

# Handout D2

# Equity in Public School Funding and Expenditures

2022 ADEQUACY STUDY

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2022 Adequacy Report





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## Historical Context

Equity is a key component of achieving and maintaining a constitutionally sound system of funding education in Arkansas, and has been since the 1983 case *Dupree v. Alma Sch. Dist. No. 30*. The *Lake View* cases reaffirmed this principle. Judge Kilgore, in his final order on May 25, 2001, declared the current school-funding system to be unconstitutional on the twin grounds of inadequacy under the Education Article and inequity under the Equality provisions of the Arkansas Constitution. See Ark. Const. art. 14, § 1, art. 2, §§ 2, 3, and 18. Thus, in order to achieve a constitutional system, the state must address both the adequacy and equity provisions embedded within the Arkansas Constitution.

The Court in *Lake View* stated that it is the State's responsibility "to determine whether equal educational opportunity for an adequate education is being substantially afforded to Arkansas' school children", and that "[d]eference to local control is not an option for the State when inequality prevails". *Lake View Sch. Dist. No. 25 v. Huckabee*, 351 Ark. 31, 79 (2002). The Court acknowledged that equity is not simply a matter of equal distribution of dollars for each child, but rather the State must take into account disparities that impact a child's ability to receive an equal opportunity for an adequate education.

In measuring these disparities, the Court noted that the "focus for deciding equality must be on the actual expenditures", which are "the measuring rod for equality". *Lake View*, 351 Ark. 31 at 74-75. The Court<sup>1</sup> has relied on the federal range ratio, and to a lesser extent the coefficient of variation and the Gini coefficient to measure disparities and determine equity.

The Adequacy Study statute, Ark. Code Ann. § 10-3-2102, requires the Education Committees to "review and continue to evaluate the method of providing equality of educational opportunity of the State of Arkansas and recommend any necessary changes". This report provides information on the state's educational equity, using standard statistical measures accepted by the Court.

## Approaches to Determining Equity

Equity is a multidimensional concept that has been analyzed with various statistics that have different purposes, strengths, and weaknesses<sup>2</sup>:

1. "**Horizontal equity**" analyses examine the degree to which districts receive equal resources on a variable such foundation funding;
2. A second approach to equity is the use of "**neutrality measures**" designed to measure inequities between districts that may arise from differences in local property wealth. Each of these approaches to equity measurement is presented, followed by the results of that respective approach.
3. "**Vertical equity**" analyses examine per pupil expenditures within categories (or ranges) of another variable, such as National School Lunch (NSL) student categories, average daily membership (ADM) groups, racial groups, or amounts of property wealth.

The data for this report was obtained from the Arkansas Public School Computer Network for the 2019-2021 school years. The data comprise various revenue and expenditure items as well as student

<sup>1</sup> The *Lake View* court relied in part on the trial court's discussion of the "three formulas commonly used to determine whether disparities in funding among the school districts exist." *Lake View*, 351 Ark. At 49. The three formulas used and discussed in the *Lake View* case were the Federal Range Ratio, the Coefficient of Variation, and the GINI Index of Inequality. The Court opined that the purpose of these three formulas "is to aid in analyzing the disparities in funding for schools, school districts and students...."

<sup>2</sup> *School Finance A Policy Perspective (Sixth Edition)*, Odden, Allen R. and Picas, Lawrence, O., McGraw Hill Education, 2020.

information, including demographic information including current year average daily membership (ADM) for school districts and charter school systems. The three types of data were merged and prepared for the final analysis.

## Horizontal Equity Statistics

The sample for the horizontal equity analysis was made up of 261, 259, and 258 school districts and charter school systems in 2019, 2020, and 2021, respectively. The horizontal equity statistics are reported in Tables 1 and 2 for two revenue measures.

The first revenue variable (Table 1) is the “foundation funding and property taxes per-student.” This measure was computed as the sum of four revenue items divided by the current year’s ADM. The four revenue items are Foundation Funding (Excluding Uniform Rate of Tax [URT]), Net Property Taxes, 98% of URT adjustment, and Miscellaneous Funds. The second revenue measure consists all of the revenue included in the first variable, plus selected types of state funding that are related to adequacy purposes. The selected state funds include:

- Enhanced student achievement (National School Lunch) state categorical funding
- English language learner funding
- Professional development funding
- Alternative learning environment funding
- Student growth funding
- Declining enrollment funding
- Isolated and special needs isolated funding
- Special education catastrophic occurrences funding
- ESA Matching Grant
- Enhanced Transportation

**Table 1. Foundation Funding and Property Taxes per Student**

Horizontal Equity	2019	2020	2021
Mean	\$ 7,559.49	\$ 7,786.38	\$ 8,145.26
Median	\$ 7,440.89	\$ 7,605.50	\$ 7,987.77
Restricted Range	\$ 2,118.35	\$ 2,319.66	\$ 2,897.74
Federal Range Ratio	0.32	0.34	0.42
Standard Deviation	\$ 934.93	\$ 927.44	\$ 1,223.09
Coefficient of Variation	0.12	0.12	0.15
McLoone Index	0.941	0.947	0.929
Gini Coefficient	0.056	0.056	0.068

**Table 2. Foundation, Property Taxes and Other Funding per Student**

Horizontal Equity	2019	2020	2021
Mean	\$ 8,465.59	\$ 8,724.62	\$ 9,141.65
Median	\$ 8,269.65	\$ 8,500.62	\$ 8,950.38
Restricted Range	\$ 2,956.68	\$ 3,314.48	\$ 3,781.47
Federal Range ratio	0.41	0.45	0.50
Standard Deviation	\$ 1,076.58	\$ 1,075.14	\$ 1,304.59
Coefficient of Variation	0.13	0.12	0.14
McLoone Index	0.940	0.941	0.929
Gini Coefficient	0.062	0.062	0.068

The following describe the horizontal equity statistics presented in both tables above:

