gathered}$ | $\begin{gathered} -16.5^{* *} \\ (4.4) \end{gathered}$ | $\begin{gathered} \hline-71.7^{* * *} \\ (11.2) \end{gathered}$ | $\begin{gathered} \hline-22.1^{* * *} \\ (5.1) \end{gathered}$ |
| With Charter Schools ( $\mathrm{n}=7,298$ ) |  |  |  |  |  |  |  |  |  |  |
| Gentrification | $\begin{gathered} \hline-45.6^{* *} \\ (14.3) \end{gathered}$ | $\begin{gathered} -16.5^{* *} \\ (6.0) \end{gathered}$ | $\begin{aligned} & \hline 13.5 \dagger \\ & (7.4) \end{aligned}$ | $\begin{aligned} & -0.2 \\ & (3.3) \end{aligned}$ | $\begin{gathered} \hline-21.3^{*} \\ (8.7) \end{gathered}$ | $\begin{aligned} & -2.6 \\ & (2.6) \end{aligned}$ | $\begin{aligned} & -47.5^{* *} \\ & (14.8) \end{aligned}$ | $\begin{gathered} \hline-16.5^{* *} \\ (4.6) \end{gathered}$ | $\begin{gathered} \hline-69.3 * * * \\ (10.9) \end{gathered}$ | $\begin{gathered} \hline-22.9 * * * \\ (5.2) \end{gathered}$ |

Note: School neighborhoods are defined as the census tract in which schools are located Gentrification is measured as whether a neighborhood whose median household income in 2000 was below the 40 th percentile of its respective city average and whose housing supply built in the 20 years preceding 2000 was below the 40th percentile of its city underwent (a) an inflow of college-educated residents between 2000 and 2014 that exceeded the growth of college-education persons in the county overall, and (b) an increase in housing prices that exceeded the average housing price increase in the city. Analytic sample is restricted to schools located in divested neighborhoods. All models are covariateadjusted. School controls are measured in 2000 and include the total number of students, the proportion of students qualifying for free and reduced price lunch, student-teacher ratio, and the proportion of white students. School district controls are measured in 2000 and include annual expenditures per student, student-teacher ratio, percent of children receiving free and reduced price lunch, proportion of district students who are non-white, a binary indicator of whether a district offered an intra- or inter-district choice programs, and the density of charter and magnet schools. Neighborhood controls are measured in 2000 and include neighborhood poverty rates, proportion of residents who are children, percent of residents receiving government assistance, proportion of adult residents age 25 and over who have received a high school degree, proportion of adult residents who have received college degree, percent of residents who are black, white, and Hispanic, respectively, unemployment rates, housing prices, proportion of families who are femaleheaded, and density of persons per square mile. Pre- 2000 neighborhood controls capture trends in gentrification prior to baseline and are measured during the 1990 Census and include the same neighborhood controls measured in 2000. District controls include total enrollment; indicators for inter-district choice policy, intra-district choice policy, and magnet school offerings; number of charter schools; district poverty rates; student-teacher ratio; and average per-pupil expenditures. City-level controls include metro area size, racial segregation, income segregation, and income inequality. Sampling weights constructed as the inverse probability that a school reported catchment area data based on observable characteristics. Estimates are based on 25 multiply imputed datasets, combined based on Rubin Rule's for MI inference (1987). $\dagger \mathrm{p}<.10,{ }^{*} \mathrm{p}<.05$, ${ }^{* *} \mathrm{p}<.01,{ }^{* * *} \mathrm{p}<.001$ for two-tailed tests of significance.

