A Statewide Crisis:
Minnesota's Education Achievement Gaps

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ABSTRACT

While Minnesota's educational disparities are well-known, this report shows that these disparities are evident across race, ethnicity, and socioeconomic status. They are equally deep statewide and between school types. That is, disparities are not limited to Twin Cities metro area schools or to traditional public schools. This is a challenge for all of Minnesota.

This report documents patterns of disparities for three main outcomes—performance on standardized tests, graduation rates, and indicators of college readiness. Across these measures, achievement gaps have persisted for decades despite policies implemented to promote equal opportunity for education, including school choice, changes in teacher evaluation systems and compensation, and equalizing per capita funding across districts.

Still, despite Minnesota's failing track record on closing education achievement gaps, there is hope. Based on recent research studies, we discuss examples in the United States where outcomes for minority and low-income students have significantly improved.

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1 | Minnesota's Challenges and Opportunities

On average, Minnesota schools do well. The state ranks relatively high on standardized tests, graduation rates, and college readiness. But hidden beneath these aggregates are huge disparities. In fact, Minnesota has some of the largest achievement gaps by race, ethnicity, and socioeconomic status in the nation.

Minnesota's education achievement gaps have persisted for decades despite implementing policies designed to close them. Historically, Minnesota has been a leader in adopting policies that promote equal opportunity for education, especially when it comes to school choice. In 1988, Minnesota became the first state in the United States to approve mandatory interdistrict open enrollment. In 1991, it became the first state to approve charter schools. Other reforms include school desegregation in Minneapolis and St. Paul public schools, changes in teacher evaluation systems and compensation, and state-level funding equalization across school districts.

In this report, we examine patterns for three main outcomes—performance on standardized tests, graduation rates, and indicators of college readiness. Standardized test scores and graduation rates are used to measure outcome gaps for urban and rural school districts, across race, and by socioeconomic status. College readiness assessments are used to measure outcome gaps across race and income.

KEY PATTERNS ARE AS FOLLOWS:

- On average, Minnesota performs well compared with all other states on standardized test scores, graduation rates, and college readiness. However, it has some of the largest gaps in the nation on these measures by race and socioeconomic status.
- Racial and income gaps in standardized test scores and college readiness have increased over time, while gaps in graduation rates have decreased.
- Even as graduation rates overall have increased in recent years, college readiness indicators have declined. This demonstrates that Minnesota is graduating an increasing proportion of students who are unprepared for college.
- On average, there is no gap between urban and rural school districts on standardized test scores and graduation rates in recent years. However, there is a large variation in achievement gaps across schools within rural districts and across schools within urban districts.

- These gaps are not only racial; low-income white students significantly trail higher-income white students across Minnesota.
- Variation in outcome gaps across schools also exist within the charter school system and across schools within traditional public school districts.
- Minnesota has successfully reduced variation in education inputs, such as per capita expenditures across districts and class sizes across schools. However, achievement gaps across race and socioeconomic status have persisted for decades.

Despite Minnesota's failure to close its education achievement gaps, there is hope—other places in the nation have improved outcomes for minority and low-income students. In 2003, policymakers in Louisiana took bold steps to make changes to the then failing system in New Orleans, which led to gains in student achievement. In 2004, a high-poverty community in New York introduced comprehensive approaches to education that improved outcomes for students. These example indicate that closing achievement gaps is challenging, but possible.

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2 | Background: School Districts and Demographic Characteristics

Minnesota currently has 2,064 schools across 327 public operating elementary and secondary independent districts and 164 charter schools. These school districts differ in their demographic and socioeconomic characteristics.

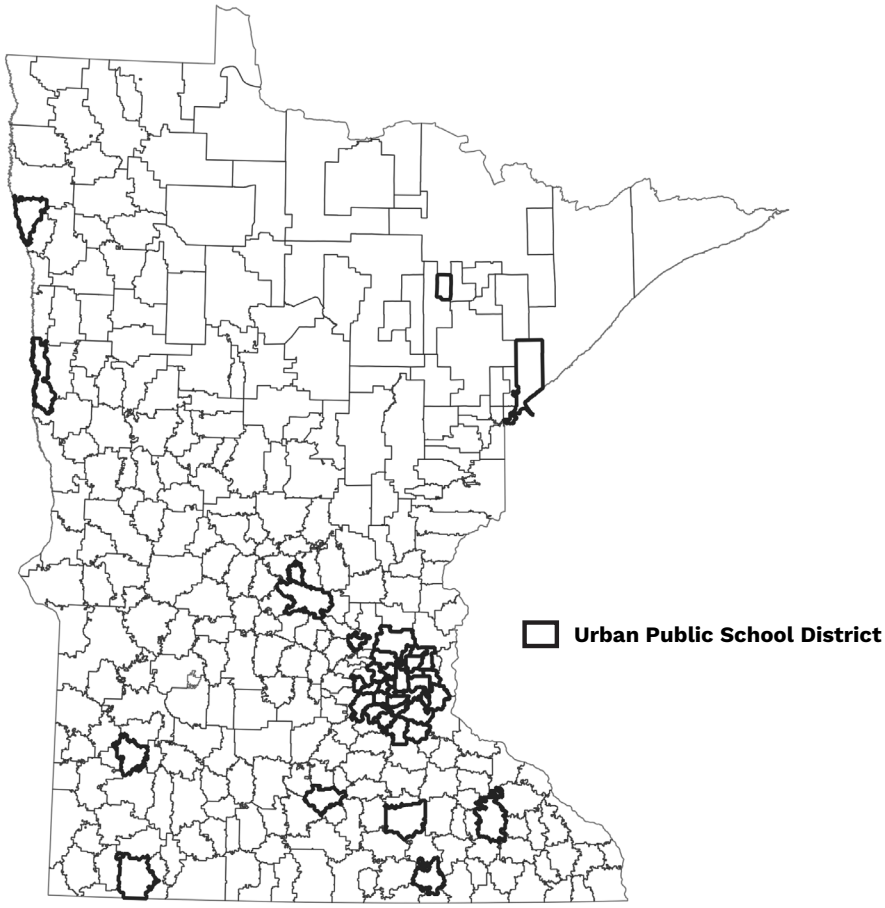
CREATING DEMOGRAPHIC CHARACTERISTICS AT THE SCHOOL DISTRICT LEVEL. The main source of data for population characteristics, demographics, and income and earnings is the annual American Community Survey (ACS) conducted by the U.S. Census Bureau. Each year, more than 3.5 million households across the country participate in the survey.

School district boundaries change over time. In order to establish patterns for the most recent school district boundaries, we construct the data by overlaying school district boundary maps on census tract boundary maps. For each school district, we calculate demographic characteristics by taking an average across all census tracts that lie within the school district boundary. To map the census tract boundaries into school district boundaries, we obtained school district boundary data (shapefiles) from the Minnesota Department of Education (MDE) and the census tract boundaries from the Census Bureau. For census tracts that overlap across two district boundaries, we assign the census tract level data into the two districts by using population weights.

DEFINING URBAN SCHOOL DISTRICTS. For each census tract, we define proportion urban as the number of persons in an urban area divided by the total number of persons in the 2010 census tract. The percentage urban is proportion urban multiplied by 100. We aggregate this number to the school district level using frequency weights. A school district is defined as urban if 80 percent of its population lives in urban census tracts. Figure 1 highlights the urban school district boundaries; the boundaries in bold depict urban school districts. By this definition, "urban" school districts include those in the Twin Cities area and a few in Greater Minnesota.

Defining urban school districts

1

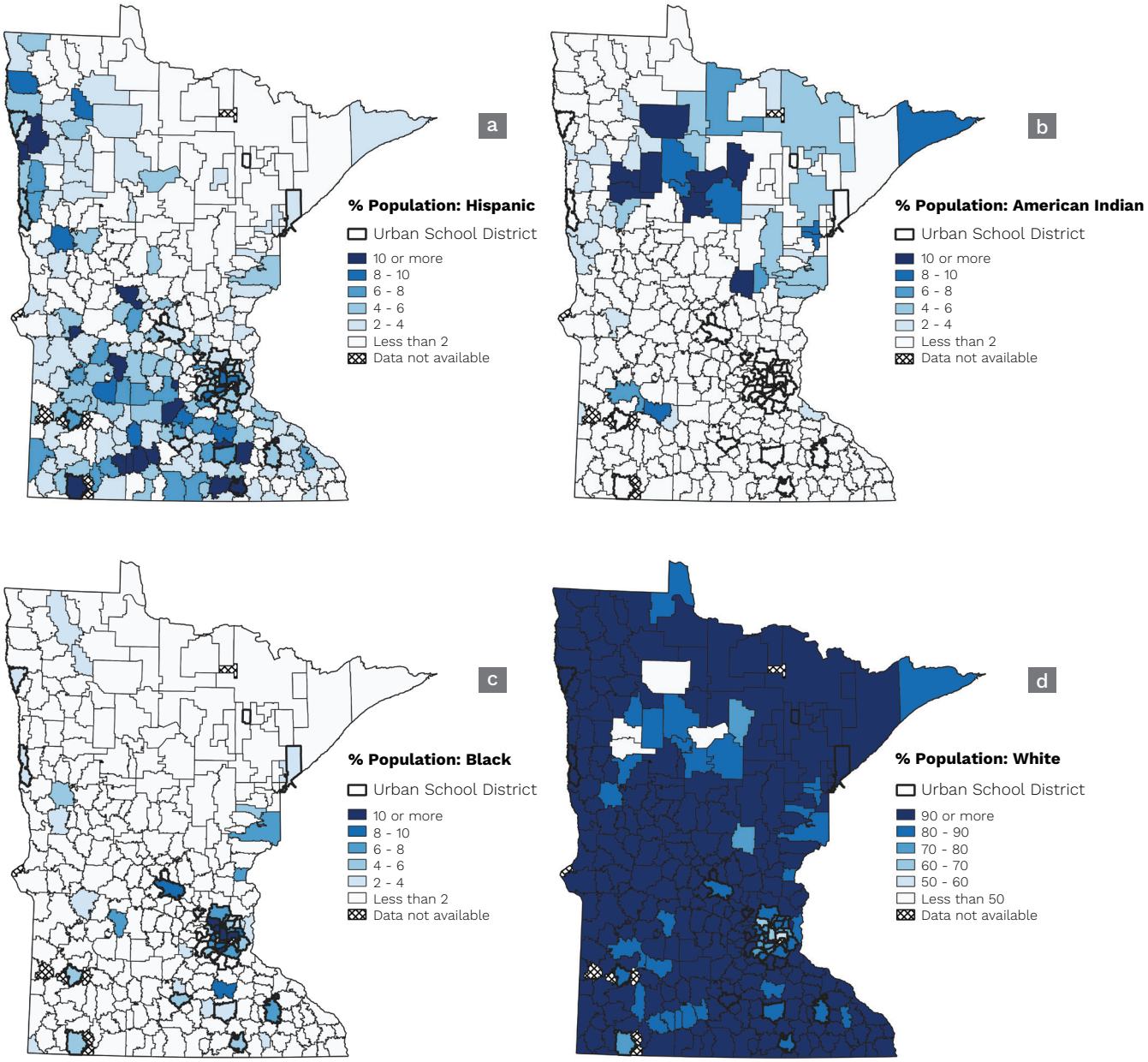


DEMOGRAPHIC CHARACTERISTICS ACROSS SCHOOL DISTRICTS. Figure 2 maps the racial composition of school districts using data from the ACS. Panels (a)-(c) map the proportion of minority population, with darker shades indicating a higher proportion of minority population. The highest proportion of Hispanic population is in the school districts in southern Minnesota, while the highest proportion of American Indian population is in northern Minnesota. In contrast, the highest proportion of African American population is in the Twin Cities metro area. Panel (d) maps the proportion of white population across school districts in Minnesota, with darker shaded districts depicting higher white population.

