

## Foundation Redistribution Modeling: Correlation and Distribution

Looking at district-wide correlations only can erase some of the disparities between individual schools or groups of schools that occur in the various models. Therefore it is important to look at the DISTRIBUTION of funds as well as the CORRELATION of the overall dollars.

About correlations:

- A positive or negative number indicates the direction of the relationship. In a positive correlation, the two variables move together; in a negative correlation, as one variable goes up, the other goes down.
- Distance from zero indicates the strength of the relationship—zero means no correlation, so further from zero means a stronger correlation.
- Statistical significance is a measurement of the potential that a result was reached by chance. Larger samples (500+) are more likely to demonstrate statistical significance for correlations. This analysis only includes 82 schools and therefore only demonstrates statistical significance on the strongest correlations.

Table 1 displays correlations between modeled foundation allocations based on a range of contribution requirements (33%--current model; 50%, and 75%) and school demographics using 2020-21 Foundation Fundraising totals as a baseline.

<b>TABLE 1</b>	33% after first \$10K	50% after first \$10K	75% after first \$10K	Equal per-student distribution	Equal per-school distribution
<b>Modeled using 2020-2021 Foundation Fundraising Dollars (low fundraising year example)</b>					
% White Students	.229*	.059	-.440*	.024	-.060
% HU Racial Groups	-.218*	-.047	.457*	-.031	-.030
% Economically Disadvantaged	-.313*	-.155	.336*	-.138	.066
<b>Modeled using 2018-19 Foundation Fundraising Dollars (high fundraising year example)</b>					
% White Students	.276*	.012	-.604*	.024	-.060
% HU Racial Groups	-.318*	-.052	.584*	-.031	-.030
% Economically Disadvantaged	-.421*	-.173	.473*	-.138	.066

\*Correlation is statistically significant

Key takeaways:

- Correlations between fundraising allocations and student demographics are not statistically significant when the contribution requirement shifts to 50%.
- The direction of the relationships between demographics and dollars remain the same between 33% and 50% contribution but the relationship is weaker at 50%. In both of these models, schools that are allocated more foundation funds have more white students and fewer historically underserved and economically disadvantaged students.
- The direction of the relationship reverses at 75% contribution. In this model, there is a modest to moderate relationship between more foundation funds allocated more historically underserved and economically disadvantaged students, but fewer white students.
- There is a co-occurring relationship with school enrollment that influences the correlation with per-student allocations: higher enrollment is positively correlated with %white students and negatively correlated with %HU and %Economically disadvantaged students.
- The majority of foundation funds (approximately 60%) are raised by K-5 schools. When looking at correlations for K-5 schools only, the effect sizes are larger (i.e. the correlations between fundraising allocations and school demographics are stronger), but because of the smaller sample size are less frequently statistically significant.

Created by Dr. Beth Cavanaugh, 2022

**Distribution by Fundraising Level:** This table shows the average amount allocated to schools at each fundraising level using the various distribution models. See attached packet for visual charts displaying this information.

	33% after first \$10K	50% after first \$10K	75% after first \$10K	Equal per-school distribution	Equal per-student distribution
<b>Modeled using 2020-2021 Foundation Fundraising Dollars (low fundraising year example)</b>					
Low Fundraising	\$11,092*	\$16,539*	\$24,597*	\$24,187	\$22,902
Moderate Fundraising	\$19,506*	\$17,256*	\$13,807*	\$23,594	\$22,177
High Fundraising	\$77,739*	\$60,804*	\$35,402*	\$30,933	\$23,238
<b>Modeled using 2018-19 Foundation Fundraising Dollars (high fundraising year example)</b>					
Low Fundraising	\$23,968	\$35,209	\$52,071	\$47,958	\$45,409
Moderate Fundraising	\$43,692	\$37,001	\$26,965	\$46,782	\$43,973
High Fundraising	\$138,510	\$106,383	\$58,191	\$61,333	\$46,112

\*Differences between average fundraising allocation for these groups of schools are statistically significant

**Distribution by individual schools:** Because of the number of schools and the differences in enrollment levels, grant allocations, and amount of fundraising, the distribution of dollars to individual schools under the various models is presented by school configuration (Elementary, K-8, Middle School, and High School). For each school configuration, the attached packet includes charts showing the difference in distribution for each model. These are displayed for both a low fundraising year (based on 2020-2021 data) and a high fundraising year (based on 2018-2019 data).

For reference, schools raise approximately the following proportions of the total foundation fundraising: K-5 (60%), K-8 (15%), Middle Schools (<10%), High Schools (15%-20%).