## Appendix B

Table B.1: Overall and Population-at-Risk Rates of Gentrification Around Urban Schools, 100 Largest Metropolitan Statistical Areas (MSAs), 2000-2014

| Metropolitan Statistical Area | Overall Rate of <br> Gentrification | Population-at-Risk <br> Rate of Gentrification |
| :--- | :---: | :---: |
| 1. Austin-Round Rock, TX | 0.168 | 0.631 |
| 2. Boston-Cambridge-Quincy, MA-NH | 0.162 | 0.709 |
| 3. Fresno, CA | 0.125 | 0.365 |
| 4. Knoxville, TN | 0.119 | 0.500 |
| 5. Albuquerque, NM | 0.109 | 0.447 |
| 6. Jackson, MS | 0.107 | 0.237 |
| 7. Portland-Vancouver-Beaverton, OR-WA | 0.103 | 0.610 |
| 8. Minneapolis-St. Paul-Bloomington, MN-WI | 0.102 | 0.480 |
| 9. Nashville-Davidson-Murfreesboro, TN | 0.093 | 0.365 |
| 10. Columbia, SC | 0.078 | 0.478 |
| 11. Seattle-Tacoma-Bellevue, WA | 0.077 | 0.417 |
| 12. Tucson, AZ | 0.075 | 0.255 |
| 13. Denver-Aurora, CO | 0.074 | 0.298 |
| 14. Washington-Arlington-Alexandria, DC-VA-MD-WV | 0.073 | 0.427 |
| 15. Oklahoma City, OK | 0.071 | 0.308 |
| 16. Bridgeport-Stamford-Norwalk, CT | 0.071 | 0.406 |
| 17. Sacramento--Arden-Arcade--Roseville, CA | 0.070 | 0.293 |
| 18. Springfield, MA | 0.070 | 0.200 |
| 19. Chattanooga, TN-GA | 0.069 | 0.368 |
| 20. Richmond, VA | 0.068 | 0.312 |
| 21. Tampa-St. Petersburg-Clearwater, FL | 0.065 | 0.394 |
| 22. Virginia Beach-Norfolk-Newport News, VA-NC | 0.064 | 0.280 |
| 23. St. Louis, MO-IL | 0.062 | 0.297 |
| 24. Allentown-Bethlehem-Easton, PA-NJ | 0.060 | 0.231 |
| 25. Charlotte-Gastonia-Concord, NC-SC | 0.058 | 0.221 |
| 26. Little Rock-North Little Rock, AR | 0.058 | 0.150 |
| 27. Worcester, MA | 0.057 | 0.400 |
| 28. Raleigh-Cary, NC | 0.056 | 0.357 |
| 29. Jacksonville, FL | 0.051 | 0.183 |
| 30. El Paso, TX | 0.050 | 0.297 |
| 31. Madison, WI | 0.050 | 0.556 |
| 32. San Diego-Carlsbad-San Marcos, CA | 0.048 | 0.355 |
| 33. Phoenix-Mesa-Scottsdale, AZ | 0.047 | 0.200 |
| 34. Portland-South Portland, ME | 0.047 | 0.200 |
| 35. Wichita, KS | 0.045 | 0.214 |
| 36. Dallas-Fort Worth-Arlington, TX | 0.043 | 0.192 |
| 37. Salt Lake City, UT | 0.043 | 0.290 |
| 38. Hartford-West Hartford-East Hartford, CT | 0.041 | 0.293 |
| 39. Modesto, CA | 0.041 | 0.333 |
| 40. Atlanta-Sandy Springs-Marietta, GA | 0.040 | 0.184 |
| 41. Baton Rouge, LA | 0.040 | 0.217 |