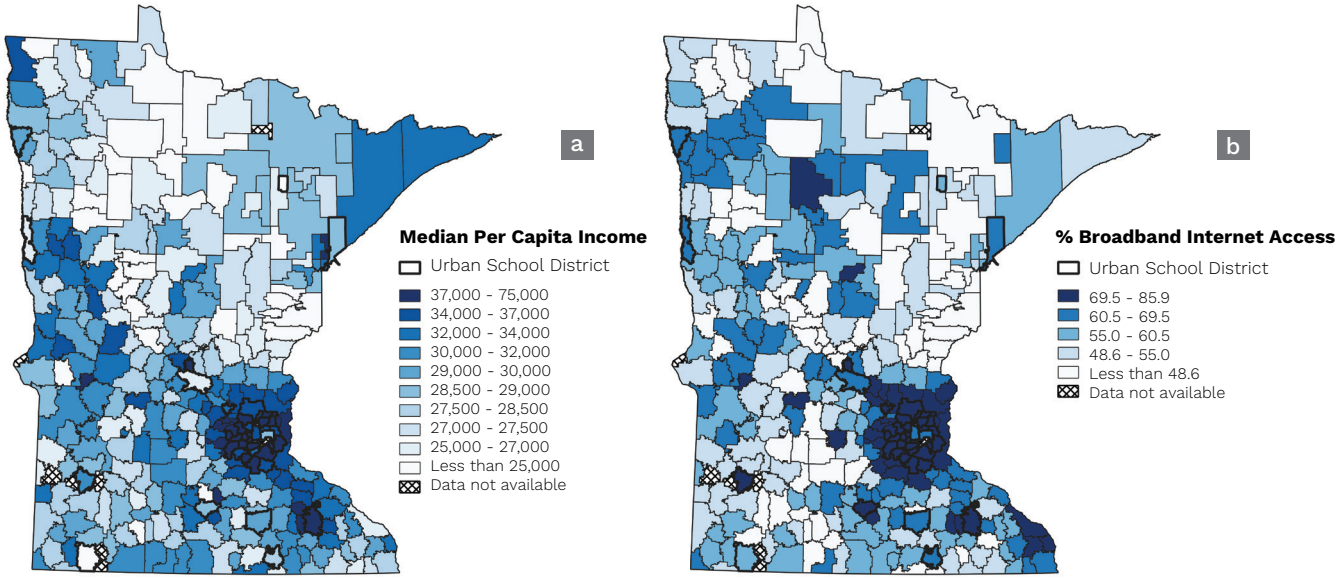
Panel (a) of Figure 3 depicts the median per capita income across school districts, and panel (b) maps the percentage of population with access to broadband internet access. The latter is a measure of infrastructure access and is a proxy for learning resources available to students outside the classroom. School districts in the Twin Cities metro area have the highest median per capita incomes, while districts in rural northern Minnesota have among the lowest. Access to broadband connection is positively correlated to median per capita income—in school districts where incomes are higher, access to broadband connections is higher.

Racial concentration across school districts

2



Per capita income and infrastructure access across school districts 3



3 | Outcome Gaps: Where and Who

Student outcomes are measured using three indicators, and each captures a different dimension of a student's ability. Test scores are proxies for how well students are learning in classrooms, while graduation rates are more indicative of schools' success in providing basic competencies to their students. Indictors of college readiness capture how well schools prepare their students for higher learning and careers. This section documents the patterns for these three outcomes. The focus is on establishing trends, geographical variation, and disparities across racial groups and incomes in Minnesota.

3.1 | Test Scores

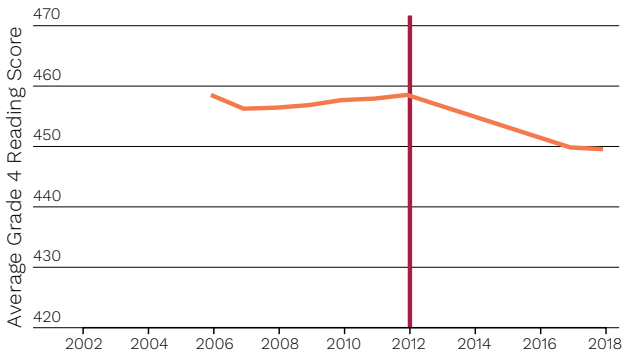
The Minnesota Comprehensive Assessments (MCA) and the Minnesota Test of Academic Skills (MTAS) are statewide tests that help districts measure student progress toward Minnesota's academic standards and also meet federal and state requirements for student assessments. According to the MDE, most students who take a standardized test take the MCA, while students who receive special education services and meet eligibility requirements may instead take the MTAS. In addition to MCA scores, we use data from the National Assessment of Educational Progress (NAEP) to compare Minnesota with other states. NAEP is a congressionally mandated project administered by the National Center for Education Statistics (NCES) within the U.S. Department of Education.

Our analysis focuses on test scores for Grade 4 reading and Grade 8 math. We choose Grade 4 reading scores because reading proficiency at this stage is a key factor in students' ability to learn and achieve in subsequent grades. In terms of math, Grade 8 scores are a better predictor of college and career readiness than Grade 4 scores. Figure 4 shows the time series for changes in test scores in Minnesota. Panel (a) shows a sharp decline in MCA test scores after 2012. (This could be due to a change in the testing system itself denoted by the red lines in panels (a) and (b) and should not be taken as an indicator of worse performance.) In contrast, the NAEP testing system was more homogenous during this period. Results from NAEP scores in panels (c) and (d) of Figure 4 show that Minnesota students perform much better than the national average. Although the national average is catching up to the Minnesota average in reading, math scores in Minnesota have trended consistently higher.

Minnesota test scores persistently higher than the national average

4

Grade 4 Reading MCA Score a

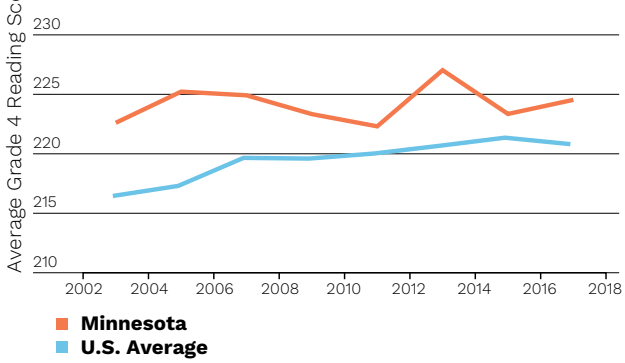


Source: Authors' calculations based on data from the Minnesota Department of Education

Grade 8 Math MCA Score b

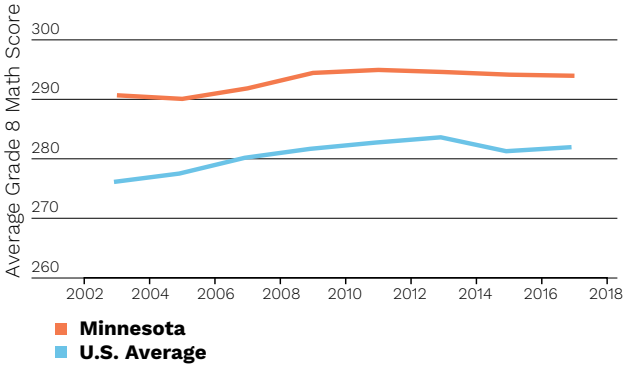
Source: Authors' calculations based on data from the Minnesota Department of Education

Grade 4 Reading NAEP Scores c



Source: Authors' calculations based on data from the National Center for Education Statistics (NCES)

Grade 8 Math NAEP Scores d



Source: Authors' calculations based on data from the National Center for Education Statistics (NCES)

RACIAL DISPARITIES IN MINNESOTA. Figure 5 documents the NAEP scores for whites, African Americans, Hispanics, and American Indians in Minnesota. Panel (a) shows that Grade 4 reading test scores for whites are about 20 percent higher than those of African Americans and 18 percent higher than those of Hispanics. These gaps have been persistent since 2002 (earliest available data). However, the gap between whites and American Indians has increased by about 19 percent over time. Similar patterns are observed for Grade 8 math scores as shown in panel (b). Panels (c) and (d) plot average MCA III test scores across schools in Minnesota where schools are classified by the percentage of minority students. The results show that for both Grade 4 reading and Grade 8 math, the average test scores are significantly lower in schools with higher proportions of minority students.