Key takeaways:

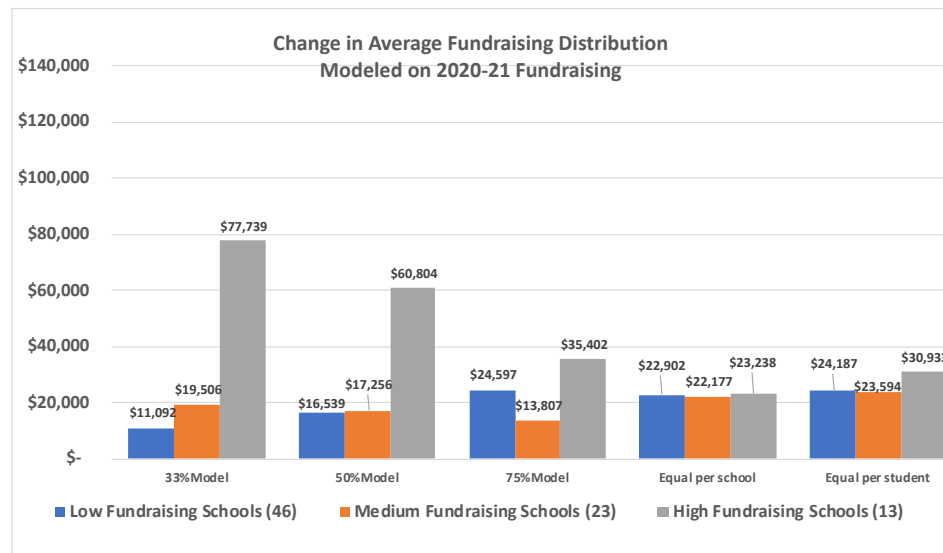
- Differences in average allocations comparing groups of schools at different fundraising levels show that allocations for the highest fundraising schools are statistically significantly higher than other schools at the 33% and 50% contribution level.
- At the 75% level, schools “in the middle” (the medium fundraising schools that don’t raise significant amounts or qualify for grants) receive, on average, statistically significantly lower allocations than either the high or low fundraising groups.
- When using a model that redistributes a portion of funds raised for individual schools through grants, there are several schools that do not get any foundation dollars allocated because (1) they do not qualify for grants based on current demographic criteria and (2) they do not raise funds for their school through a foundation. This applies to 8 schools based on the 2020/21 data (and increases to 17 schools if you count those that raised less than \$1000 in foundation funds).
- Low-fundraising, lower income schools don’t start to catch up with the highest fundraising schools on allocations until you reach at least a 75% redistribution model
- In models utilizing a required % contribution, disparities are greater in higher-fundraising years but still exist in lower-fundraising years.

## Foundation Modeling Methods

- Calculations use the 2020/21 Foundation Fundraising dollars, which is the most recent data available, and the 2018/19 Foundation Fundraising dollars, for a comparison year that was not impacted by the pandemic.
- Enrollment and Demographic information is based on the 2020/21 school year, with the exception of Kellogg Middle School which opened in 2021 and therefore uses the 2021/22 demographic data.
- Grant estimates are based on the total fundraising dollars for the two school years modeled.
  - I added up the total grants distributed to elementary schools, K-8 and middle schools, high schools, alternative schools, and CBO/Charter/Special Service schools for the 2022/23 school year to determine what percentage of the total contribution these accounted for, then used these percentages for modeling.
    - Elementary schools received 49% of grant money
    - K-8 and middle schools received 26% of grant money
    - High schools received 16% of grant money
    - CBOs and charters received 9% of grant money
  - For models that distribute grants to schools based on demographics, I used the 2020/21 school demographics to determine whether a school qualified for a grant and then divided the total allocated that group of schools by the number of qualifying schools.
    - Example: In the 2020/21 50% model, 49% of the total \$864,040 that was distributed via grants went to elementary schools. There were 18 elementary schools that qualified for grants based on demographics, so each elementary grant was for \$23,521.
    - Keep in mind that changing the criteria to qualify for a grant would impact the distribution and could be a lever to adjust outcomes.
  - The “District-Wide Distribution” models were determined as follows:
    - Equal Per-Student Distribution: Total amount of foundation fundraising was divided by the number of students enrolled in the district in 2020/21. This dollar amount was then multiplied by the number of students in each school to determine individual school allocations.
    - Equal per-school distribution: Total amount of foundation fundraising dollars were divided into portions for elementary (49%), K-8/Middle (26%), High School (16%) and CBO/Charter/Special (9%). Each pot of funds was divided by the number of schools at that grade configuration to determine individual school allocations.
    - NOTE: These distribution methods were created as an example. Many alternative district-wide distribution methods could be investigated.