1. **Mean:** The mean is arithmetic average of the data and usually characterizes the "typical" or "expected" funding value. From Table 1, the average funding in 2019 was \$ 7,559.49, with a slight increase in 2020 and 2021. The pattern in Table 2 is similar.
2. **Median:** The median is the middle funding value if all values were arranged from the lowest to the highest values (or vice versa). The median is also called the 50th percentile. Both the mean and median are measures of central tendency or location, but the median is sometimes more appropriate if there are extreme values in the data. From Table 1, the median is \$ 7,440.89 in 2019, which is slightly smaller than the average but also increased in 2020 and 2021. Again, a similar pattern occurs in Table 2 with the additional sources of revenue added in.
3. **Restricted Range:** While the above measures are helpful, they do not reveal much about the "variability" or the "spread" of the data. Measures of dispersion are the set of statistics that provide information on how spread the data are. The restricted range is the difference between the 5th and 95th percentiles. The values at the 5th and 95th percentiles indicate the funding values at the 5th and 95th places if the data were ordered and sliced in 100 parts. In Table 1, the restricted range in 2019 is \$ 2,118.35, and this value increased to \$ 2,897.74 by 2021. While the restricted range is small enough to indicate that there are no huge differences in funding values across districts, the widening over time indicates that the funding values are more spread out with time. The restricted range increases each year in Table 2 as well. According to education researchers, "If a range statistic is used, the restricted range is preferred to the unrestricted range, but neither is a good indicator of the equality of the distribution of the object for the entire education system."<sup>3</sup>
4. **Federal Range Ratio:** The federal range ratio divides the restricted range by the 5<sup>th</sup> percentile, providing a simpler way to interpret the spread of the data. In both Table 1 and 2, the federal range ratios are higher than the preferred 0.25.<sup>4</sup> However, the above measures of spread are limited because they only consider the range of the data.
5. **Standard Deviation:** The standard deviation is a standardized value measuring the extent to which the funding values deviate from the expected or typical value (i.e., the mean). Small standard deviation values indicate the data tend to be close to their mean (more equitable) and high standard deviation values indicate greater variability (less equitable). From Table 1, the standard deviation in 2019 is \$ 934.93 and remains stable in 2020. However, it increases slightly in 2021 to \$ 1,223.09. The same pattern is seen in Table 2.
6. **Coefficient of Variation:** To obtain the coefficient of variation, the standard of deviation by the mean. Thus, it shows the extent of variation in the funding values with respect to the mean. In Table 1, the coefficient of variation in 2019 and 2020 is 12% while it goes up to 15% in 2021. This suggests that the overall variability in the funding values across districts is quite stable and doesn't exceed 15% of the mean in all years.
7. **McLoone Index:** The McLoone Index compares how much of the funding values are concentrated in the bottom half of the data relative to the median value. To compute the McLoone Index, the sum of all the funding values at or below the median is divided by by the product of the number of

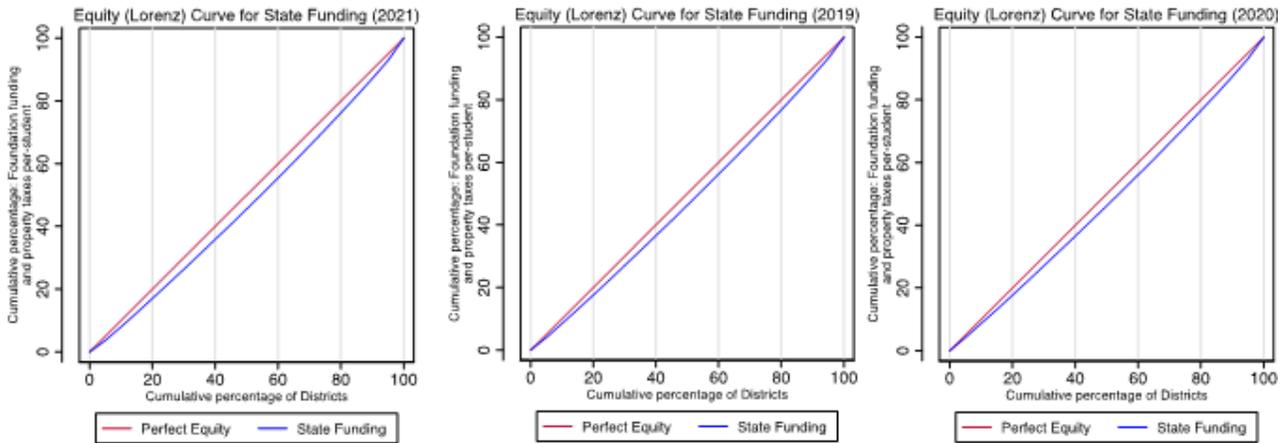
<sup>3</sup> *School Finance A Policy Perspective.*

<sup>4</sup> In its 2002 decision, the Arkansas Supreme Court states that, "Using expenditures in the calculation of the Federal Range Ratio, this court finds that there is more than a 25% difference between the 5<sup>th</sup> and 95<sup>th</sup> percentile in amount spent per pupil, which is not in compliance with the 1994 Order. However, using revenues, the State is within the 25% range differential. Using expenditures in the Correlation of Variance, the State is not in compliance. Using expenditures in the calculation of GINI Index of Inequality, the State is in compliance."

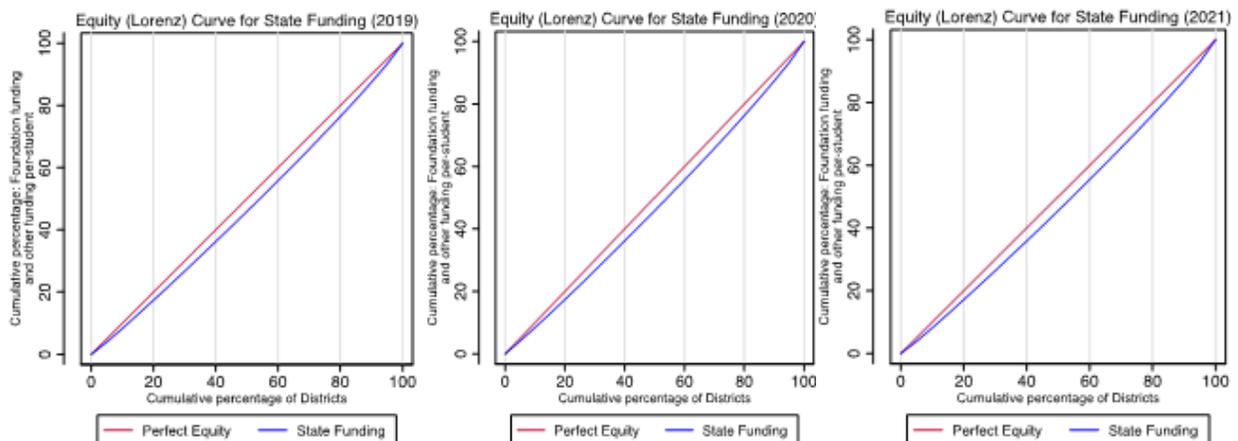
districts at or below the median and the value of the median. The McLoone Index ranges between zero and one. Higher values of the McLoone index denote a more equitable funding distribution across districts. From Table 1, the McLoone index for 2019 is 0.941, 0.947 in 2020, and only dips slightly to 0.929 in 2021. These statistics denote equitable funding across districts. The same pattern occurs in Table 2.

- Gini Coefficient:** The Gini coefficient is usually obtained from the so-called Lorenz curve. To construct the Lorenz curve, all districts are ranked from the lowest to highest funding values. The data is then plotted with the cumulative proportion of the districts on the horizontal (x-axis) and the cumulative proportion of the funding values on the vertical (y-axis). The Gini coefficient is obtained as double the area between the diagonal line (denoting perfect equality) and the Lorenz curve. The Gini coefficient ranges from zero to 1, with zero being perfect equality, and one being if a single district receives all the available funds. As shown below (Section IV), the Lorenz curves are all very close to the diagonal line of perfect equality, suggesting that the available funds are relatively equitable distributed across districts. In both Table 1 and Table 2, the Gini coefficients are small, reflecting equitable distribution of funds.

**Foundation funding and property taxes per-student**



**Foundation and other funding per-student (Total revenue)**



## Fiscal Neutrality

Fiscal neutrality measures are computed for two samples of districts -- first, for the full sample of districts, and second, after excluding districts whose URT collections were more than the required foundation funding amounts each year.<sup>5</sup>

Picus et al., (2004) clearly state that large correlations between property wealth and funding are not relevant to policy when wealth elasticity coefficients are small. Statistically, two variables (e.g., property wealth and funding) can be highly correlated because correlation only examines the pattern of relationships between variables. However, the wealth elasticity statistic examines the exact amount of increase in one variable that accompanies each dollar increase in the other variable.

