Importance of Subgroup Membership and Its Contribution to Equitable School District Comparisons

Apparent Overall Differences

When one compares summary FCAT data from the Miami-Dade district to other major districts in the State, it appears that student performance in our district is generally lower.

Percent Scoring at/above Grade Level: Reading — DADE 58%, BROWARD 62%, PALM BEACH 63%, HILLSBOROUGH 60%, PINELLAS 62%, ORANGE 61%, DUVAL 58%, POLK 55%

Percent Scoring at/above Grade Level Math — DADE 65%, BROWARD 71%, PALM BEACH 72%, HILLSBOROUGH 67%, PINELLAS 66%, ORANGE 65%, DUVAL 63%, POLK 61%
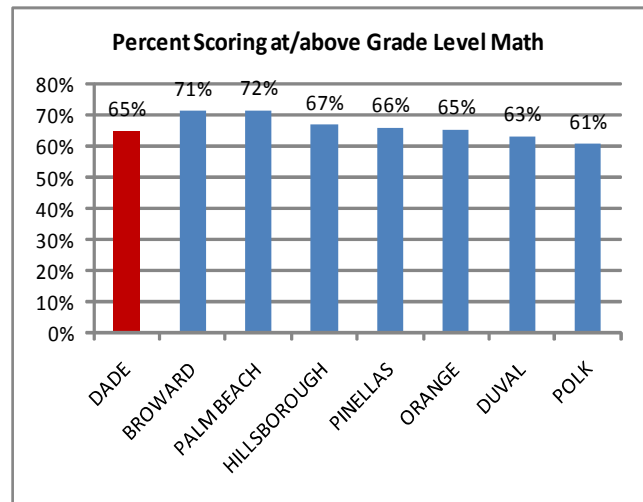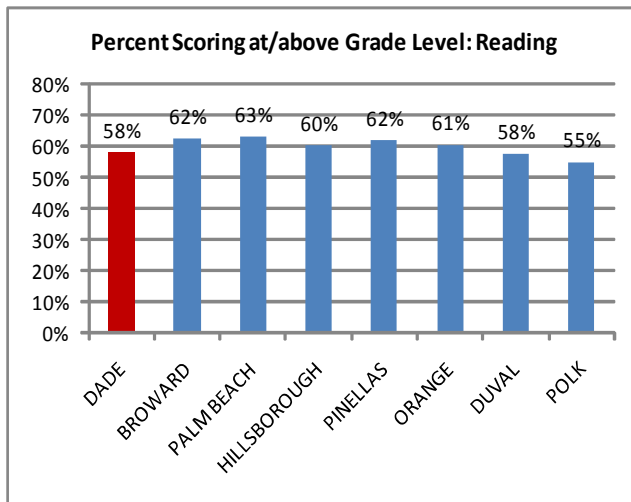
Data from the 2009-2010 FCAT Results file

In the above graphs, except for a couple of district comparisons, there seems to be a lower overall percent of students scoring at or above grade level (FCAT Levels 3 and above) for the Miami-Dade school district. Although the percentages for Mathematics are proportionately higher across all districts than the Reading percentages, there is the same pattern of differences among the school districts.

From observing overall district summary data, one may be led to believe that the performance of Miami-Dade students is not as high as expected. However, overall summary data can be deceiving. Part of the reason is that the subgroups that make up each district have distinctly different success rates. One can get a clear picture of this by comparing the subgroup performances over the whole State.

Percent at/above Grade Level by Subgroup
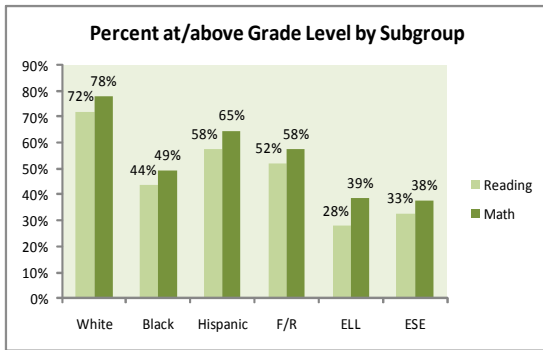
In this graph, we have the percent of students scoring at or above grade level for both Reading and Mathematics across the entire State, broken down by the major subgroups used in the NCLB Adequate Yearly Progress analysis. Here we can see that White, Non-Hispanics perform at a higher level than do Hispanics, who, in turn, perform at a higher level than do Blacks. We can also see characteristic performance levels of students receiving Free/Reduced Lunch (F/R), English Language Learners (ELL), and Students with Disabilities (ESE).