- Analysis of School Groups based on fundraising level were determined as follows:
  - Levels are defined using the average foundation fundraising from 2016/17 through 2020/21:
    - High = over \$100,000 annual average
    - Medium = between \$10,000 and \$100,000 annual average
    - Low = less than \$10,000 annual average
  - Demographics for these groups were determined using 2020-21 enrollment data. The total NUMBER of students were added up in the following categories (historically underserved, direct certification, white racial group) in each group of schools and divided by the total enrollment for schools in that group to reach the percentages of students in each group of schools.
- All correlations are estimates, because in reality the years the dollars are raised are not the same as the years in which the grants are distributed, and school demographics change annually, resulting in grants of varying sizes going to varying numbers of schools.

## Low-Fundraising Year Example



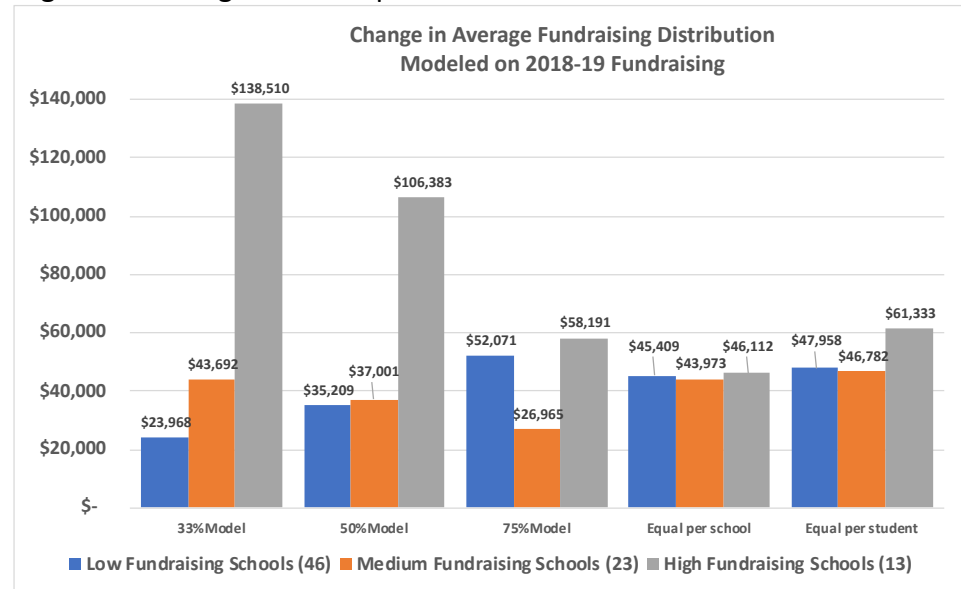
Shows the average allocation from parent foundation dollars to schools in the following groups:

- **High Fundraising** (13 schools): Schools with foundations that raised an average of more than \$100,000 annually
- **Medium Fundraising** (23 schools): Schools with foundations that raised an average between \$10,000 and \$100,000 annually
- **Low Fundraising** (46 schools): Schools that raised an average of less than \$10,000 through a foundation annually

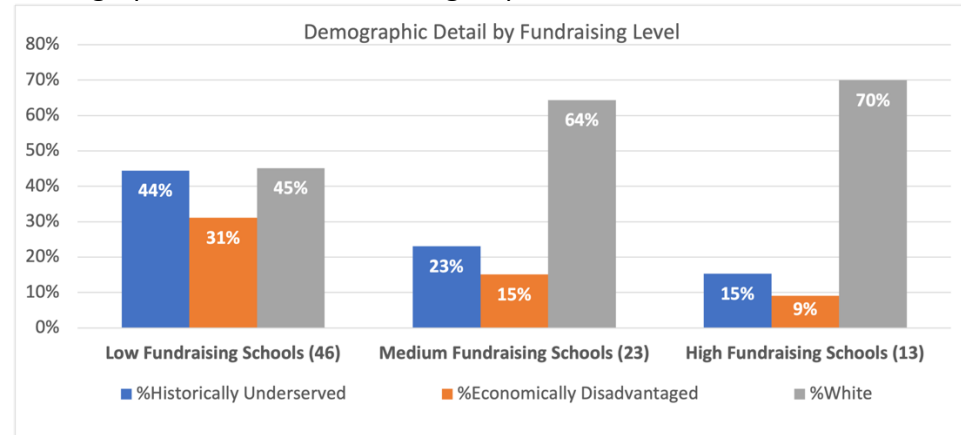
NOTE: The models assume that overall fundraising levels and the criteria for receiving grants remain constant under each contribution requirement.

NOTE: In the models requiring a percentage contribution to a central fund, the total that can be distributed through grants is reliant on the amount that foundation schools raise for their individual communities. This is also true in the current practice.