**Table 3** shows the fiscal neutrality statistics for the full set of schools using the revenue source of foundation funding and property taxes only. The wealth neutrality correlation measures the relationship between property wealth per student (calculated as property assessment divided by current year's ADM) and district per-pupil revenues (i.e., foundation funding and property taxes). The wealth neutrality correlation hovers just above .80 all three years. Table 3 also reports the wealth elasticity statistic measuring the exact percentage increase in district revenue associated with each percentage increase in property wealth. All wealth elasticities are low in Table 3, indicating no more than an 18% increase in district revenue associated with each percentage increase in local property wealth. While the wealth neutrality correlation is moderately high, the fact that the wealth elasticities are small is reassuring and suggestive that the high correlation is not indicative of inequitable resource allocation across the districts.

When the five districts are excluded in **Table 4** (four districts for 2019), the wealth neutrality correlations and wealth elasticities are smaller as expected. In 2012, the Arkansas Supreme Court ruled that districts that generate more than the foundation funding rate are permitted to keep all of the money generated by their URT. In effect, this means these districts have more revenue than the foundation funding rate set by the General Assembly, so they add both higher property wealth and higher per student revenue into the equations.

Finally, the fiscal neutrality statistics results reported in **Tables 5 and 6** for the second revenue (foundation and other adequacy-related funding per student) tell a similar story as above for the first revenue variable. Specifically, the wealth neutrality correlations are moderately high, but the wealth elasticities do not exceed 18% in all years (Table 5). Again, when the districts with UTR collections exceeding the foundation amounts are excluded, all of the statistics are smaller (Table 6). Moreover, compared with the results for the first revenue variable, all the wealth neutrality correlations are smaller while the wealth elasticities remain stable when using all the districts (Table 3 vs Table 5). These findings provide further suggestive evidence in favor of an equitable funding distribution across districts.

**Table 3. Property Wealth: Foundation Funding & Property Taxes per Student**

Statistic	2019	2020	2021
Wealth-Neutrality Correlation	0.835	0.838	0.801
Wealth Elasticity	0.165	0.176	0.179

<sup>5</sup> In the 2020 and 2021 school years, the five districts considered to be "URT districts" because they raise more in property tax than is mandated for the foundation funding for their districts (Armored, Fountain Lake, Mineral Springs, Eureka Springs, and West Side – Cleburne. For 2019, only four districts fit this definition – Armored, Mineral Springs, Eureka Springs, and West Side – Cleburne.

**Table 4. Property Wealth: Foundation Funding & Property Taxes per Student—excluded 5 districts**

Statistic	2019	2020	2021
Wealth-Neutrality Correlation	0.687	0.709	0.584
Wealth Elasticity	0.127	0.140	0.122

**Table 5. Property Wealth: Foundation, Property Tax & Other Adequacy-Related Funding per Student**

Statistic	2019	2020	2021
Wealth-Neutrality Correlation	0.765	0.788	0.762
Wealth Elasticity	0.165	0.180	0.180

**Table 6. Property Wealth: Foundation, Property Tax & Other Adequacy-Related Funding per Student—excluded 5 districts**

Statistic	2019	2020	2021
Wealth-Neutrality Correlation	0.591	0.662	0.540
Wealth Elasticity	0.133	0.153	0.133

## Vertical Equity Statistics

Revenue is usually distributed according to district characteristics, using a mechanism such as Arkansas’s funding matrix, and therefore the primary issue is whether funding is distributed equitably between districts. Vertical equity statistics are typically conducted on expenditures to assess the equity in spending according to key district characteristics. According to educational equity literature written by Deborah Verstegen, dating back as far back as 1944, John Dewey asserted that “equal educational opportunity implied governments not only would provide access to learning but also compensate for the differences on [the] basis of environmental inequality.” Further that vertical equity “holds that children in dissimilar circumstances can be treated differently but only for legitimate and justifiable reasons.” Verstegen further cited that in 1971, John Rawls asserted the “Difference Principle”, in which he said “there should be no differences between individuals unless they favor the less fortunate.”<sup>6</sup> In an attempt to evaluate the vertical equity of school district expenditures, as in past equity reports, this analysis looks at district expenditures by the following district characteristics: average daily membership (ADM), percent non-white, percent eligible for free and reduced-price lunches (FRPL), and property wealth.

### *DATA FOR VERTICAL EQUITY STATISTICS*

Two variables are examined in relation to district characteristics to determine vertical equity. The first variable is “per-student expenditures from select state funding.” These expenditures include only spending using foundation funding, property taxes, and the revenues listed below as “other adequacy-related funding.”

- Enhanced student achievement (ESA – formerly National School Lunch) state categorical funding,
- English language learner (ELL) funding,
- Professional development (PD) funding,
- Alternative learning environment (ALE) funding,
- Student growth funding,
- Declining enrollment funding,

<sup>6</sup> Verstegen, Deborah A., “On Doing an Analysis of Equity and Closing the Opportunity Gap”, Education Policy Analysis Archives, <https://pdfs.semanticscholar.org/f208/bf29d426aca5033c741558c0473c437f8798.pdf>, pages 3 and 4.

- Isolated and special needs isolated funding,
- Special education catastrophic occurrences funding
- ESA Matching Grant
- Enhanced Transportation

To eliminate the effect of temporary increases or decreases in expenditures due to capital projects, the expenditures do not include any facilities acquisition or construction costs, and they do not include debt service payments. These expenditures were divided by each district’s current year ADM. The second variable, “total expenditures per-student,” includes all expenditures from all funding sources (including federal funding and excluding facilities acquisition and construction costs and debt service payments). These expenditures were divided by each district’s current year ADM.

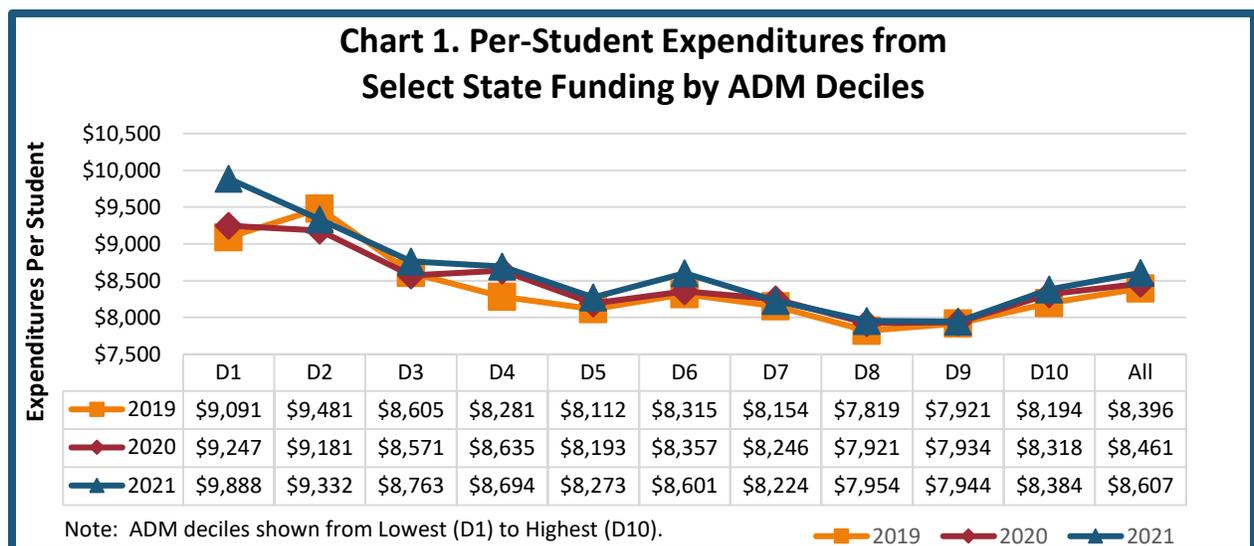
Each district’s or charter’s per-student expenditures are arrayed in deciles based on the value of the characteristic being analyzed with the deciles ranging from the lowest to the highest value. For example, the per-student expenditures for those districts with the lowest ADM counts are averaged and the average is the per-student expenditure amount shown for Decile 1, the per-student expenditures for the districts with the next-lowest ADM counts are averaged and placed in Decile 2, and so on, until you calculate the average per-student expenditures for all deciles, culminating with the districts with the highest ADM counts reflected in Decile 10. This process is repeated for the remaining three characteristics.