It is an observable fact that these subgroup performance levels remain relatively constant from district to district. These subgroups apparently present distinct educational challenges that are shared by all districts. The specific causes of these subgroup differences are hard to pinpoint, but presumably involve language difficulties, poverty issues, and subcultural influences. Whatever the explanation, if the subgroup performances are similar within each district, overall district summary data could be highly impacted by the particular proportions of each subgroup comprising a district. That is, if a district has a larger percentage of a lower than average performing subgroup, its overall performance level will appear lower. Likewise, if a district has a larger percentage of a higher than average performing subgroup, its overall performance level will appear higher. This would be true even if each subgroup performed exactly at its expected level consistently across all districts.

District Composition

Below are a series of graphs showing the proportions of each of the subgroups that make up each of the representative major districts.
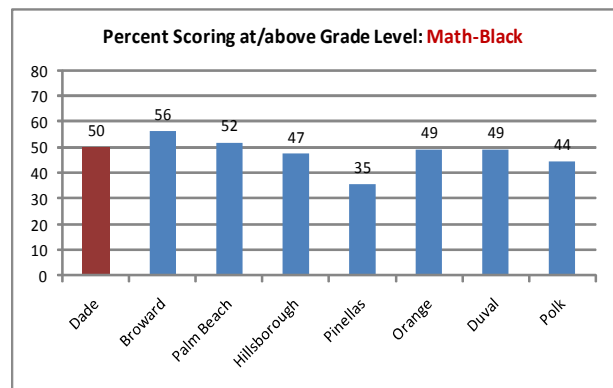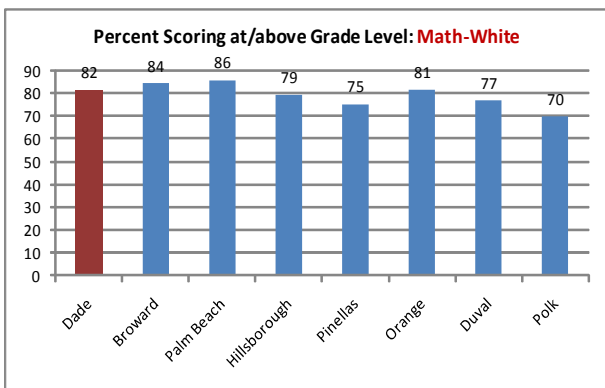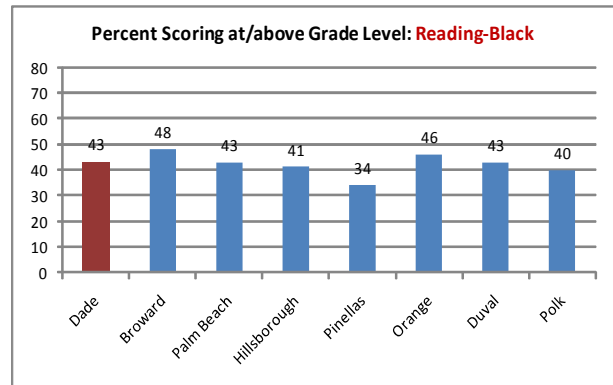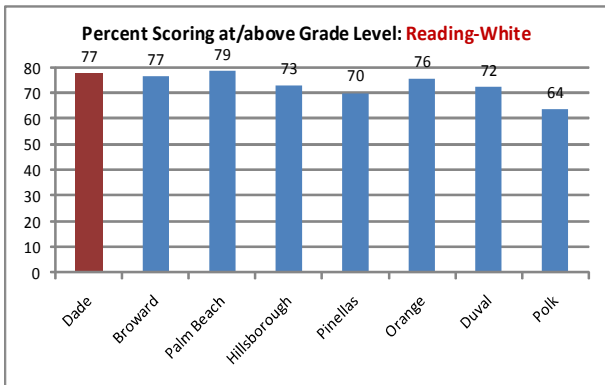
Percent White