## High-Fundraising Year Example



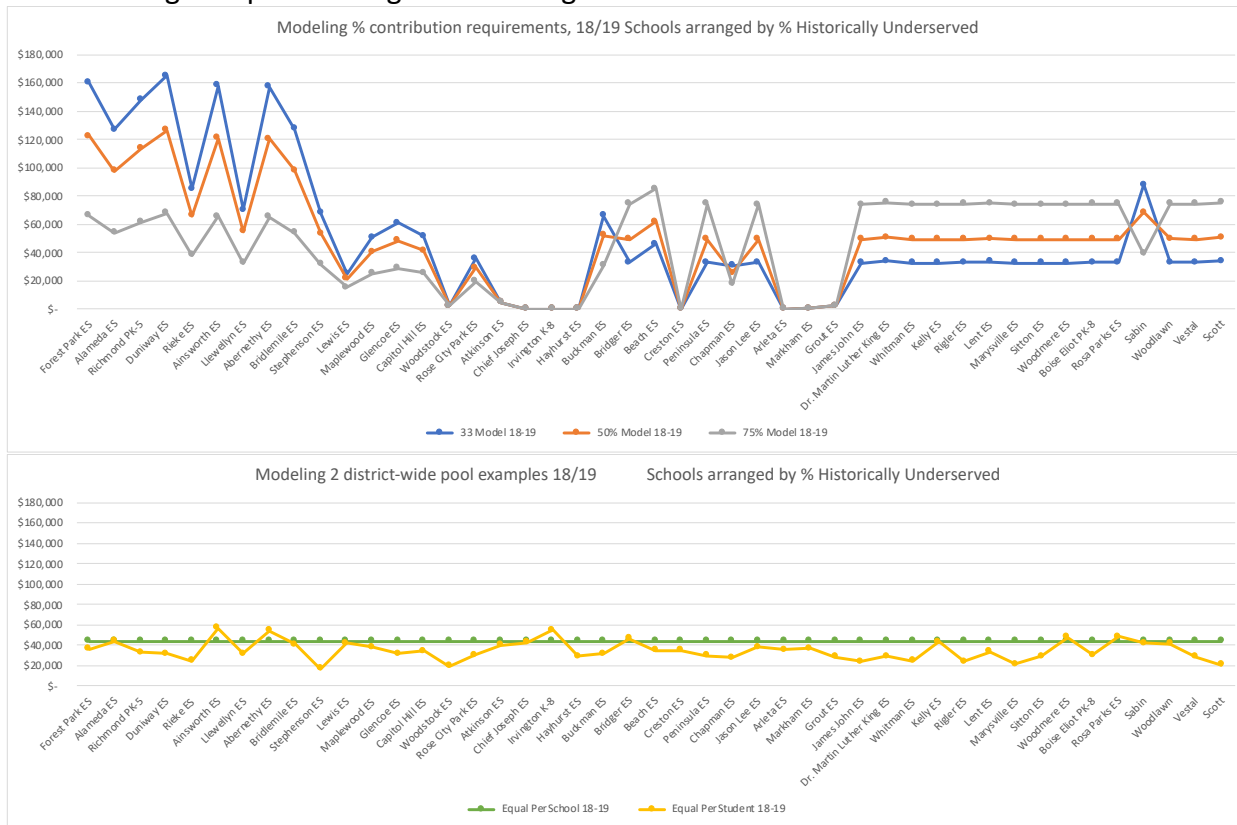
Demographics of schools in each group:



## K-5 Modeling Comparisons: Low Fundraising Year



## K-5 Modeling Comparison: High Fundraising Year



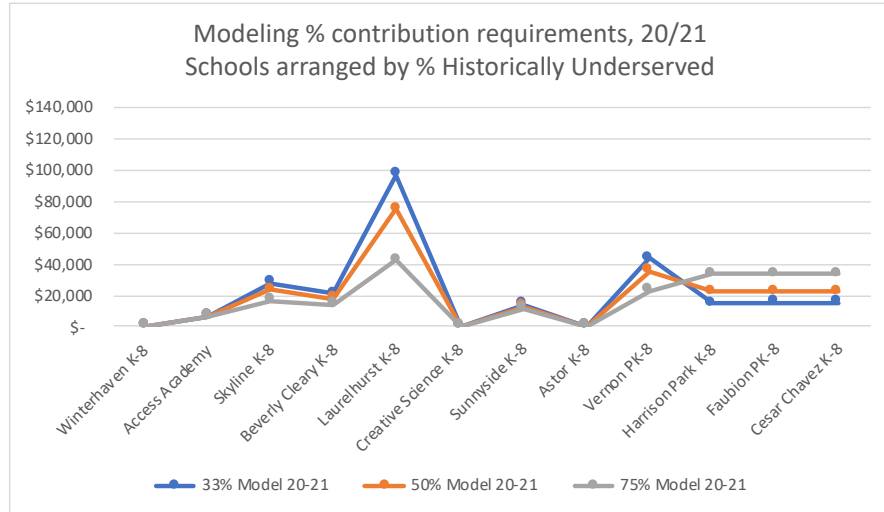
NOTE: Schools receiving \$0 under the models redistributing a percentage of funds raised for individual schools are those that (1) do not qualify for grants based on current demographic criteria and (2) did not raise funds through a foundation in the years used as examples.