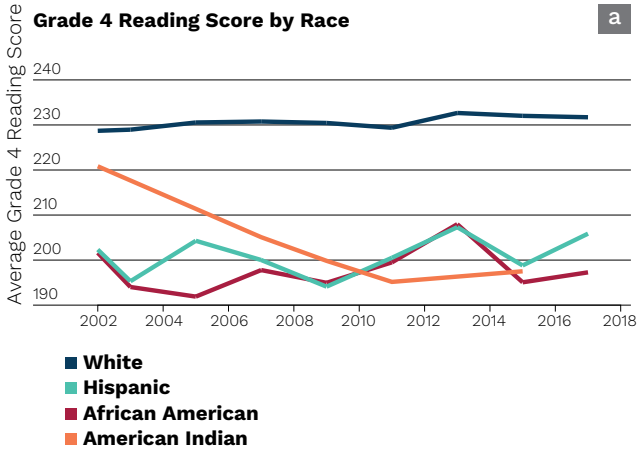
In addition to average scores on state standardized tests, another measure of gaps in student performance is the proportion of students who meet grade level proficiency standards. The accompanying table shows large gaps on this measure between white and minority students on the 2018 MCA III tests.[1]

Proportion of students proficient at grade level on MCA III tests in 2018

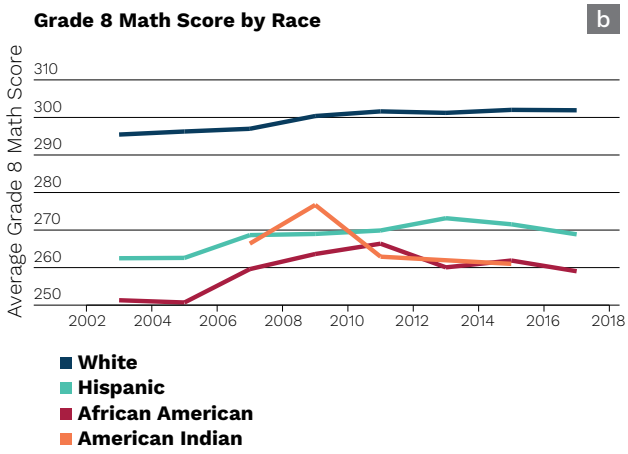
	Grade 4 Reading	Grade 8 Math
White students	65%	65%
American Indian/Alaska Native students	31%	25%
Asian students	48%	63%
Black students	31%	29%
Hispanic students	32%	35%
Students eligible for free/reduced-price meals	36%	36%
All students	**56%**	**57%**

1 While the MDE recently reported achievement test score data for 2018-19, we use 2017-18 as the endpoint to remain consistent with the most recent data available for NAEP scores, high school graduation rates, and college readiness indicators.

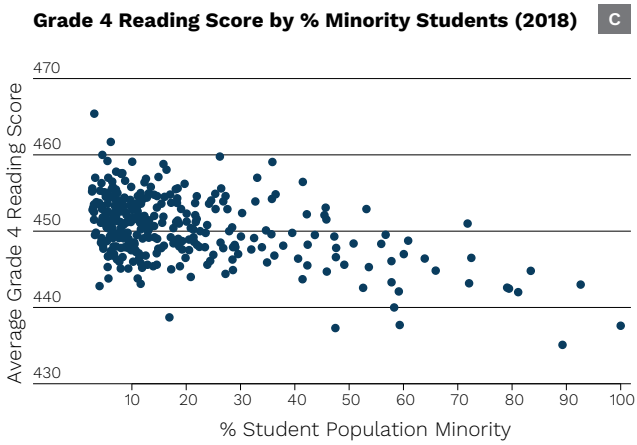
Large racial disparities in test scores across students and schools 5



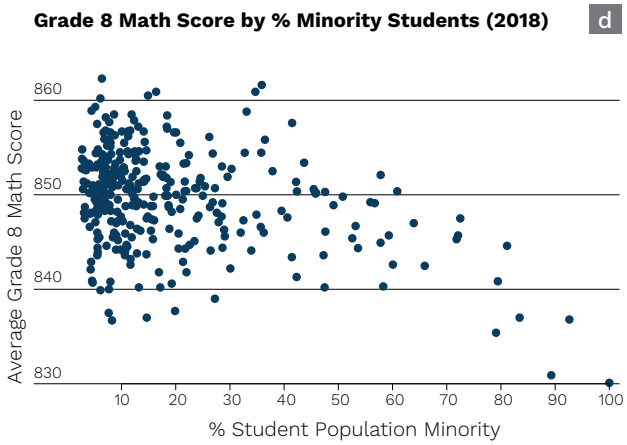
Source: Authors' calculations based on data from the National Center for Education Statistics (NCES)



Source: Authors' calculations based on data from the National Center for Education Statistics (NCES)



Source: Authors' calculations based on MCA III data from the Minnesota Department of Education



Source: Authors' calculations based on MCA III data from the Minnesota Department of Education

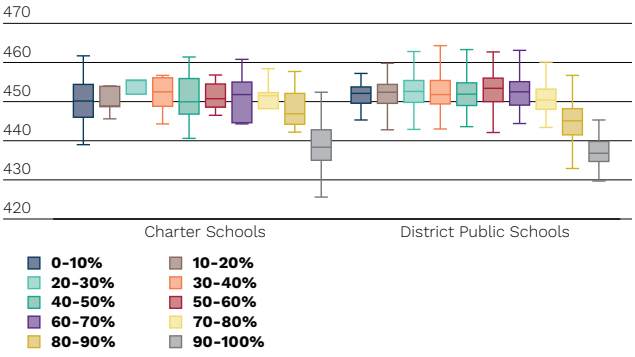
Panel (a) of Figure 6 plots the distribution of Grade 4 reading test scores across schools by school type at each decile of minority population. In both charter and traditional district public schools, average test scores decrease as the proportion of children from minority groups increases. Overall, median scores are lower for charter schools than for traditional public schools. Panel (b) shows similar patterns for Grade 8 math scores.

Figure 6 also shows that variation among charter schools is larger than variation among traditional district schools. The length of each box plot denotes the amount of variation across schools within each decile. Since the boxes are larger for charter schools than traditional district public schools, this suggests that there is larger variation across charter schools. The data also show that top performing charter schools with a high percentage of minority students perform better than both similar district schools and overall state averages.

Schools with a higher proportion of minority students have lower test scores across both charter and district public schools

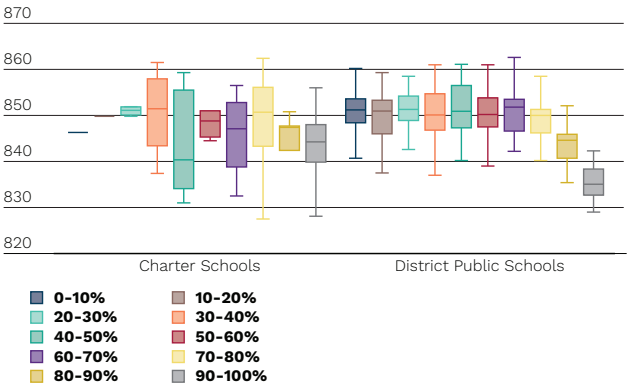
6

Grade 4 Reading by % Minority Students (2018) a



Source: Authors' calculations based on MCA III data from the Minnesota Department of Education

Grade 8 Math by % Minority Students (2018) b



Source: Authors' calculations based on MCA III data from the Minnesota Department of Education

DISPARITIES ACROSS SOCIOECONOMIC BACKGROUND. Family median income is an ideal measure for analyzing education outcomes by socioeconomic status. However, most schools do not provide this information. Eligibility for free or reduced price lunch (FRPL) is often used as a proxy for the socioeconomic status of families. A student from a household with an income at or below 130 percent of the poverty threshold ($33,475 for a family of four) is eligible for free lunch; a student from a household with an income between 130 percent and 185 percent of the poverty threshold ($47,638 for a family of four) is eligible for reduced price lunch.

Panel (a) of Figure 7 shows that Grade 4 reading test scores for FRPL-eligible students are significantly lower than the scores of higher-income students who are not eligible for FRPL. The gap has been increasing over time, albeit slowly. There is a similar gap for Grade 8 math test scores shown in panel (b), and it has been constant over time. In terms of proficiency, we can compare non-FRPL and FRPL students for Grade 3 reading: 68 percent of non-FRPL students met or exceeded the state reading standards compared with only 38 percent of FRPL students.[2] Results show a similar gap between FRPL and non-FRPL students for Grade 8 math.

2 Non-FRPL student proficiency levels are not available for Grade 4.

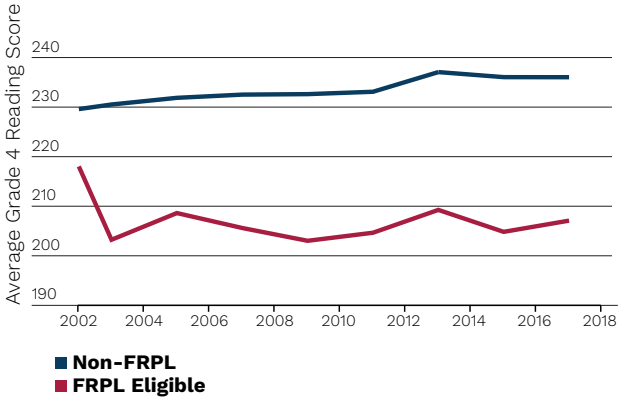
Panels (c) and (d) in Figure 7 plot average test scores across Minnesota schools by the percentage of students who are eligible for FRPL. For both Grade 4 reading and Grade 8 math, average test scores are significantly lower in schools with a higher proportion of FRPL-eligible students.

Panel (e) of Figure 7 plots the distribution of Grade 4 reading test scores across schools at each decile of FRPL-eligible student population. In both charter and traditional public schools, average student performance decreases as the proportion of FRPL-eligible students increases. A similar pattern is observed in panel (f) for Grade 8 math.