Percent Black

Percent Hispanic

Percent F/R Lunch
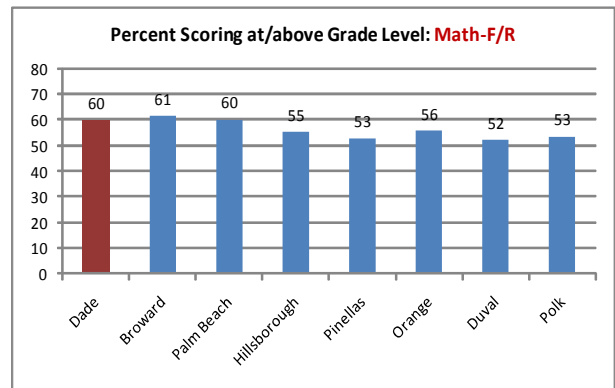
Percent ELL

Percent ESE
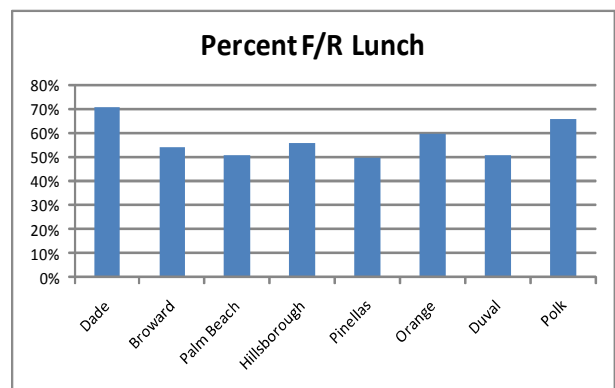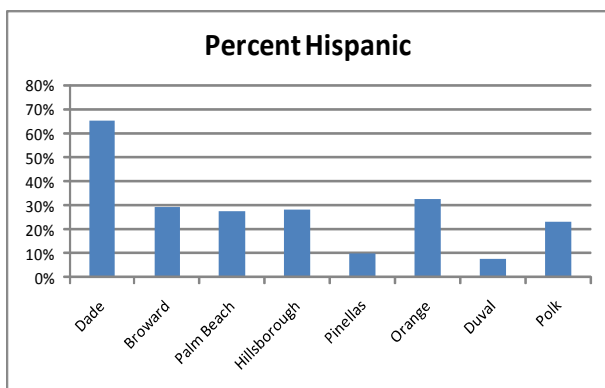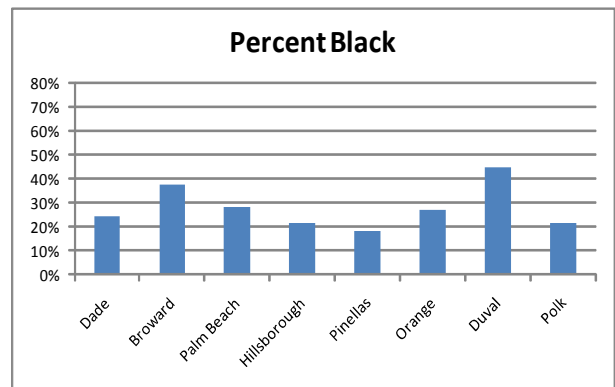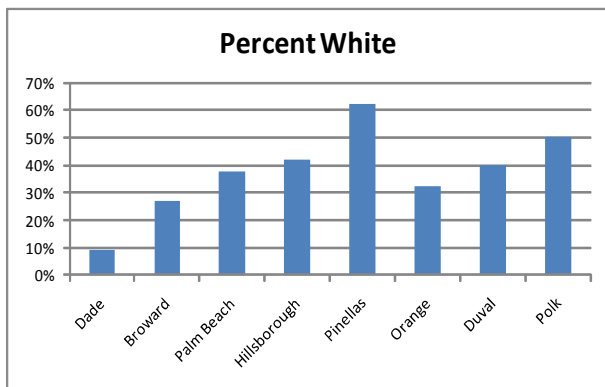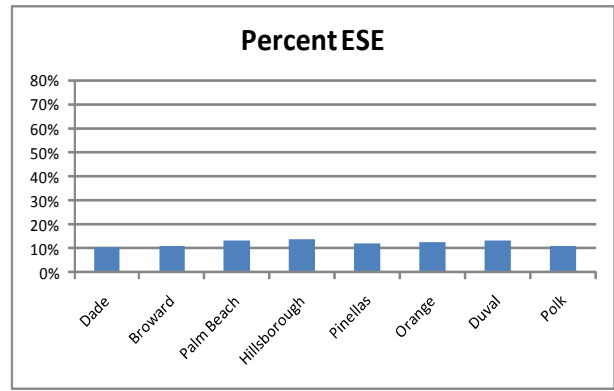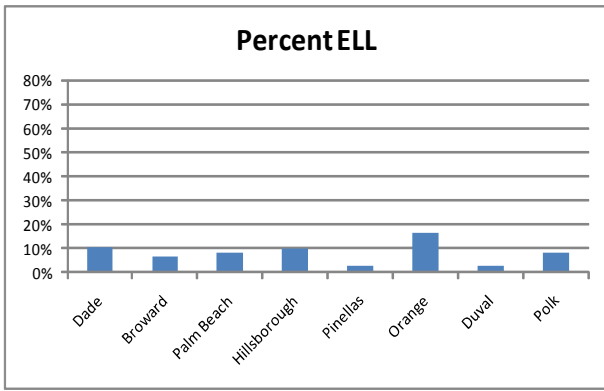
It can be seen that there are major differences in the distributions of racial/ethnic groups, socioeconomic, language, and special needs subgroups among the major districts. In particular, the Miami-Dade district has a significantly lower percentage of higher-scoring White students, and higher percentages of lower-scoring Hispanic and Free/Reduced Lunch Students. It is precisely this kind of discrepancy in district composition that can skew the picture based on overall averages.