**RESULTS OF VERTICAL EQUITY STATISTICS**

The first vertical equity analysis (**Chart 1**) examines the relationship of “per-student expenditures from select state funding” and district and charter school current year ADM. The two prominent observations are

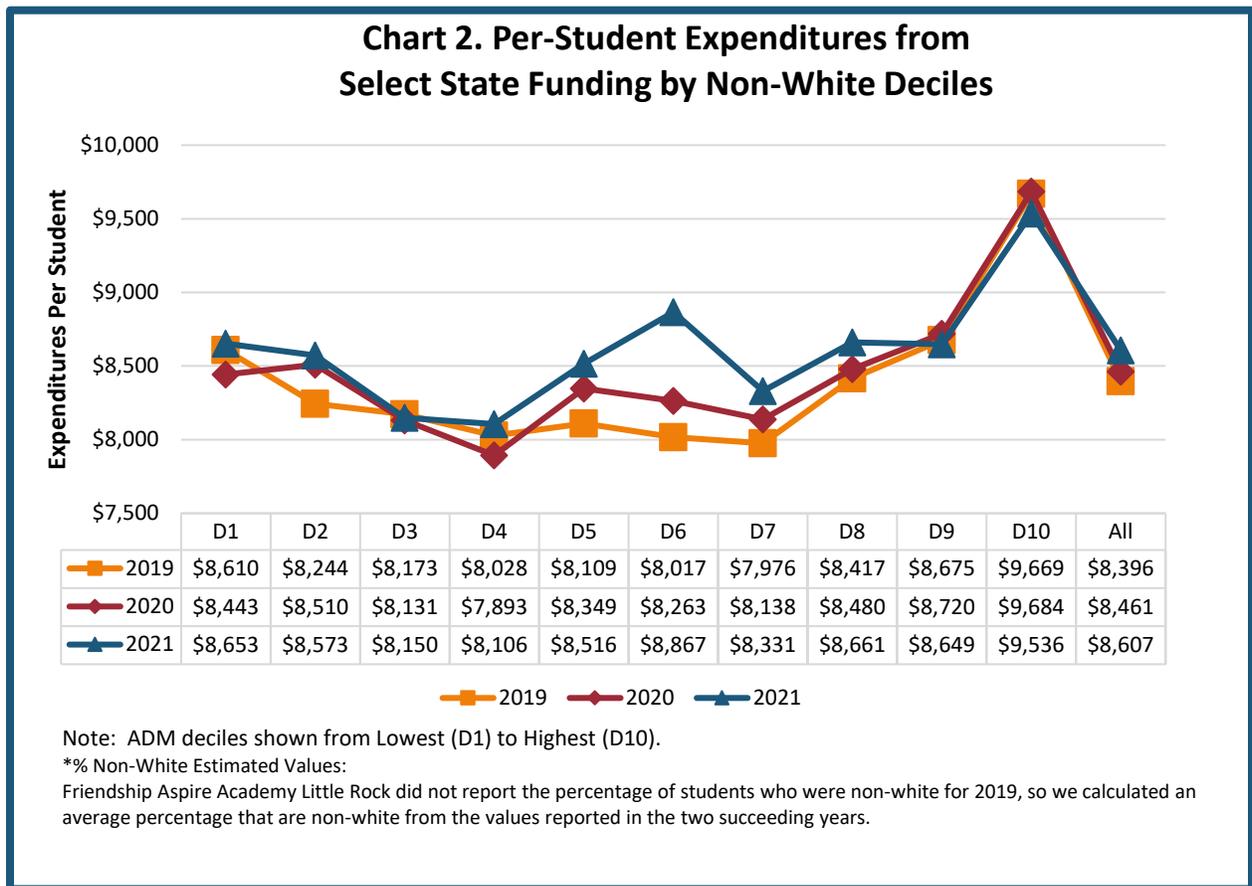
Percentage Difference			
	2019	2020	2021
<b>Between D1-D5</b>	12.1%	12.9%	19.5%
<b>Between D1-D10</b>	10.9%	11.2%	17.9%

the similarity in levels of expenditures across the three years shown and the higher per-student expenses in the lowest two ADM deciles. Those districts/charters in the lowest ADM decile spent approximately 12% more per student than the midpoint decile (Decile 5) in 2019 and 2020, and spent almost 20% more in 2021. The districts in Decile 1 spent approximately 11% more than those districts in Decile 10 (districts with the highest ADM count) in 2019 and 2020, and almost 18% more in 2021. It is possible that the smallest districts (those with the lowest ADM) spent more on a per-student basis than larger districts due to economies of scale, in which larger districts can achieve lower costs per-student due to their size.



**Chart 2** illustrates that the districts in Decile 1, which have the lowest percentage of non-white students, spent more per-student than those at the midpoint, Decile 5, in all three years, but less than Decile 10 all three years. Decile 10 districts, those with the highest percentage of non-white students, spent more than all other deciles all three years. Those districts with the highest percentage of non-white students, Decile 10, spent \$1,060 more per-student than the districts in Decile 1 in 2019, \$1,241 more in 2020 and \$883 more in 2021.