Schools with a higher proportion of low-income students have lower test scores across both charter and district public schools

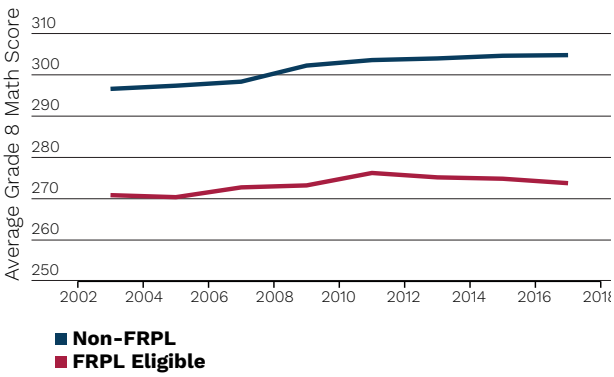
7

Grade 4 Reading Score by FRPL Eligibility a



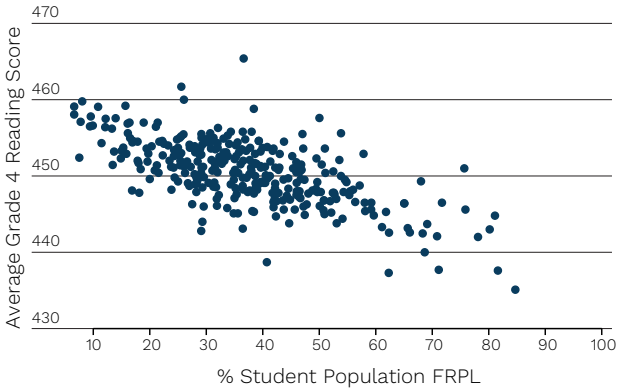
Source: Authors' calculations based on data from the National Center for Education Statistics (NCES)

Grade 8 Math Score by FRPL Eligibility b



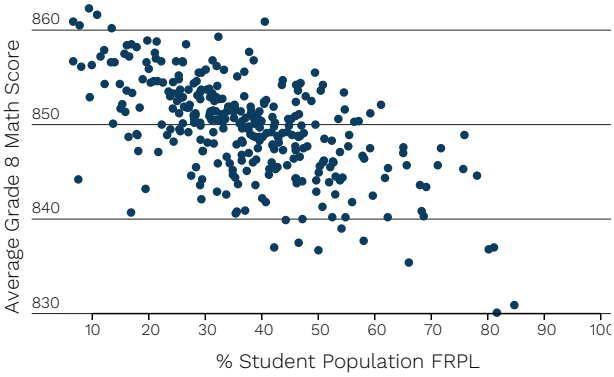
Source: Authors' calculations based on data from the National Center for Education Statistics (NCES)

Grade 4 Reading Score by FRPL Eligibility (2018) c



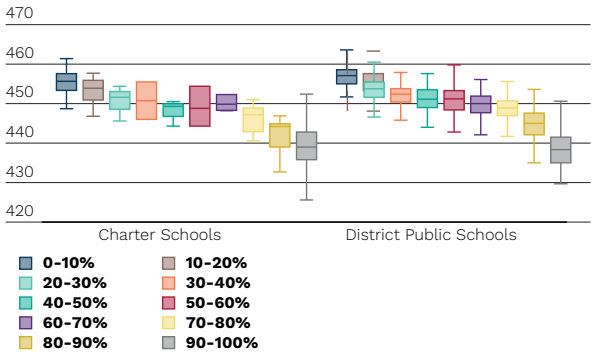
Source: Authors' calculations based on MCA III data from the Minnesota Department of Education

Grade 8 Math Score by FRPL Eligibility (2018) d



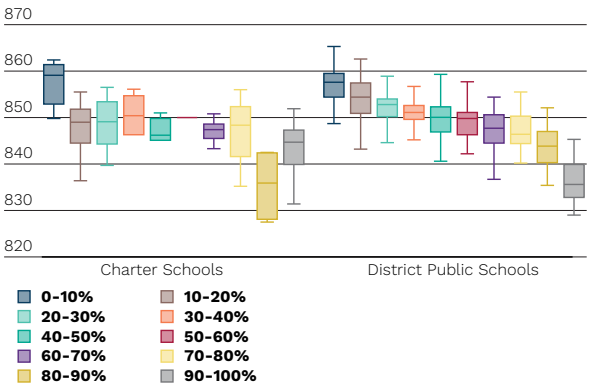
Source: Authors' calculations based on MCA III data from the Minnesota Department of Education

Grade 4 Reading Score by % FRPL-Eligible Students (2018) e



Source: Authors' calculations based on MCA III data from the Minnesota Department of Education

Grade 8 Math Score by % FRPL-Eligible Students (2018) f



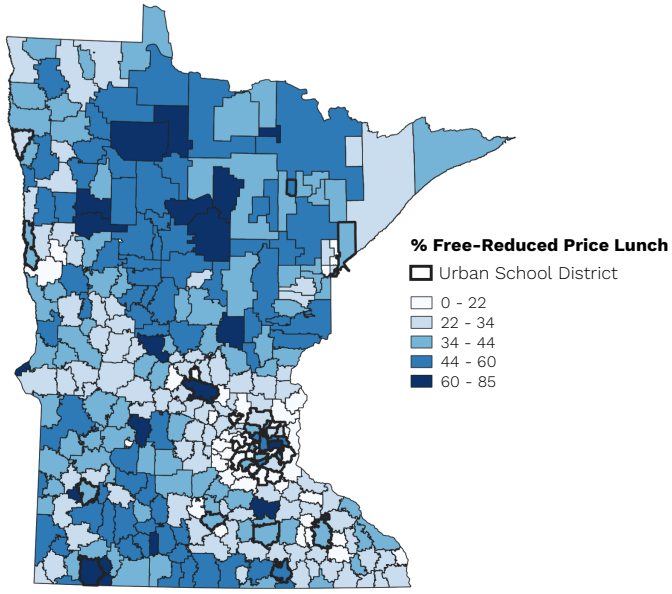
Source: Authors' calculations based on MCA III data from the Minnesota Department of Education

URBAN-RURAL GAPS IN TEST SCORES. To study Minnesota's statewide variation in education outcomes, we construct an indicator variable that classifies each school district as either an urban or a rural school district. As explained in Section 2, this variable is constructed by aggregating population data from the 2010 census at the census tract level to the school district level. If more than 80 percent of the population is urban, then that school district is categorized as an urban school district.

Socioeconomic characteristics vary across the state's school districts within both the urban category and the rural category. Figure 8 shows that some urban school districts in southern Minnesota have a majority of students eligible for FRPL. In contrast, in most urban areas to the west of Minneapolis, fewer than 20 percent of students are eligible for FRPL. Rural school districts in northern Minnesota have some of the highest proportions of FRPL-eligible students, while rural school districts in southeastern Minnesota have a relatively lower proportion of FRPL-eligible students. These patterns are similar to those observed for median household incomes in Figure 3 (a), Section 2.

School districts with a high percentage of low-socioeconomic students are located in both urban and rural areas

8

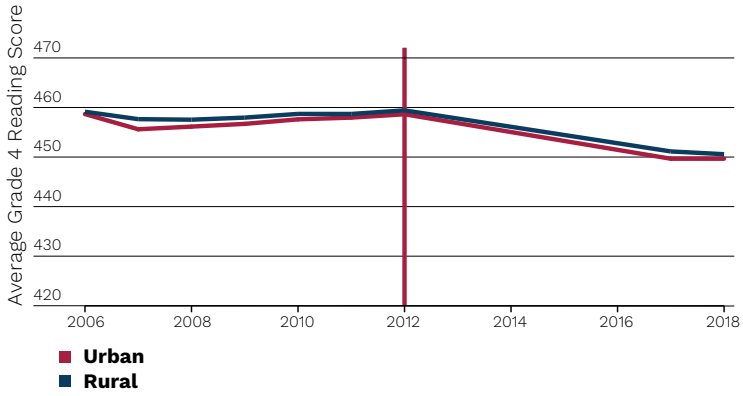


In contrast to Minnesota's racial and income gaps in test scores, the state has no urban-rural average test score gap. Panel (a) of Figure 9 shows that average Grade 4 reading scores are nearly identical across urban and rural school districts over time. Grade 8 math scores tell a similar story in panel (b). Moreover, the variation in test scores across districts within the rural category is similar to variation across districts in the urban category. Figure 10 plots these empirical distributions. The standard deviation in Grade 4 reading scores across school districts in urban areas is 5.3 and in rural areas is 4 (panel (a)). Kolmogorov-Smirnov tests show that these distributions are statistically the same. Similarly for Grade 8 math scores, the distributions across urban and rural areas are statistically the same with a variance of 6.1 points for urban districts and 5 points for rural districts (panel (b)).

On average no difference in test scores across urban and rural areas since 2006

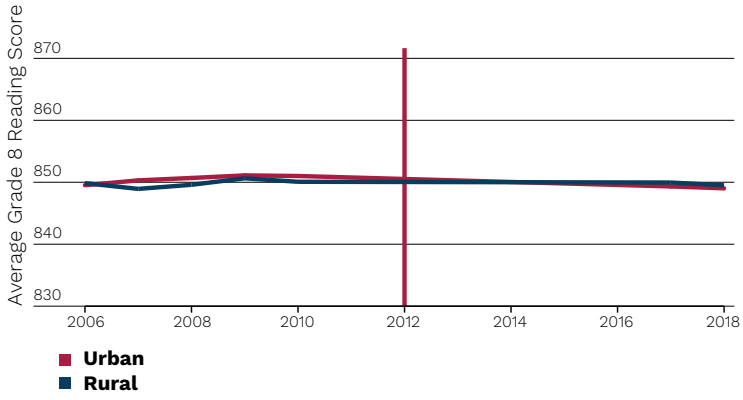
9

Grade 4 Reading Score by Urban and Rural School Districts a



Source: Authors' calculations based on data from the Minnesota Department of Education; urban school districts defined as having more than 80% in urban area

Grade 8 Math Score by Urban and Rural School Districts b

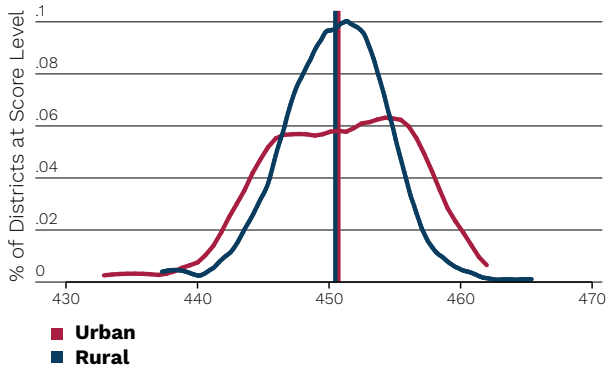


Source: Authors' calculations based on data from the Minnesota Department of Education; urban school districts defined as having more than 80% in urban area

Variation across districts within rural areas is similar to the variation with in urban areas

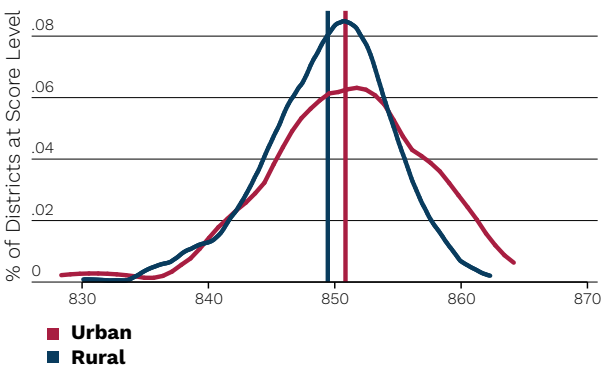
10

Distribution of Grade 4 Reading Scores (2018) a



Source: Authors' calculations based on data from the Minnesota Department of Education; urban school districts defined as having more than 80% in urban area

Distribution of Grade 8 Math Scores (2018) b



Source: Authors' calculations based on data from the Minnesota Department of Education; urban school districts defined as having more than 80% in urban area

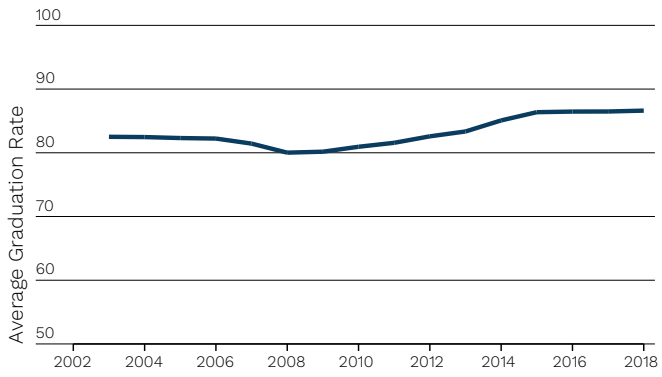
3.2 | Graduation Rates

Minnesota's high school graduation rate has gradually increased from 82.5 percent in 2003 to 86 percent in 2017, as measured by the percentage of students who complete high school in four years, according to data from the MDE (Figure 11).