Comparisons within Subgroup

A clearer picture of district differences can be obtained if the comparisons are restricted to within-subgroup contrasts. Below are eight graphs comparing student performance among districts. Four of these graphs refer to Reading results and the other four refer to results for Mathematics. The subgroups in which the districts vary considerably in representative proportions are presented, namely, the White, Black, Hispanic, and Free/Reduced Lunch subgroups.

Percent Scoring at/above Grade Level: Reading-White

Percent Scoring at/above Grade Level: Reading-Black

Percent Scoring at/above Grade Level: Math-White

Percent Scoring at/above Grade Level: Math-Black

Percent Scoring at/above Grade Level: Reading-Hispanic

Dade: 60, Broward: 66, Palm Beach: 60, Hillsborough: 52, Pinellas: 54, Orange: 54, Duval: 58, Polk: 47

Percent Scoring at/above Grade Level: Reading-F/R

Dade: 52, Broward: 52, Palm Beach: 51, Hillsborough: 48, Pinellas: 50, Orange: 52, Duval: 47, Polk: 48

Percent Scoring at/above Grade Level: Math-Hispanic

Dade: 68, Broward: 75, Palm Beach: 70, Hillsborough: 60, Pinellas: 58, Orange: 60, Duval: 63, Polk: 54

Percent Scoring at/above Grade Level: Math-F/R

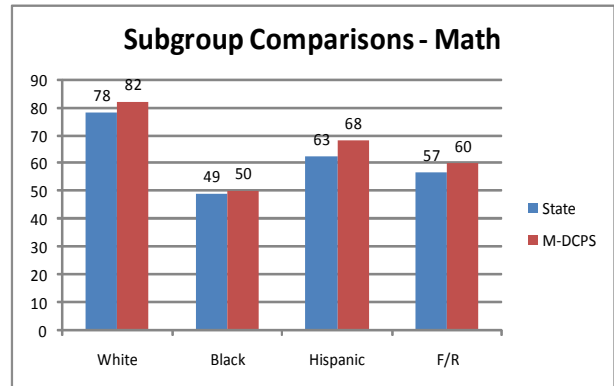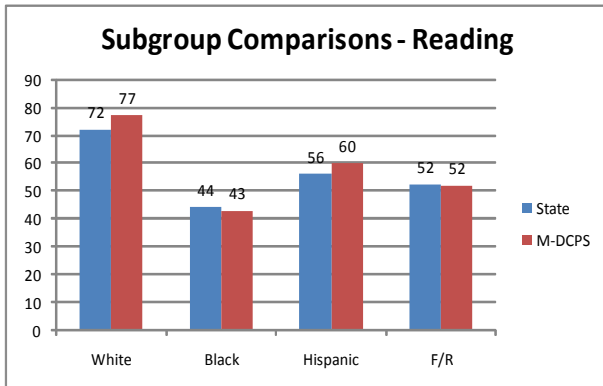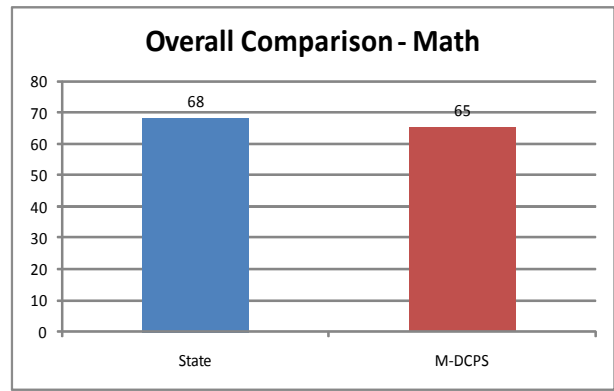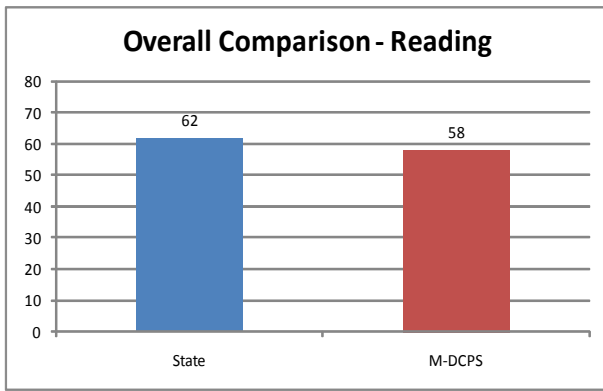Dade: 60, Broward: 61, Palm Beach: 60, Hillsborough: 55, Pinellas: 53, Orange: 56, Duval: 52, Polk: 53

The comparisons among the districts by subgroups lead to quite different conclusions from those derived from overall summary data originally presented. Earlier it appeared that the overall Miami-Dade district performance was lower than the majority of the represented districts. In contrast, for all of the eight subgroup comparisons the Miami-Dade district equals or exceeds the majority of the districts. Not only does the Miami-Dade district appear in a different light, comparisons among the other districts are altered. By limiting assessments to homogeneous subgroups, it is easier to see the true relationships. This is simply because the districts are on a much more equitable footing.