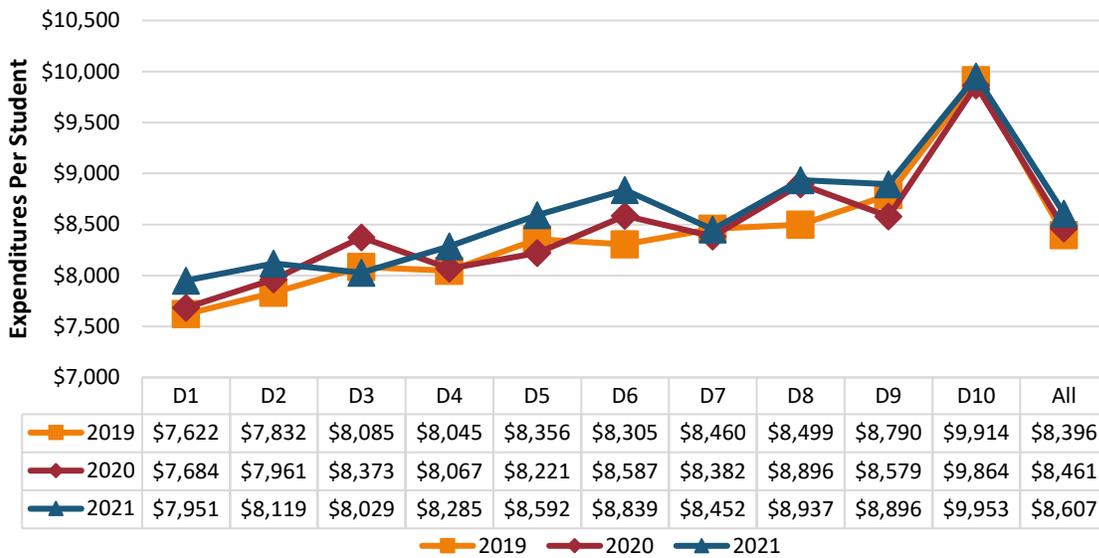
Percentage Difference			
	2019	2020	2021
<b>Between D1-D5</b>	6.2%	1.1%	1.6%
<b>Between D1-D10</b>	-11.0%	-12.8%	-9.3%



**Chart 3** shows a gradual upward trend of expenditures per-student with those districts with the highest percentage of students eligible for free and reduced-price lunches (FRPL) in Decile 10 spending more per-student than all of the other FRPL deciles. In fact, Decile 10 spent \$2,292 more per-student than Decile 1 in 2019, \$2,180 more in 2020, and \$2,002 more in 2021.

Percentage Difference			
	2019	2020	2021
Between D1-D5	-8.8%	-6.5%	-7.5%
Between D1-D10	-23.1%	-22.1%	-20.1%

**Chart 3. Per-Student Expenditures from Select State Funding by % Free and Reduced Price Lunch Deciles**



Note: ADM deciles shown from Lowest (D1) to Highest (D10).

\*% FRPL Estimated Values:

Several Charter Schools and one district had a missing value for the percent eligible for FRPL. Depending on the circumstances, we either used the average of the reported values for the other two years, if available, or if they only reported the % FRPL for one year, we used that single reported value. See detailed list below:

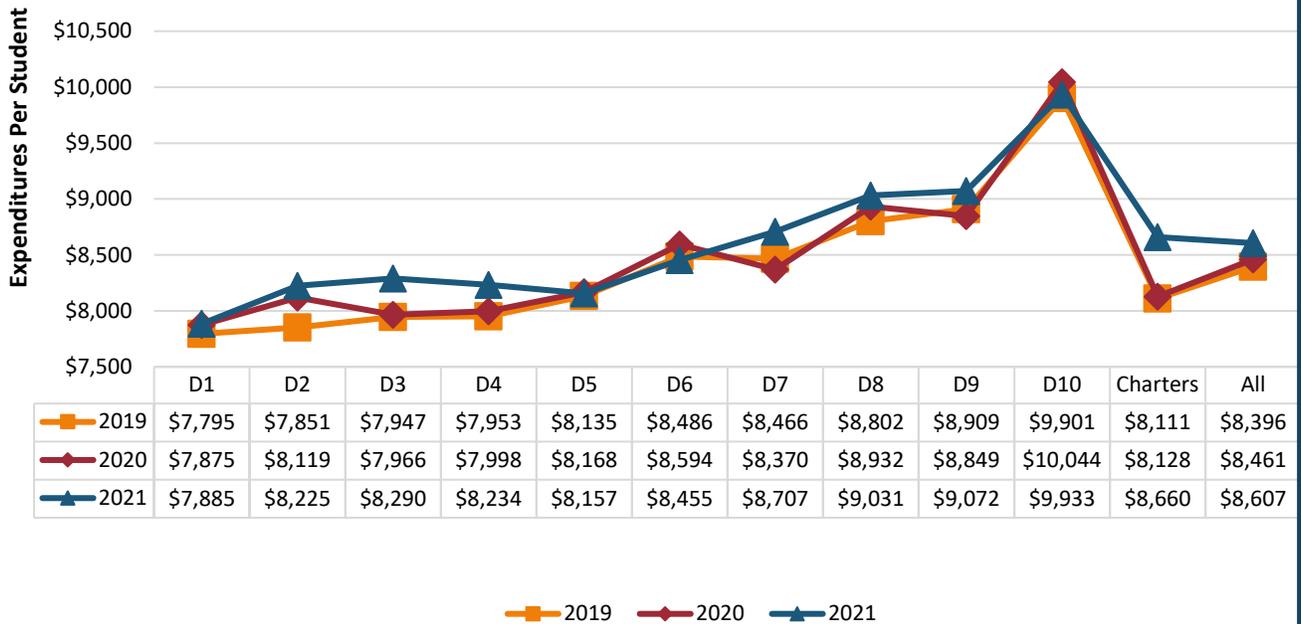
Year Estimated	School District or Charter	Estimate Method Used
2019	Arkansas Connections Academy	Avg of 20 and 21 Reported Amounts
2019	Arkansas Virtual Academy	Avg of 20 and 21 Reported Amounts
2019	Friendship Aspire Academy Little Rock	Avg of 20 and 21 Reported Amounts
2019	Friendship Aspire Pine Bluff	Avg of 20 and 21 Reported Amounts
2019	Haas Hall Bentonville	Subsequent Year Reported Amount
2019	Scholarmade Achievement Place of AR	Avg of 20 and 21 Reported Amounts
2019	SE AR Preparatory High School	Subsequent Year Reported Amount
2020	Barton School District	Avg of 19 and 21 Reported Amounts

**Chart 4** shows mostly an upward trend in per-student expenditures across the deciles, with those districts with the highest per-student property wealth values in Decile 10 spending more per-student from select state funding sources than all of the other per-student property wealth deciles. Districts in Decile 1 spent approximately 21% less than Decile 10 in all three years. All of the “URT districts” that are able to generate enough revenue from their Uniform Rate of Tax (URT) collections to fund all of their Foundation Funding are in Decile 10, and are also among the top spending districts per-student from select fund sources.

While charters do not have property wealth as a source of revenue for their schools’ operations, their average per-student expenditures are provided as a comparison, and they are greater than the per-student expenditures for Deciles 1 through 4 in 2019 and 2020 and are greater than Deciles 1 through 6 in 2021.