Minnesota's graduation rates have been gradually increasing

11

Graduation Rate



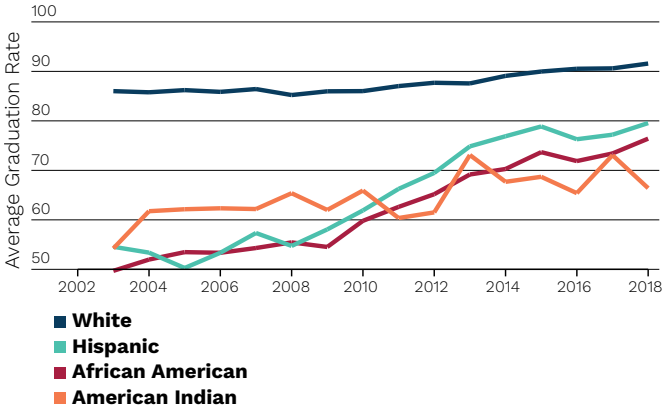
Source: Authors' calculations based on data from the Minnesota Department of Education

RACIAL DISPARITIES IN GRADUATION RATES. In contrast to the persistence of racial gaps in test scores, gaps in graduation rates have been reduced over time. Panel (a) of Figure 12 shows that the white-black gap has decreased from 35 percentage points in 2003 to about 14 percentage points in 2018. There was a similar decline for Hispanic students, but a much smaller decrease for American Indian students. Despite these decreases, racial gaps are still large. The 2018 cross-sectional distribution of graduation rates across schools depicted in panel (b) shows that average graduation rates are lower in schools with a larger proportion of minority students.

Graduation rate gaps by race have gradually decreased but remain wide

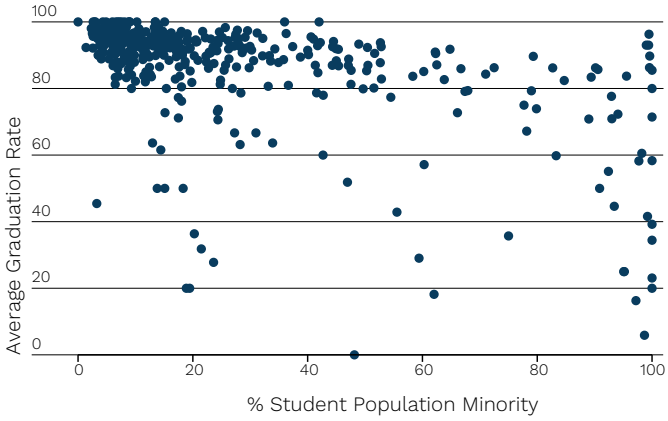
12

Graduation Rate by Race a



Source: Authors' calculations based on data from the Minnesota Department of Education

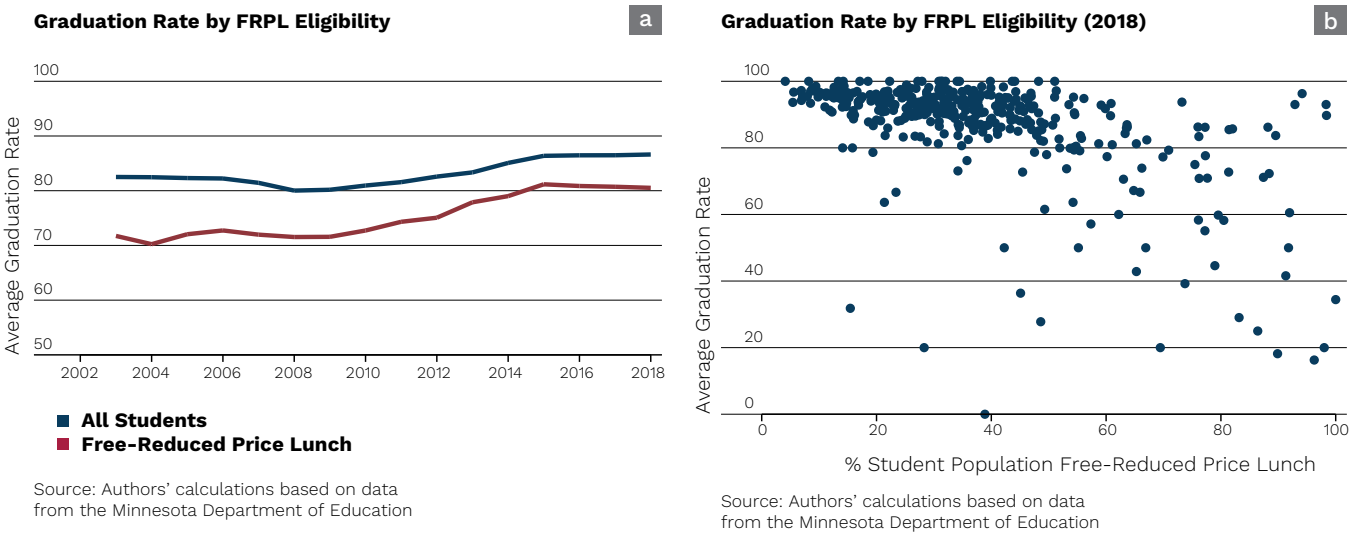
Graduation Rate by % Minority Students (2018) b



Source: Authors' calculations based on data from the Minnesota Department of Education

DISPARITIES ACROSS STUDENTS WITH DIFFERENT SOCIOECONOMIC BACKGROUNDS. Patterns in graduation rate gaps by FRPL eligibility are similar to those by race. Panel (a) of Figure 13 shows that the graduation rate for FRPL-eligible students was 72 percent in 2003, about 11 percentage points lower than average. The difference in 2018 is close to 7 percentage points. Panel (b) shows the cross-sectional distribution across schools: Average 2018 graduation rates are significantly lower in schools with a higher proportion of students who are eligible for FRPL.

Graduation rate gaps by socioeconomic status have remained wide 13



Source: Authors' calculations based on data from the Minnesota Department of Education

Source: Authors' calculations based on data from the Minnesota Department of Education

URBAN-RURAL GAPS IN GRADUATION RATES. As previously defined, if more than 80 percent of its population is urban, according to the 2010 census, then a school district is characterized as an urban school district. Many of those urban school districts are in Greater Minnesota.

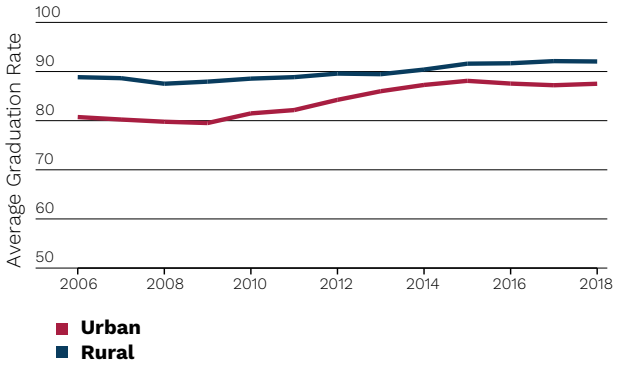
Graduation rates have been consistently higher in rural school districts compared with urban districts in Minnesota. Panel (a) of Figure 14 shows that between 2006 and 2018, the graduation rate increased from 87 percent to 92 percent for rural school districts in Minnesota and from 82 percent to 89.5 percent for urban school districts. However, panel (b) shows that the distribution of graduation rates across schools in urban districts is similar to the distribution in rural areas—both overall and for schools that have a majority of students eligible for FRPL. Panel (c) shows that the distributions for rural and urban areas look similar for each race category.

As we found with test scores, the urban-rural graduation rate gap in Minnesota is small compared with gaps across racial and income groups.