**Comparisons with the State**

So far, we have compared the Miami-Dade district to only a small set of selected districts. How would we compare to other districts? There are too many districts in the State to consider each one separately, but we can get a general idea of how we would compare to them by considering the State as a whole. However, there is a slight technical point that must be cleared up first.

Miami-Dade school district is the largest in the State. Fully 13 percent of all the students tested in Reading in the State are from our district. Therefore, if we compare Miami-Dade to the State as a whole, we are, to no small degree, comparing us to ourselves. What we really need for comparison purposes is the performance data for the State taking out the contribution of the Miami-Dade district. As long as we have available the actual numbers of students the performance averages are based on, the correction factors are easy to compute. In the discussion that follows, all references to State performance really refer to everyone in the State *except* the Miami-Dade students.

In the graphs below, it appears that students from the Miami-Dade district perform slightly worse than the State as a whole. However, we have learned from the earlier district comparisons that these kinds of summary judgments can be deceiving. Below are graphs depicting the comparisons within each of the major subgroups.

Overall Comparison - Reading

	State	M-DCPS
	62	58

Overall Comparison - Math

	State	M-DCPS
	68	65

Subgroup Comparisons - Reading

	White	Black	Hispanic	F/R
State	72	44	56	52
M-DCPS	77	43	60	52

Subgroup Comparisons - Math

|	White	Black	Hispanic	F/R
State	78	49	63	57
M-DCPS	82	50	68	60

Now we can see that the Miami-Dade performance levels are really very similar to the State averages. In fact, in almost all of these subgroups, the Miami-Dade performance levels exceed the State averages. (Especially note that if we were to put back into the State averages the contribution from Miami-Dade, we would provide a boost to the State representation for almost all of those subgroups.) This is especially interesting for the racial/ethnic group breakdowns, since these three subgroups together constitute almost the entire populations. How is it possible for the Miami-Dade district to exceed the State in all subgroups and, yet, fall short in the overall comparisons? This is only possible because the subgroup proportionate representation is different between the State and the district.