Percentage Difference			
	2019	2020	2021
Between D1-D5	-4.2%	-3.6%	-3.3%
Between D1-D10	-21.3%	-21.6%	-20.6%

**Chart 4. Per Student Expenditures from Select State Funding by Per-Student Property Wealth Deciles**

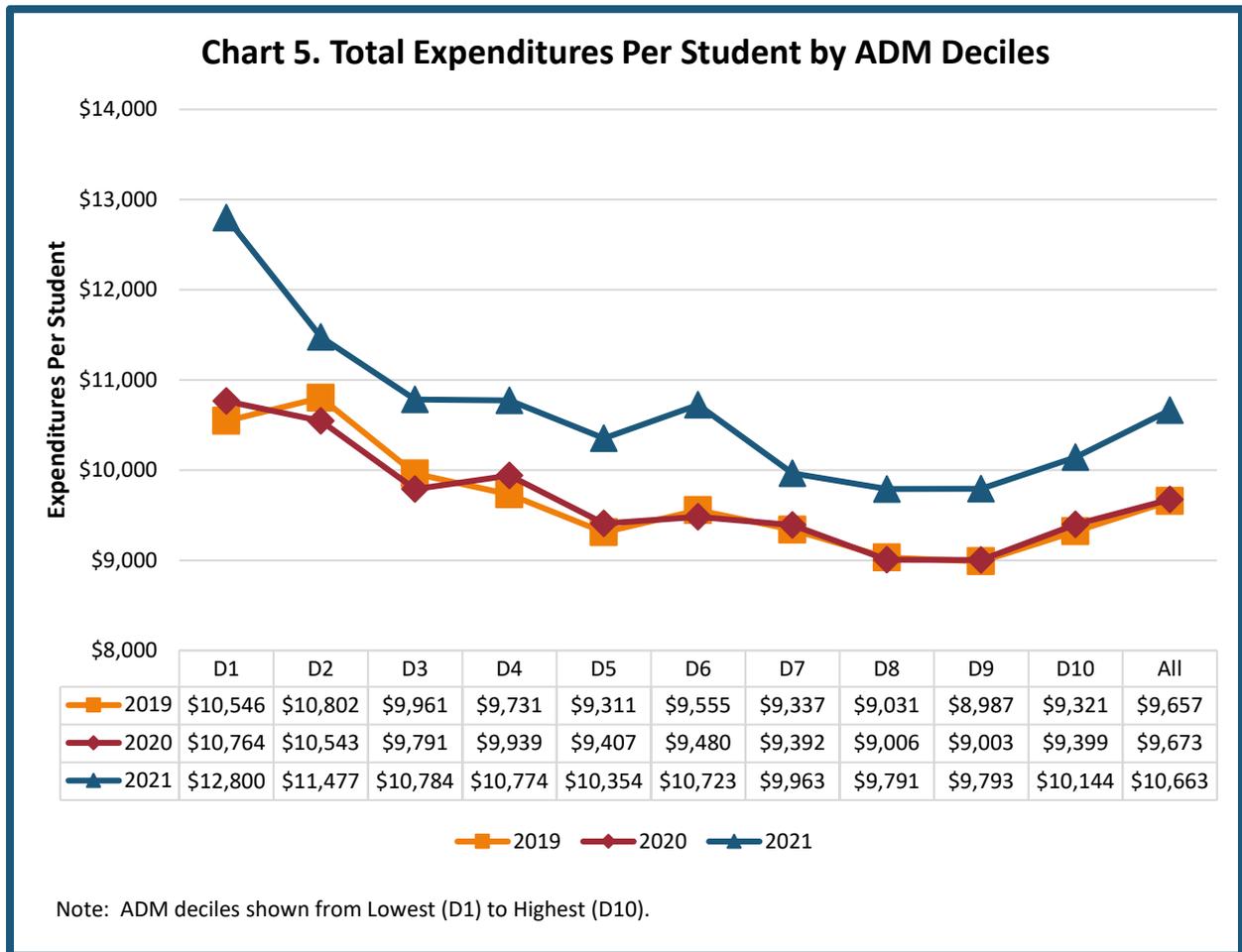


Note: ADM deciles shown from Lowest (D1) to Highest (D10).

**Chart 5** shows the results of examining the relationship between “total expenditures per student” and ADM. The dollar amounts are naturally higher for total expenditures than for spending from select state funding (Charts 1 – 4), but the pattern of spending according to ADM is similar to the per-student spending from select state funding by ADM deciles found in Chart 1. The smaller districts in Deciles 1 and 2 consistently spent more than the districts in the other deciles. In 2021, the smallest districts shown in Decile 1 spent \$1,323 more per-student than the decile with next highest spending per-student (Decile 2).

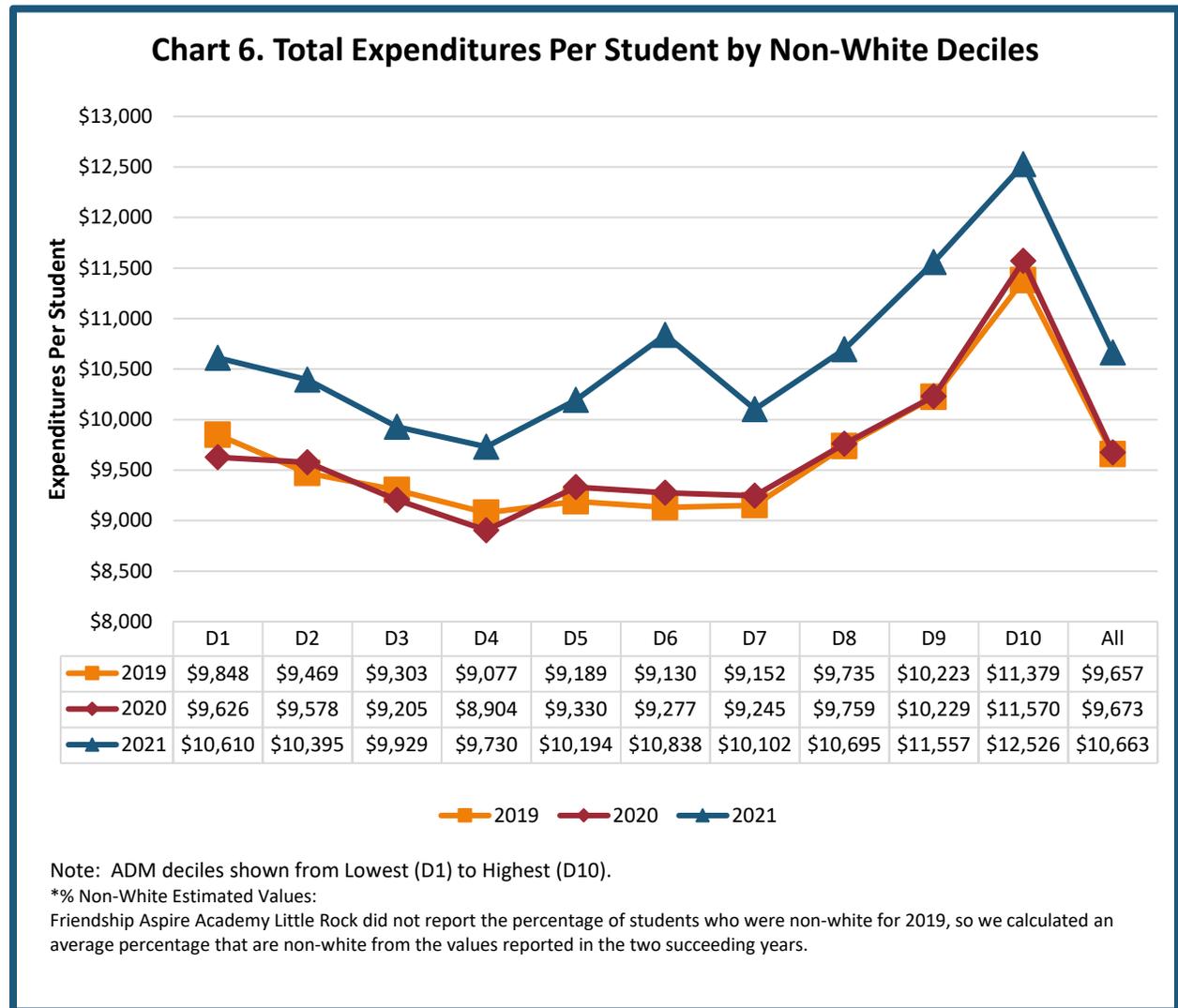
Per-student spending in 2021 followed a similar pattern **except** the 2021 per-student spending levels exceeded 2019 and 2020 per-student consistently across all deciles, which was not the case in the Selected State Fund per-student expenditures shown in Chart 1. This pattern could be due to the infusion of federal funds to assist districts and charters with unexpected expenses created by the COVID-19 pandemic.