NOTE: K-5 schools raise approximately 60% of local school foundation funds annually.

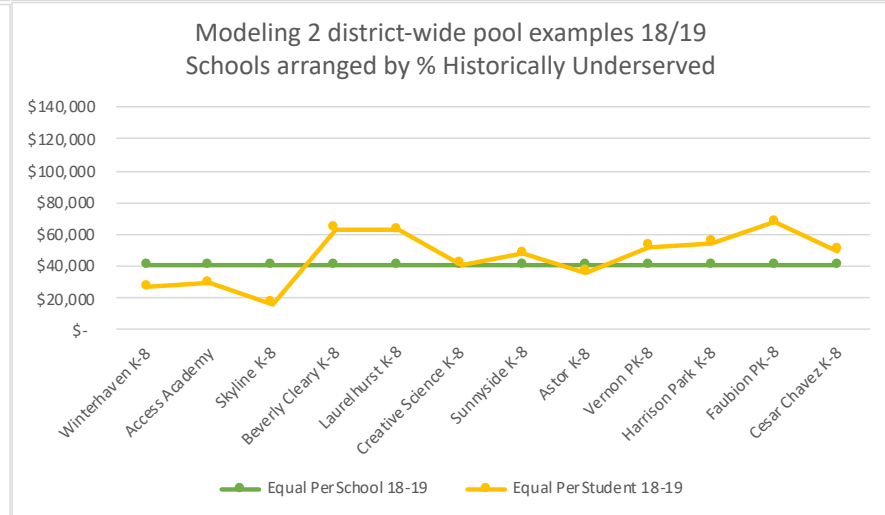
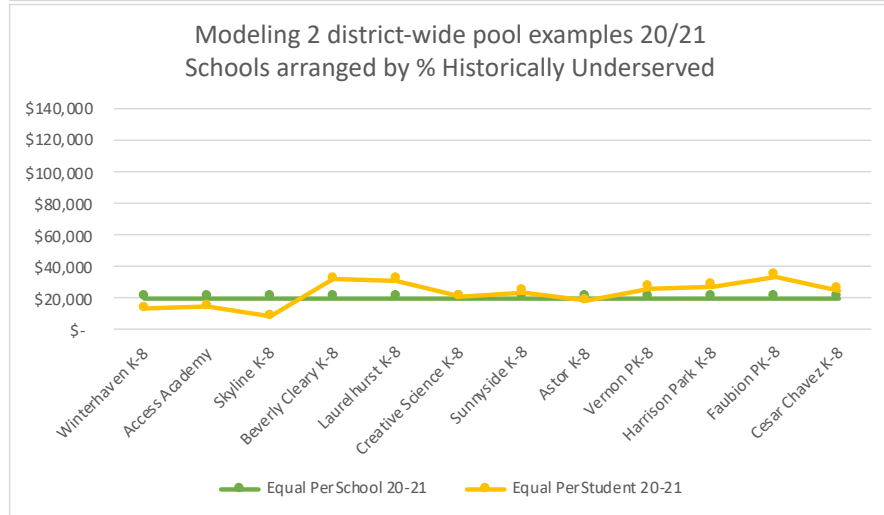
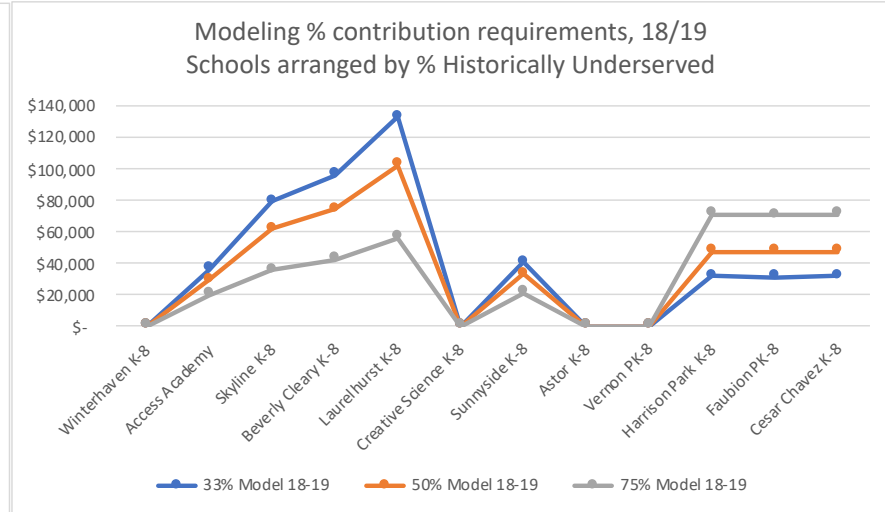
Created by Dr. Beth Cavanaugh, 2022