| 42. Houston-Baytown-Sugar Land, TX | 0.040 | 0.172 |
| :---: | :---: | :---: |
| 43. New York-Newark-Edison, NY-NJ-PA | 0.039 | 0.395 |
| 44. Cincinnati-Middletown, OH-KY-IN | 0.039 | 0.163 |
| 45. Omaha-Council Bluffs, NE-IA | 0.039 | 0.163 |
| 46. San Antonio, TX | 0.037 | 0.097 |
| 47. Albany-Schenectady-Troy, NY | 0.037 | 0.161 |
| 48. Philadelphia-Camden-Wilmington, PA-NJ-DE-MD | 0.036 | 0.215 |
| 49. Augusta-Richmond County, GA-SC | 0.036 | 0.103 |
| 50. Tulsa, OK | 0.036 | 0.143 |
| 51. Baltimore-Towson, MD | 0.036 | 0.131 |
| 52. Providence-New Bedford-Fall River, RI-MA | 0.033 | 0.113 |
| 53. Charleston-North Charleston, SC | 0.033 | 0.167 |
| 54. Miami-Fort Lauderdale-Miami Beach, FL | 0.033 | 0.142 |
| 55. North Port-Sarasota-Bradenton, FL | 0.033 | 0.333 |
| 56. Grand Rapids-Wyoming, MI | 0.032 | 0.091 |
| 57. San Francisco-Oakland-Fremont, CA | 0.031 | 0.348 |
| 58. Chicago-Naperville-Joliet, IL-IN-WI | 0.030 | 0.138 |
| 59. Milwaukee-Waukesha-West Allis, WI | 0.030 | 0.196 |
| 60. Riverside-San Bernardino-Ontario, CA | 0.027 | 0.153 |
| 61. Syracuse, NY | 0.026 | 0.100 |
| 62. Colorado Springs, CO | 0.026 | 0.167 |
| 63. San Jose-Sunnyvale-Santa Clara, CA | 0.026 | 0.667 |
| 64. Harrisburg-Carlisle, PA | 0.025 | 0.286 |
| 65. Orlando, FL | 0.023 | 0.163 |
| 66. Boise City-Nampa, ID | 0.022 | 0.188 |
| 67. Indianapolis, IN | 0.022 | 0.113 |
| 68. Kansas City, MO-KS | 0.021 | 0.094 |
| 69. Bakersfield, CA | 0.021 | 0.115 |
| 70. Louisville, KY-IN | 0.018 | 0.071 |
| 71. Los Angeles-Long Beach-Santa Ana, CA | 0.017 | 0.150 |
| 72. Youngstown-Warren-Boardman, OH-PA | 0.017 | 0.100 |
| 73. Honolulu, HI | 0.017 | 0.273 |
| 74. Columbus, OH | 0.015 | 0.094 |
| 75. Deltona-Daytona Beach-Ormond Beach, FL | 0.014 | 0.333 |
| 76. Stockton, CA | 0.013 | 0.083 |
| 77. Scranton-Wilkes-Barre, PA | 0.011 | 0.071 |
| 78. Greenville, SC | 0.011 | 0.062 |
| 79. Pittsburgh, PA | 0.011 | 0.093 |
| 80. Lakeland-Winter Haven, FL | 0.011 | 0.167 |
| 81. Oxnard-Thousand Oaks-Ventura, CA | 0.010 | 0.071 |
| 82. Toledo, OH | 0.009 | 0.037 |
| 83. Des Moines, IA | 0.008 | 0.043 |
| 84. Memphis, TN-MS-AR | 0.007 | 0.025 |
| 85. New Orleans-Metairie-Kenner, LA | 0.006 | 0.500 |
| 86. McAllen-Edinburg-Pharr, TX | 0.004 | 0.040 |
| 87. Las Vegas-Paradise, NV | 0.003 | 0.009 |
| 88. Detroit-Warren-Livonia, MI | 0.000 | 0.000 |


| 89. Akron, OH | 0.000 | 0.000 |
| :--- | :--- | :--- |
| 90. Dayton, OH | 0.000 | 0.000 |
| 91. Cleveland-Elyria-Mentor, OH | 0.000 | 0.000 |
| 92. Birmingham-Hoover, AL | 0.000 | 0.000 |
| 93. Santa Rosa-Petaluma, CA | 0.000 | 0.000 |
| 94. Greensboro-High Point, NC | 0.000 | 0.000 |
| 95. Buffalo-Cheektowaga-Tonawanda, NY | 0.000 | 0.000 |
| 96. Lancaster, PA | 0.000 | 0.000 |
| 97. Palm Bay-Melbourne-Titusville, FL | 0.000 | 0.000 |
| 98. Rochester, NY | 0.000 | 0.000 |
| 99. Poughkeepsie-Newburgh-Middletown, NY | 0.000 | 0.000 |
| 100. New Haven-Milford, CT | 0.000 | 0.000 |

## Appendix C

Figure C.1: Coverage Map of 2009-10 School Attendance Boundary Information System and 2013-14 School Attendance Boundary Survey


## Appendix D

Figure D.1: Adjusted Relationship between Gentrification and Changes in Student Composition Across the Extent to which Gentrifiers are White