Percentage Difference			
	2019	2020	2021
<b>Between D1-D5</b>	13.3%	14.4%	23.6%
<b>Between D1-D10</b>	13.1%	14.5%	26.2%



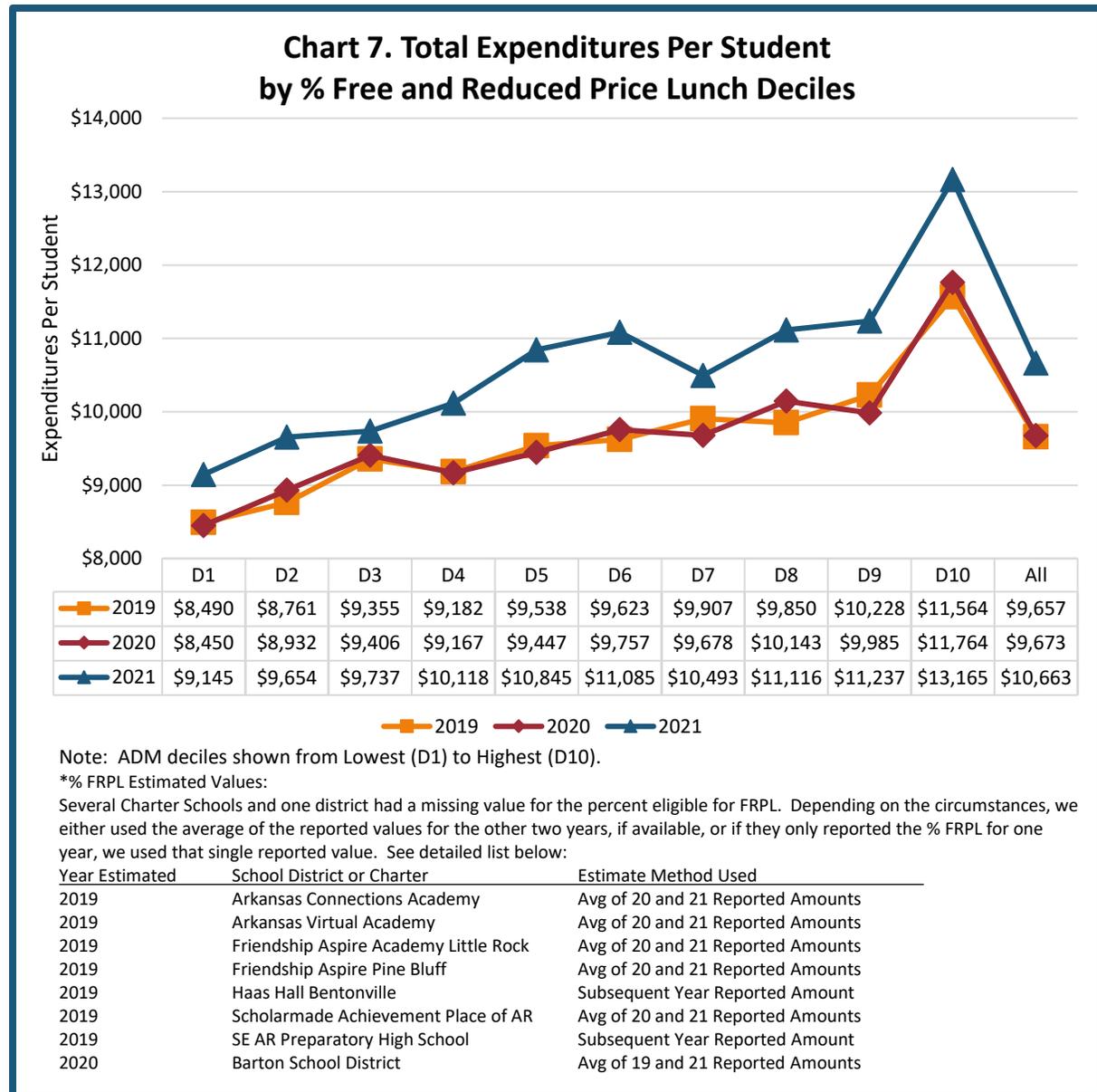
**Chart 6** has a very similar pattern of results for “total expenditures per student,” by percentage of non-white deciles, across all three years as shown in **Chart 2** for “expenditures from select state funding”. The districts in Decile 10 with the highest percentage of non-white students have the highest per-student expenditure amounts for all three years. The districts with the smallest percentage of non-white students in Decile 1 spent 13.5% less than Decile 10 in 2019, 16.8% less in 2020, and 15.3% less in 2021.

Percentage Difference			
	2019	2020	2021
Between D1-D5	7.2%	3.2%	4.1%
Between D1-D10	-13.5%	-16.8%	-15.3%



**Chart 7** follows a similar pattern to the expenditures per-student from select state funding sources as shown in Chart 3, with the highest per-student expenditures occurring in the districts with the highest percentage of students eligible for FRPL (Decile 10). Those districts with the lowest percentage of students eligible for FRPL in Decile 1 spent 26.6% less than districts in Decile 10 in 2019, 28.2% less in 2020, and 30.5% less in 2021.