# K-8 Modeling Comparison

## Low Fundraising Year



## High Fundraising Year

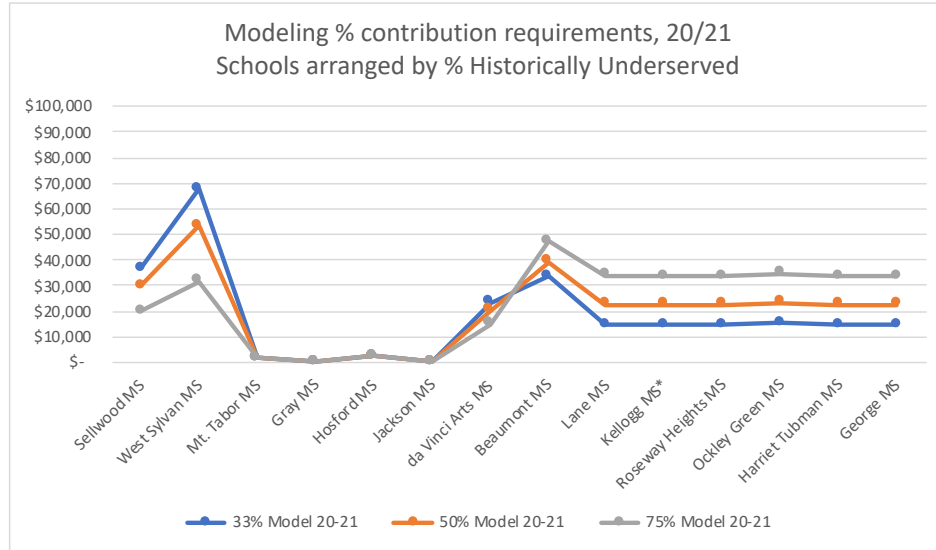


NOTE: Schools receiving \$0 under the models redistributing a percentage of funds raised for individual schools are those that (1) do not qualify for grants based on current demographic criteria and (2) did not raise funds through a foundation in the years used as examples.