Rural graduation rates higher than urban over time, but gap has closed in recent years

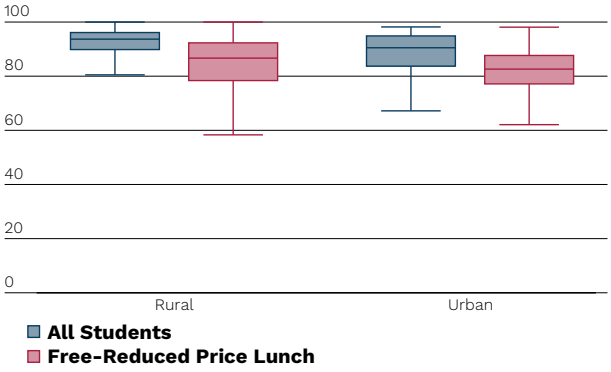
14

Graduation Rate by Urban and Rural School Districts a



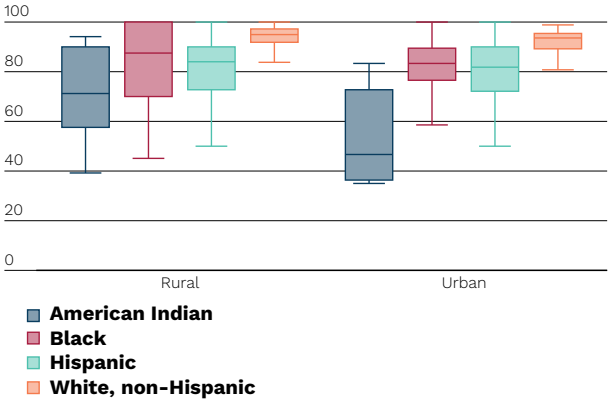
Source: Authors' calculations based on data from the Minnesota Department of Education; urban school districts defined as having more than 80% in urban area

Graduation Rate by FRPL Eligibility (2018) b



Source: Authors' calculations based on data from the Minnesota Department of Education; urban school districts defined as having more than 80% in urban area

Graduation Rate by Race (2018) c



Source: Authors' calculations based on data from the Minnesota Department of Education; urban school districts defined as having more than 80% in urban area

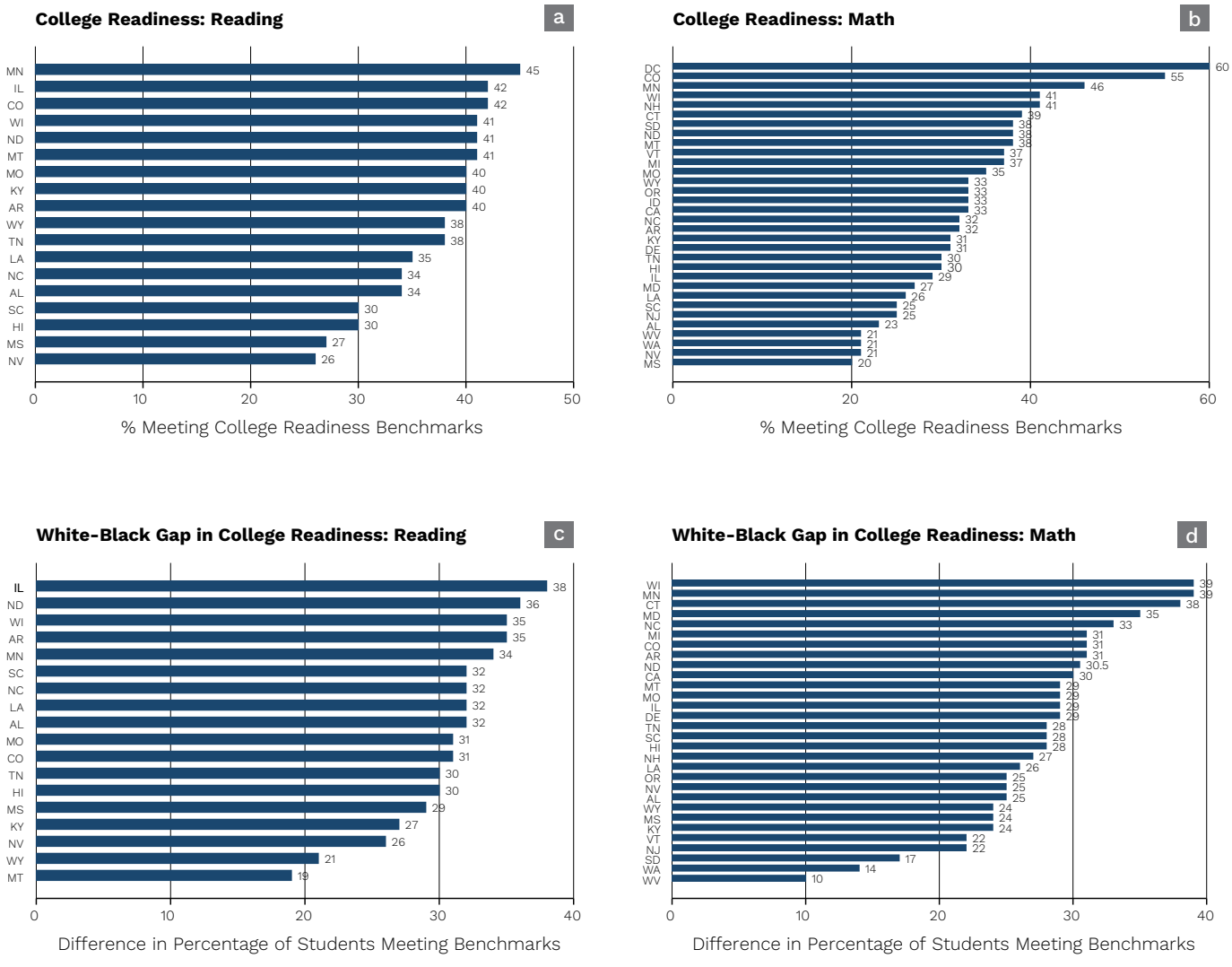
3.3 | College Readiness

College readiness measures are signals of a student's ability to successfully complete first-year math and English courses at postsecondary institutions. We use two measures of college readiness.

The first measure is based on high school assessments. It is calculated as the percentage of students who score at or above the college- and career-ready (CCR) threshold level on high school assessments (mainly on SAT or ACT tests). In Figure 15, an ACT composite score of 21 is the minimum threshold for college readiness. Panels (a) and (b) of Figure 15 show the distribution of students who meet college readiness benchmarks across states, as measured by ACT exam scores.[3] Minnesota has the highest proportion of students in the nation who meet the college readiness benchmarks for reading (45 percent) and is among the top three states for college readiness in math (46 percent).

Minnesota ranks high on college readiness assessments, but has one of the worst gaps by race and ethnicity

15



Although Minnesota, on average, does relatively well in preparing students for college and career, there are large disparities in outcomes across racial and income groups. In Figure 15, panels (c)-(f) show that Minnesota has among the largest college readiness gaps by race and ethnicity.

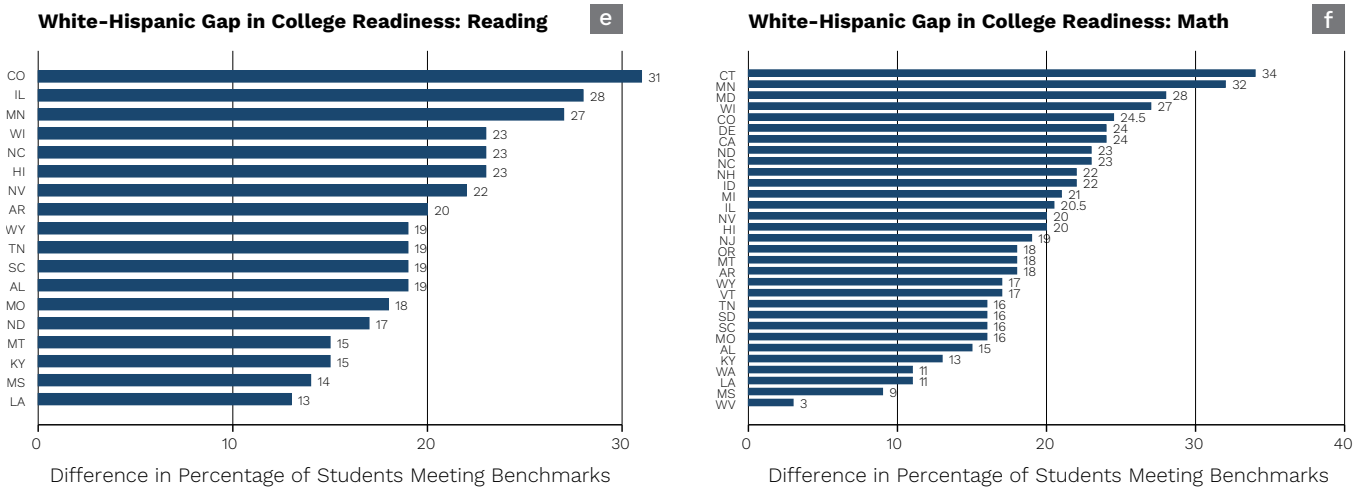


Figure 16 plots the percentage of students meeting the college readiness threshold. In contrast to Figure 15, here the threshold is a composite score of 20 and is based on data from ACT Research. Panel (a) shows that the percentage of students meeting this threshold decreased from 2014 to 2018 across race and ethnicity.

Among whites, the percentage of students meeting the threshold decreased from 81 percent to 69 percent, for Hispanics 49 percent to 26 percent, American Indians 52 percent to 28 percent, and African Americans 32 percent to 25 percent. The college readiness indicator for Asian students remained relatively steady.

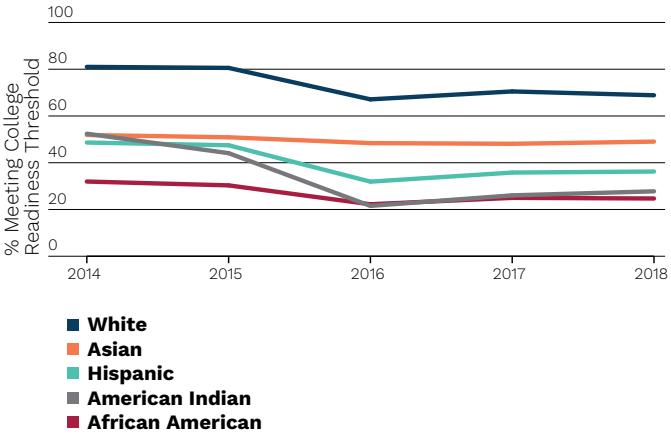
There are also large gaps in college readiness across income groups, which have substantially widened from 2014 to 2018 (panel (b) of Figure 16). For students with household income greater than $100k, 87 percent met the threshold in 2014, dropping to 83 percent in 2018. For students with household income less than $36,000, 51 percent met the threshold in 2014, dropping to 36 percent in 2018.

3 See ACT Research (https://www.act.org/content/act/en/research/services-and-resources/data-and-visualization.html) and Achieve Inc. (https://eric.ed.gov/?id=ED582094).

Fewer students prepared for college over time and gaps across race and income larger

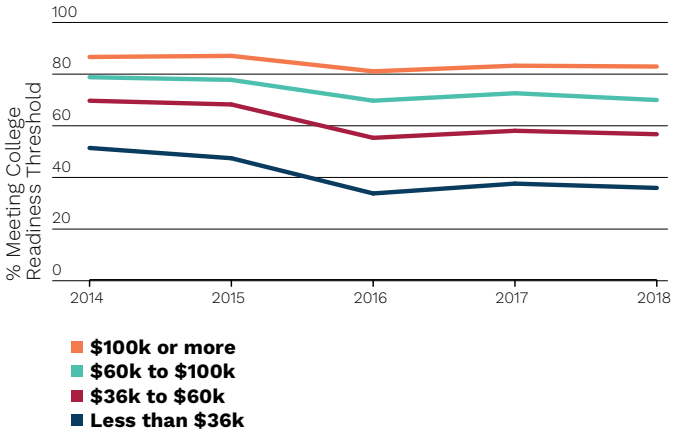
16

College Readiness by Race a



Source: ACT Research

College Readiness by Income b



Source: ACT Research

The second measure of college readiness shows whether college-enrolled students take remedial or developmental courses. "Developmental education" refers to programs offered by postsecondary institutions to prepare students for success in college courses,[4] often revisiting content that was taught in high school. College readiness gaps are also large using this measure.