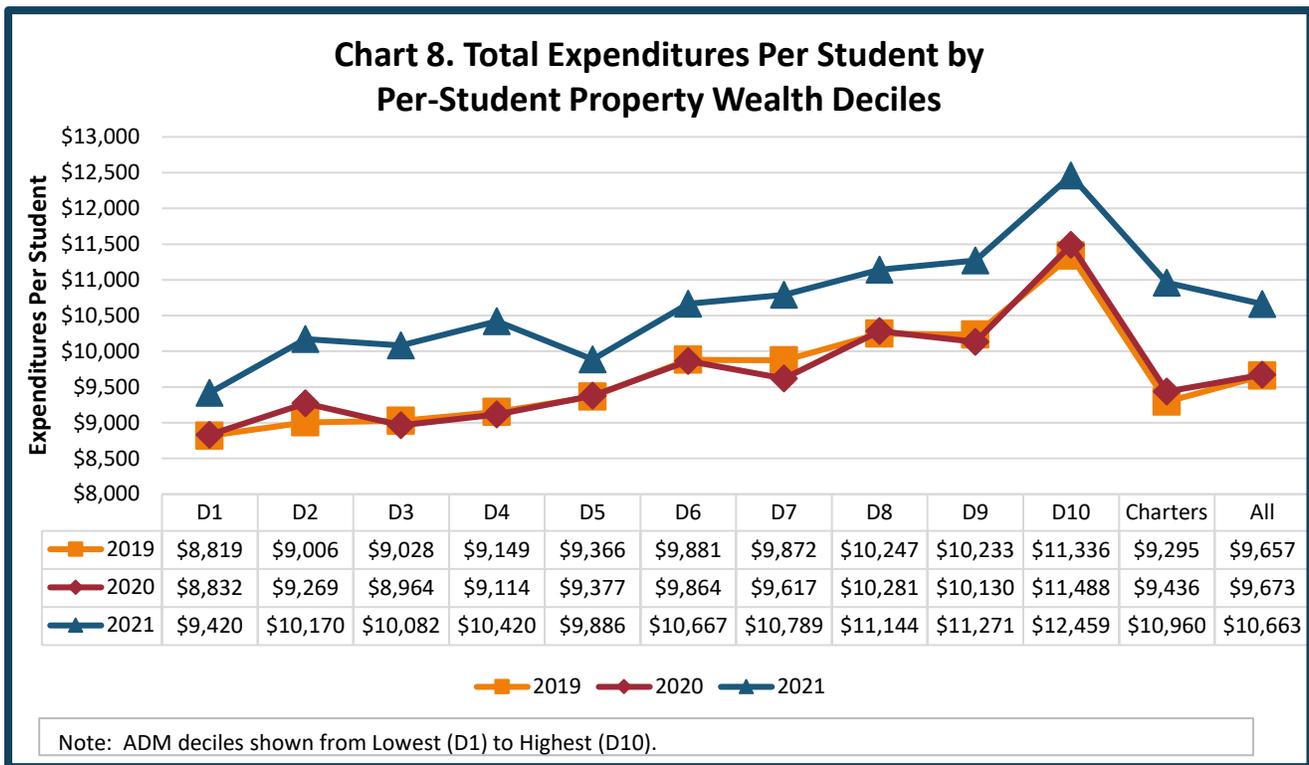
Percentage Difference			
	2019	2020	2021
<b>Between D1-D5</b>	-11.0%	-10.6%	-15.7%
<b>Between D1-D10</b>	-26.6%	-28.2%	-30.5%



**Chart 8** also shows a similar pattern to the select state funding expenditures per-student by property wealth deciles shown in Chart 4 with the per-student expenditures mostly increasing across the per-student property wealth deciles with Decile 10 having the highest per-student expenditures of all the deciles. Those districts with the lowest property wealth in Decile 1 spent 22.2% or \$2,517 less than districts in Decile 10 in 2019, 23.1% or \$2,656 less in 2020, and 24.4% or \$3,039 less in 2021. In addition, all of the “URT Districts” are in the 10<sup>th</sup> decile with the highest per-student property wealth.

Charter schools with no property wealth as a funding source, spent more than Deciles 1 through 4 in 2019, more than Deciles 1 through 5 in 2020, and more than Deciles 1 through 7 in 2021.

Percentage Difference			
	2019	2020	2021
<b>Between D1-D5</b>	-5.8%	-5.8%	-4.7%
<b>Between D1-D10</b>	-22.2%	-23.1%	-24.4%



## Additional Expenditure Equity Measures

A review of the findings of fact and court orders associated with the *Lake View cases* reflect that expenditures, as well as revenues, should meet the measures of equity. Although this report provides several analyses toward that objective, the courts further suggest the federal range ratio as a conventional measure to utilize. In addition, as noted earlier, a result of 0.25 or less is considered “acceptable” by the courts in *Lake View*.<sup>7</sup> The lower the index the lower the variance in spending between the highest and the lowest spending districts. Subjecting both of the expenditure definitions used herein, the calculations reflected below are the results of the application of the federal range ratio:

Funding Source	2019 Federal Range Ratio	2020 Federal Range Ratio	2021 Federal Range Ratio
Per-Student Select State Funding Expenditures	0.56	0.48	0.50
Per-Student Total Expenditures from All Fund Sources	0.57	0.53	0.66

Between 2019 and 2020, the federal range ratio declined for both select state fund expenditures and total expenditures, but in 2021, the ratio began to climb again up to .50 for expenditures from select state funds and up to .66 for expenditures from the total of all funds. It may be the additional federal funds made available due to the COVID-19 pandemic may have contributed to the 2021 ratio increase. The 2021 results indicate that for per-student expenditures from select state funding sources, districts spending at the 95<sup>th</sup> percentile spent 50% more than districts spending at the 5<sup>th</sup> percentile. For per-student expenditures from all fund sources, districts spending at the 95<sup>th</sup> percentile spent 66% more than districts spending at the 5<sup>th</sup> percentile. The higher ratio for expenditures from all funds expenditures is expected due to the additional funding causing the range of fund dispersion to expand. It could also be that the other adequacy-related funding such as ESA, ELL, PD, ALE, etc. provided to address particular student needs could also contribute to the higher ratios.

## Appendix A: Decile Range Values For 2019 – 2021

Decile	2019				2020				2021			
	ADM	%Non-White	% FRPL	*Property Wealth	ADM	% Non-White	% FRPL	*Property Wealth	ADM	%Non-White	% FRPL	*Property Wealth
D1 <	374	4.8%	43.3%	\$57,451	404	4.9%	46.6%	\$60,367	398	5.0%	43.0%	\$62,993
D2 <	497	7.3%	52.7%	\$63,574	501	7.4%	54.3%	\$66,512	494	7.5%	52.5%	\$71,135
D3 <	622	9.7%	58.7%	\$70,719	618	9.8%	60.3%	\$75,026	615	9.7%	59.1%	\$78,530
D4 <	770	13.9%	64.1%	\$79,324	771	13.5%	65.8%	\$82,700	745	14.2%	64.9%	\$86,491
D5 <	908	19.9%	70.1%	\$88,143	936	19.4%	71.0%	\$92,493	896	20.5%	70.9%	\$95,030
D6 <	1,172	30.2%	71.6%	\$96,164	1,143	30.2%	72.4%	\$99,555	1,139	29.5%	72.5%	\$104,320
D7 <	1,573	38.6%	73.1%	\$110,841	1,563	38.9%	74.1%	\$112,553	1,561	38.7%	74.2%	\$114,803
D8 <	2,207	58.0%	76.0%	\$128,010	2,234	58.6%	77.3%	\$132,165	2,232	59.9%	77.4%	\$138,483
D9 <	3,584	81.0%	83.3%	\$162,191	3,622	80.8%	83.6%	\$166,249	3,727	80.4%	84.3%	\$175,190
D10 ≤	21,878	100.0%	97.2%	\$473,054	22,108	99.17%	97.0%	\$465,669	21,805	99.72%	100.0%	\$522,637

\*Per-Student

<sup>7</sup> In its 2002 decision, the Arkansas Supreme Court states that, “Using expenditures in the calculation of the Federal Range Ratio, this court finds that there is more than a 25% difference between the 5<sup>th</sup> and 95<sup>th</sup> percentile in amount spent per pupil, which is not in compliance with the 1994 Order. However, using revenues, the State is within the 25% range differential. Using expenditures in the Correlation of Variance, the State is not in compliance. Using expenditures in the calculation of GINI Index of Inequality, the State is in compliance.”