Subgroup Proportionate Representation

	White	Black	Hispanic	F/R
State	50%	22%	21%	54%
M-DCPS	9%	24%	65%	71%
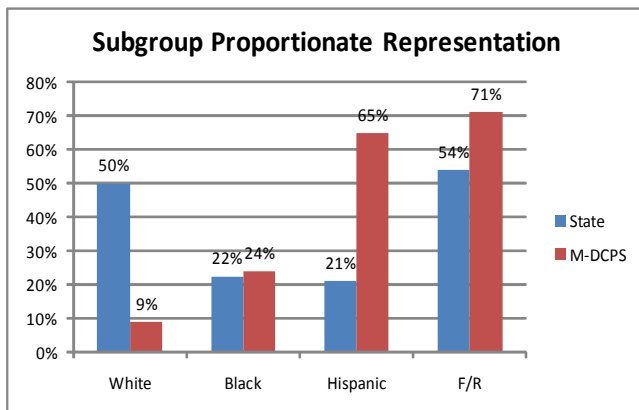
In this graph we can see the large discrepancies among the subgroup representations. There is a considerably smaller percentage of White students and greater percentages of Hispanic and F/R Lunch students in the Miami-Dade district versus the State as a whole. The lower proportions of higher-scoring students and higher proportions of lower-scoring students bias the overall averages against the district.

Another way to consider this issue is to reconstruct the State overall averages simulating the proportions of subgroups in the State at the same levels they are represented in the district. That is, let's consider what the state averages would look like if the subgroup performance levels were weighted as they are in the Miami-Dade district.

Now, under this assumption of equal-proportionate representation, we see the Miami-Dade school district apparently outperforming the State averages. We must conclude that within-subgroup comparisons and adjusted overall comparisons give much clearer, impartial assessments of the actual levels of student performance.

Adjusted Overall Comparison - Reading

Adjusted Overall Comparison - Math
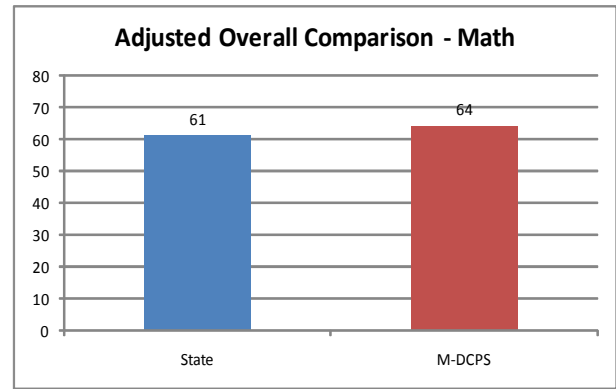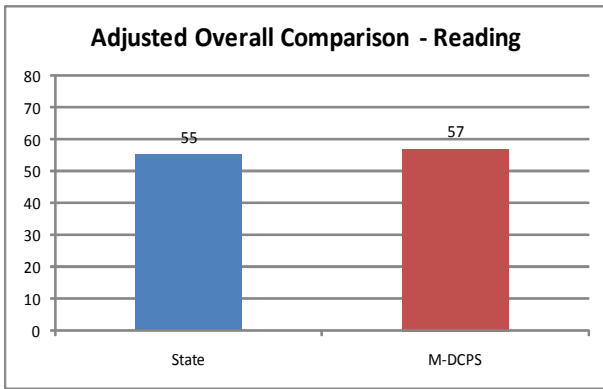
Summary

Stated somewhat technically, whenever populations are composed of subgroups where the academic performance is similar within the subgroup and different between subgroups, the overall population averages are highly vulnerable to subgroup proportionate representation. In other words, overall district averages sometimes reflect little more than subgroup composition. If the subgroups perform consistently across districts and differently between subgroups, comparisons should be confined to the subgroup level of analysis. This allows for fairer comparisons of districts and more reliable conclusions concerning effectiveness.

The subgroups reported on in this paper are those readily available from the NCLB Adequate Yearly Progress Report. The phenomenon investigated here is relevant for the subgroups identified, but also for other unmeasured or, as yet, unidentified subgroups. More importantly, the differential representation of subgroups with unique educational requirements can have wide-ranging effects throughout the district. Districts with high proportions of particularly challenging subpopulations are forced to redirect their limited educational assets to meet these demands. The assessment of effectiveness and distribution of resources across districts should reflect these differences.

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