According to the Minnesota Office of Higher Education, in 2014, 49 percent of African American college students enrolled in developmental education, while only 19 percent of whites enrolled. The corresponding figures for Hispanics, Asians, and American Indians were 40 percent, 36 percent, and 30 percent, respectively. There is also a large gap by socioeconomic status: 36 percent of FRPL students enrolled in a developmental course compared with 17 percent of non-FRPL students.

The fact that the graduation rates recently have been increasing while college readiness indicators have declined demonstrates that Minnesota is graduating an increasing proportion of students who are unprepared for college.

4 See the 2014 *Getting Prepared* report based on data from Minnesota Statewide Longitudinal Education Data Systems (http://www.ohe.state.mn.us/pdf/GettingPrepared2014.pdf).

4 | Learning from Success Stories

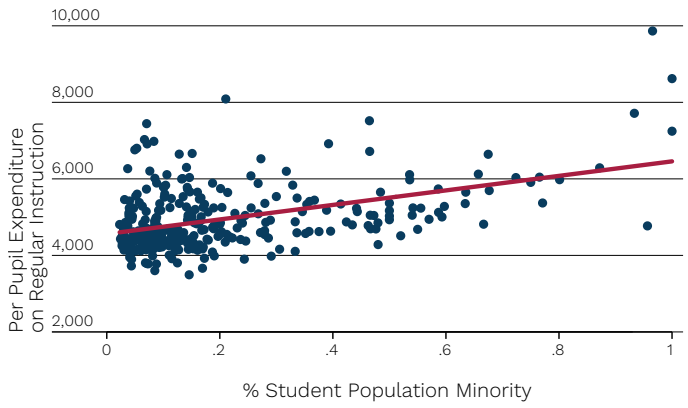
There are lessons to be learned from innovations in other states and cities to improve outcomes for all students and close achievement gaps.

As stated earlier, when it comes to inputs, Minnesota has done well to provide more equal access across school districts. Figure 17 shows the distribution of inputs across schools and school districts. Panels (a) and (b) show per pupil expenditure on regular instruction across school districts in Minnesota. We use instruction expenditure instead of total expenditure because the former captures the value of inputs going directly into classroom teaching. Per pupil instruction expenditure increases as the proportion of children from minority groups increases. Similarly, per pupil instruction expenditure increases as the proportion of students who qualify for FRPL increases. In panels (c) and (d), we see that in schools with a higher share of minority or FRPL students, the student-teacher ratio is slightly smaller. On the one hand, Minnesota has been successful in ensuring equity in per pupil instruction expenditure and class size. On the other hand, in panels (e) and (f), we see that schools with a higher proportion of minority or FRPL-eligible students have less experienced teachers.

Minnesota has equalized funding and class size by race and income, but not teacher experience

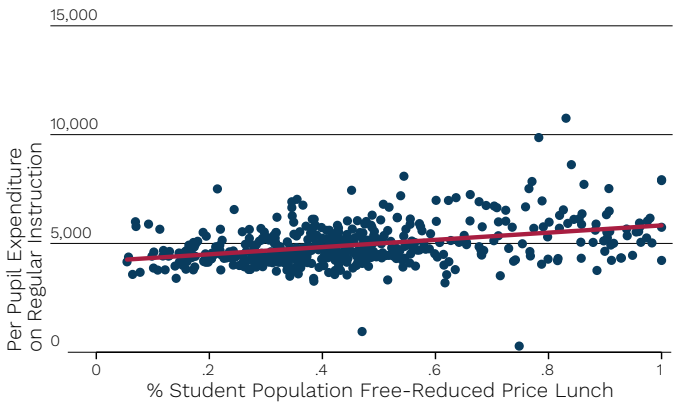
17

Per Pupil Regular Instruction Expenditures (2017) a

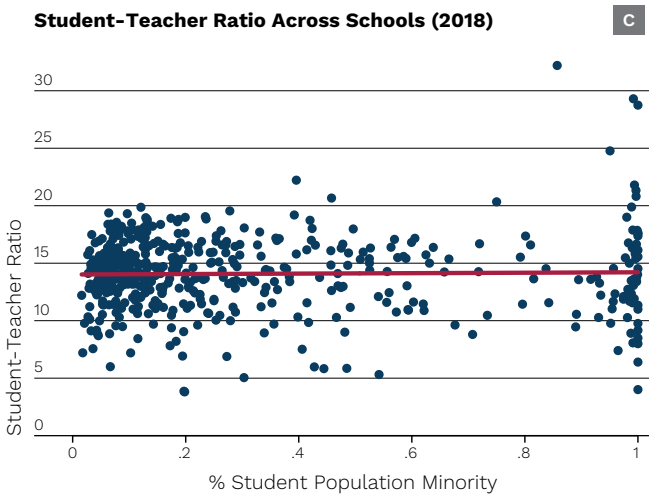


Source: Authors' calculations based on data from the Minnesota Department of Education

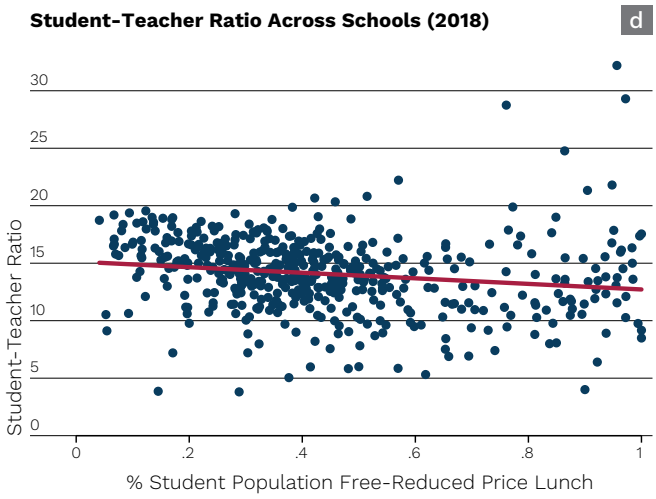
Per Pupil Regular Instruction Expenditures (2017) b



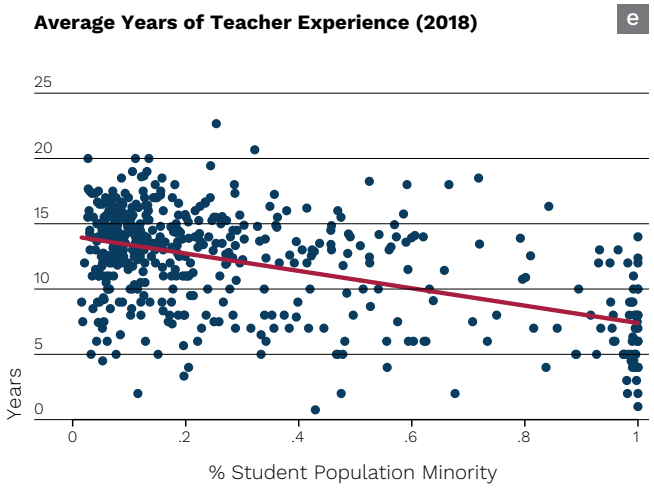
Source: Authors' calculations based on data from the Minnesota Department of Education



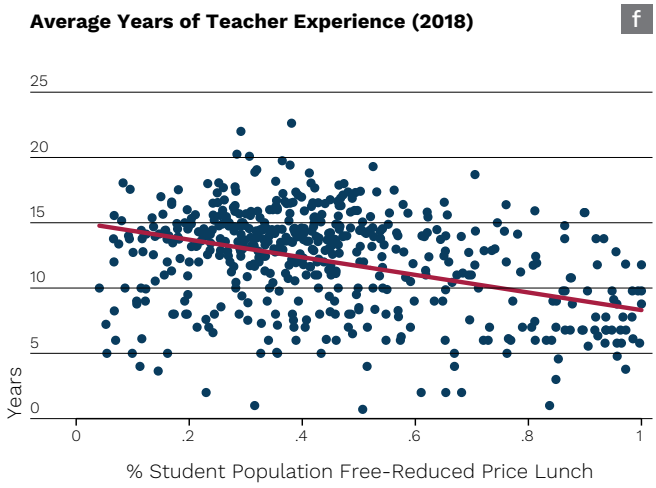
Source: Authors' calculations based on data from the Minnesota Department of Education



Source: Author's calculations based on data from the Minnesota Department of Education



Source: Authors' calculations based on data from the Minnesota Department of Education



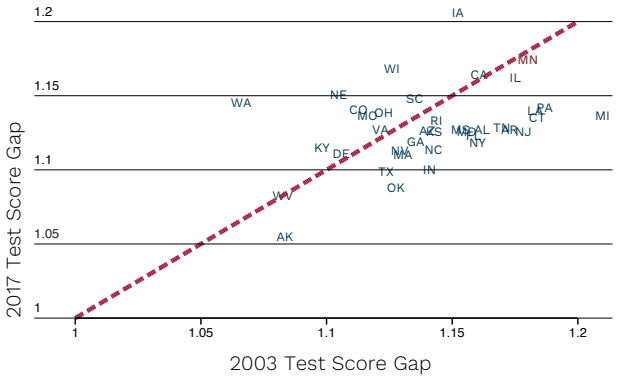
Source: Authors' calculations based on data from the Minnesota Department of Education

Despite several reforms and equalizing funding and class sizes, not only has Minnesota failed to reduce gaps in education outcomes, it has among the worst track records in the nation. Here we examine where Minnesota ranks among states in closing achievement gaps and identify states that have shown signs of closing them. Panel (a) of Figure 18 shows the ratio of white-black students' Grade 4 reading scores on the NAEP in 2003 (x-axis) and 2017 (y-axis). States below the red 45-degree line have closed gaps from 2003 to 2017, while gaps widened for states above the 45-degree line during the same time period. For both 2003 and 2017, Minnesota had some of the widest gaps in the country. Since Minnesota is close to the 45-degree line, gaps have not changed much over this time period. Similarly, for Grade 8 math scores in panel (b), Minnesota had the second-largest gap in both 2003 and 2017.[5]