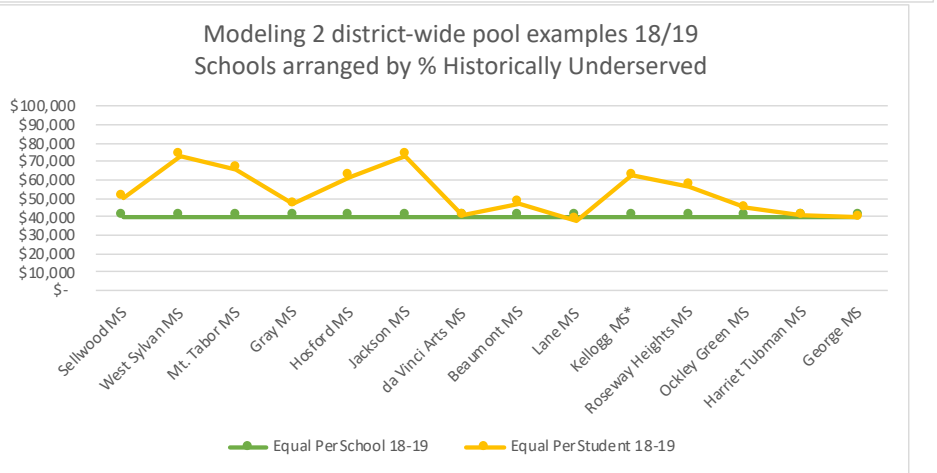
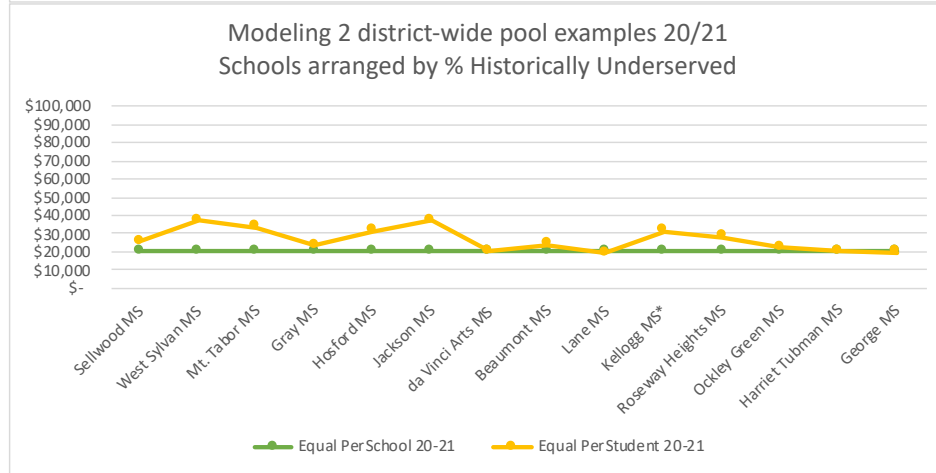
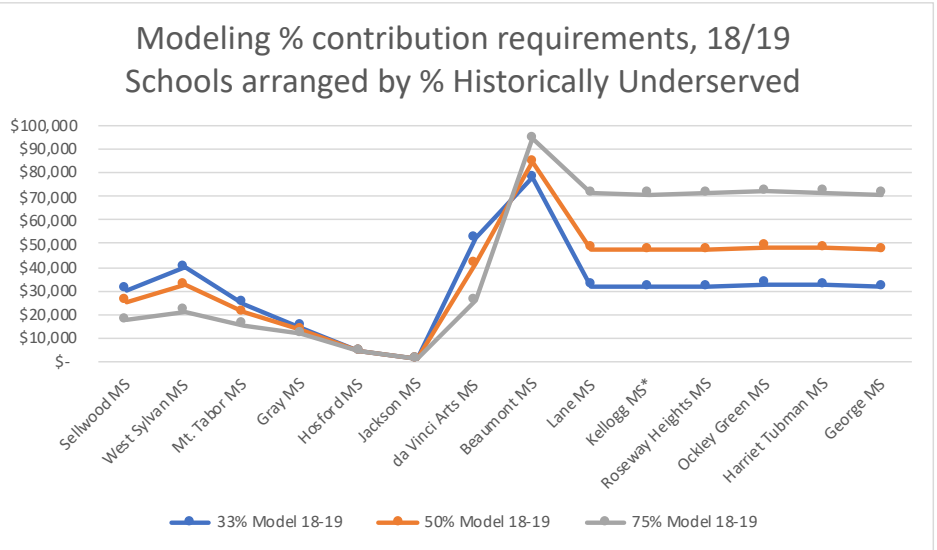
NOTE: K-8 schools raise approximately 14% of local school foundation funds annually.

# Middle School Modeling Comparison

## Low Fundraising Year



## High Fundraising Year



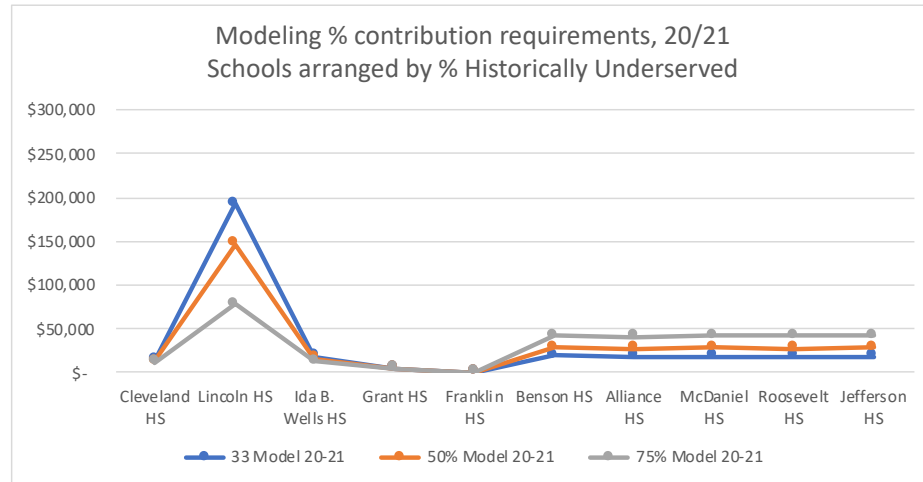
NOTE: Schools receiving \$0 under the models redistributing a percentage of funds raised for individual schools are those that (1) do not qualify for grants based on current demographic criteria and (2) did not raise funds through a foundation in the years used as examples.

NOTE: Middle schools typically raise less than 10% of local school foundation funds annually.

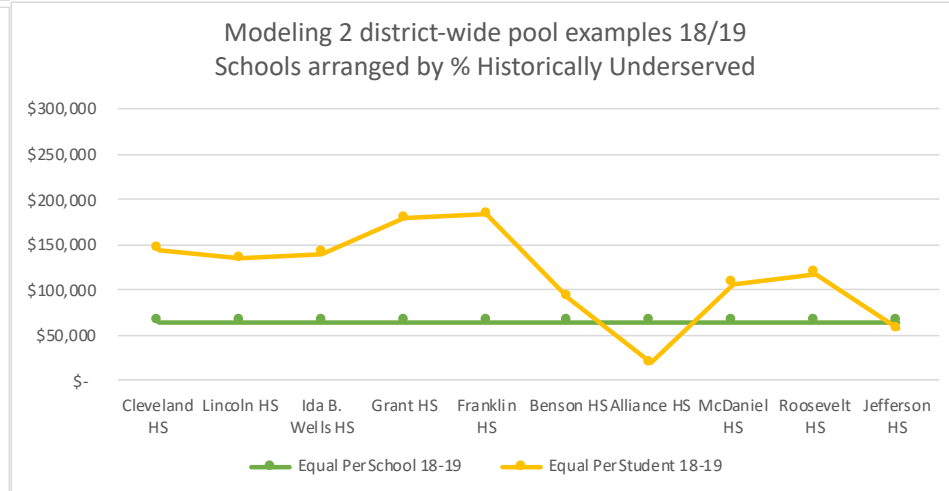
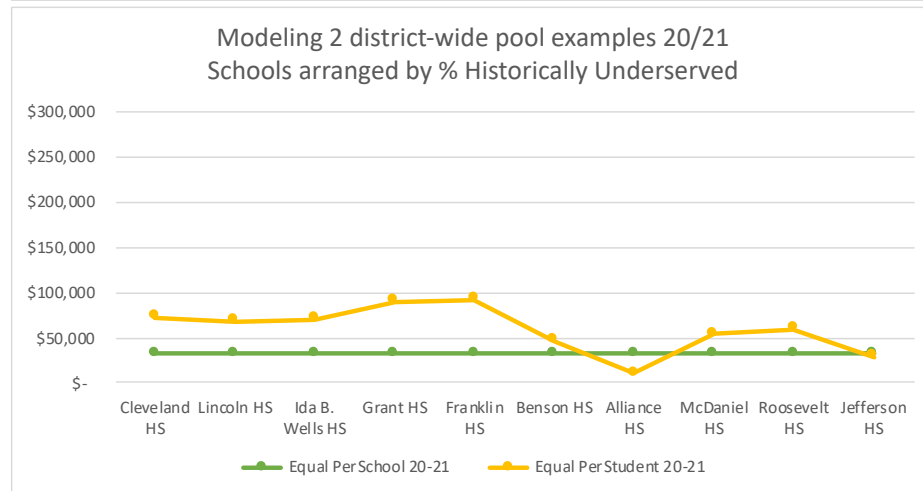
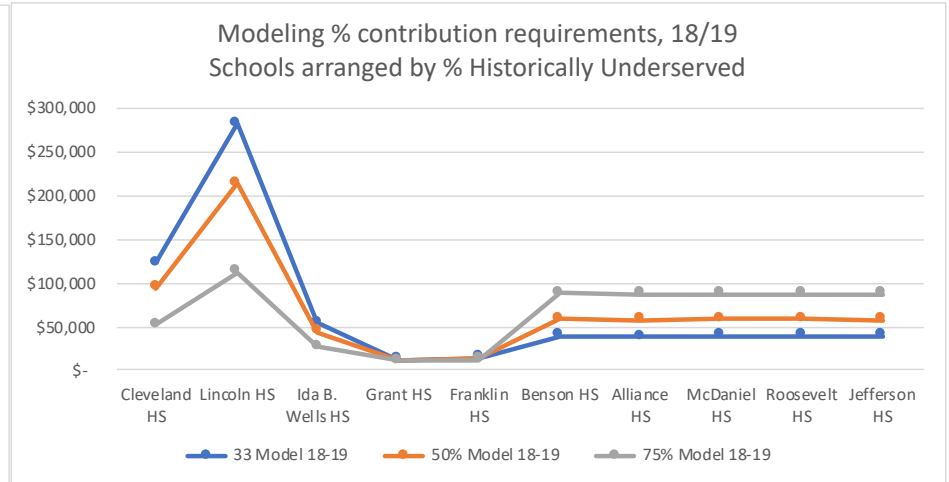


# High School Modeling Comparison

## Low Fundraising Year



## High Fundraising Year



NOTE: Schools receiving \$0 under the models redistributing a percentage of funds raised for individual schools are those that (1) do not qualify for grants based on current demographic criteria and (2) did not raise funds through a foundation in the years used as examples.

NOTE: High schools typically raise between 15% - 20% of local school foundation funds annually.