Minnesota ranks high in achievement gap levels and persistence

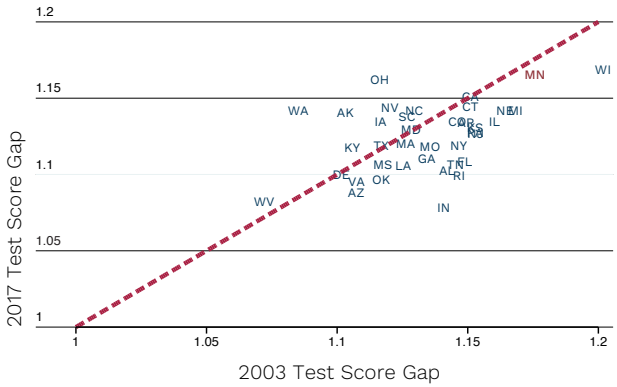
18

Grade 4 Reading Score Gap - White-Black a



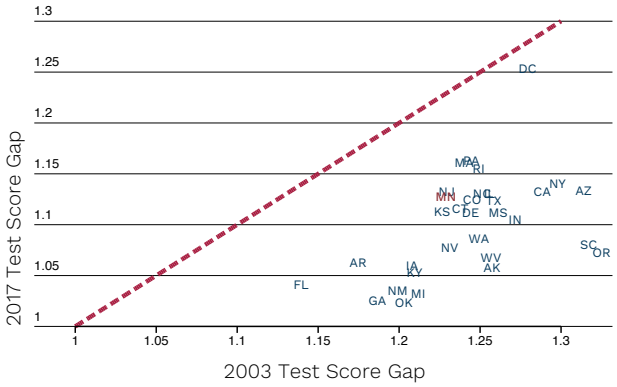
Source: Authors' calculations based on data from the National Center for Education Statistics

Grade 8 Math Score Gap - White-Black b



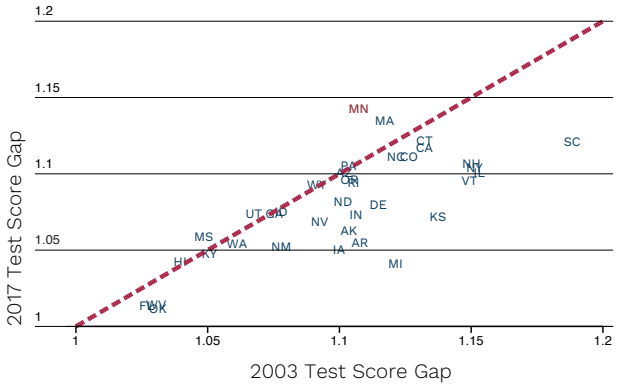
Source: Authors' calculations based on data from the National Center for Education Statistics

Grade 4 Reading Score Gap - White-Hispanic c



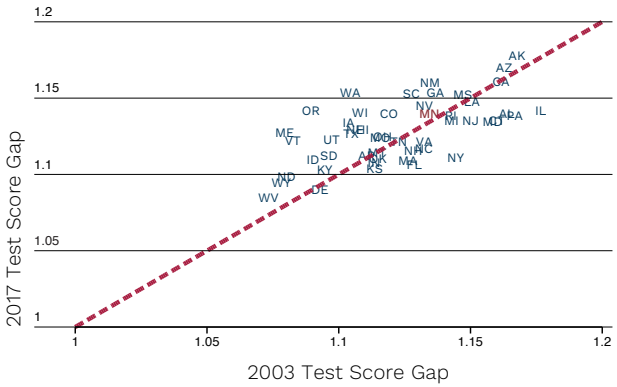
Source: Authors' calculations based on data from the National Center for Education Statistics

Grade 8 Math Score Gap - White-Hispanic d



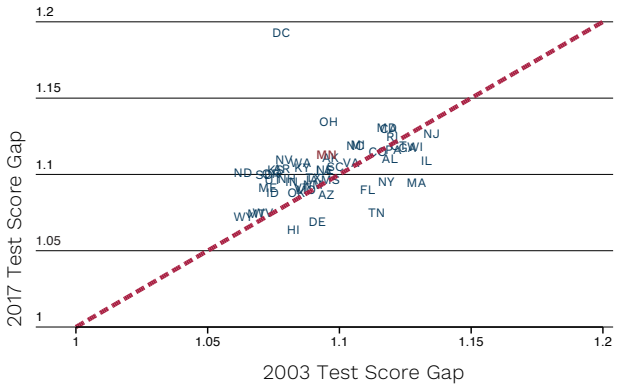
Source: Authors' calculations based on data from the National Center for Education Statistics

Grade 4 Reading Score Gap - Non-FRPL-FRPL e



Source: Authors' calculations based on data from the National Center for Education Statistics

Grade 8 Math Score Gap - Non-FRPL-FRPL f



Source: Authors' calculations based on data from the National Center for Education Statistics

Meanwhile, Indiana stands out from other states in closing white-black achievement gaps for both Grade 4 reading and Grade 8 math between 2003 and 2017 and had some of the smallest gaps in 2017. In addition, Oklahoma made progress in closing white-black achievement gaps and had relatively small gaps in 2017, while West Virginia posted relatively small gaps in both 2003 and 2017.

All states showed signs of closing the white-Hispanic achievement gap for Grade 4 reading scores between 2003 and 2017 (Figure 18, panel (c)), while a number of states made some progress in closing the white-Hispanic achievement gap for Grade 8 math scores (panel (d)). However, in Minnesota, the white-Hispanic achievement gap increased for Grade 8 math scores and the state had among the highest achievement gaps in 2017. Florida, Oklahoma, and Michigan were among states that showed signs of reducing white-Hispanic achievement gaps and also had relatively small gaps in 2017.

Across most states, the achievement gap between students who qualify for FRPL and students who don't qualify has remained relatively steady from 2013 to 2017, including in Minnesota (panels (e) and (f)). In 2017, Minnesota was among the states with the largest achievement gaps, while Wyoming, West Virginia, and Delaware had some of the smallest achievement gaps on this measure in both 2003 and 2017.

Figure 18 shows that throughout the country, many states struggle with persistent education achievement gaps based on race, ethnicity, and socioeconomic status. At the same time, the data indicate some states have shown signs of closing these gaps, even though no state has fully closed them.

In the rest of this section, we review initiatives at the state, school district, and school levels that serve as examples of success in boosting outcomes for children from minority groups or low-income families. We are not intending to endorse specific solutions, but rather to highlight that achievement gaps are not a given. They can be reduced or closed.

5 State NEAP scores are based on a sample of schools and students. Therefore, state-level values are estimates. See the NAEP website for information on standard errors (https://nces.ed.gov/nationsreportcard/). Figure 18 does not include standard error estimates.

4.1 | Taking Bold Steps: New Orleans

In October 2003, Louisiana passed a state constitutional amendment that led to the establishment of the Recovery School District (RSD), which allows the state to take over failing schools, as determined by test scores and other performance measures. In the first year after the amendment, 17 schools statewide were deemed eligible for takeover; 16 of these were in New Orleans. At the end of the 2004-05 school year, more than 63 percent of the public schools in New Orleans had been deemed likely eligible for takeover in subsequent years. In August 2005, the destruction caused by Hurricane Katrina created the context to place the majority of public schools in New Orleans under the administration of the RSD. A special session of the Louisiana legislature redefined performance thresholds by which schools and districts were identified as failing. As a result, 114 low-performing Orleans Parish School Board (OPSB) schools were placed in the state-run RSD, which was charged with operating the schools for an initial period of five years.

The OPSB retained control of only 17 of the schools (out of 131) it operated before Katrina. The RSD takeovers resulted in each of the existing public schools, including its facilities and staff, coming under charter management. Importantly, these takeovers guaranteed seats for incumbent students, "grandfathering" them into the new school.

Abdulkadiroglu et al. (2016) evaluate the causal effects of the RSD on students' achievement using an instrumental variables strategy that exploits the grandfathering provisions used initially to fill takeover seats. They conclude that the school takeovers in the RSD appear to have generated substantial achievement gains for a highly disadvantaged student population. The takeover effects were larger in Grade 7 and Grade 8 compared with earlier grades and were larger in the first two years of the takeover than in later years

Harris and Larsen (2016) also found significant results. They compare outcomes before and after Hurricane Katrina and reforms in New Orleans with data from a matched comparison group that experienced hurricane damage but not the school reforms. The study finds a large positive cumulative effect over time on achievement, where achievement is measured with a scale score that incorporates English language arts, math, science, and social studies.

4.2 | Involve and Improve: New York and Boston

Harlem Children's Zone (HCZ) is a 97-block area in Harlem that offers a number of "community" and "school" programs. Community programs are available to anyone living near HCZ, while school-related services are provided to the students who attend the Promise Academy charter schools. The Promise Academy schools began in the fall of 2004 with the opening of the Promise Academy elementary and middle schools. In 2005, the Promise Academy II elementary school opened.

The Promise Academy has an extended school day and year, with after-school tutoring and additional classes on Saturdays for children who need remediation in math and English skills. It

emphasizes the recruitment and retention of high-quality teachers and uses a test-score value-added measure to offer incentives to and evaluate current teachers. Teachers are evaluated annually and are provided support so that their time is spent teaching and not doing administrative tasks.

The Promise Academy is similar to other No Excuses charter schools[6] with three exceptions: (1) the Promise Academy does not require parents or students to sign a behavioral contract, (2) the Promise Academy enrolls students at a younger age (3 years old), and (3) a wide range of additional services are available to HCZ students that are not available in other charter schools, including free medical, dental, and mental health services; student incentives for achievement; meals; and support for parents in the form of food baskets, meals, bus services, and the like.

Dobbie and Fryer (2011) show that students who enroll in the middle school gain about 0.2 standard deviations in math per year. Students in the Promise Academy elementary school gain approximately 0.2 standard deviations in both math and English language arts per year.

Dobbie and Fryer (2013) show on the one hand that traditionally collected input measures—class size, per pupil expenditure, teacher certification, and teacher training—are not correlated with school effectiveness. On the other hand, an index of five policies suggested by qualitative research—frequent teacher feedback, the use of data to guide instruction, high-dosage tutoring, increased instructional time, and high expectations—explains approximately 45 percent of the variation in school effectiveness.

Six years after being selected through a lottery to enroll, Promise Academy middle school students scored 0.28 standard deviations higher on academic achievement outcomes and 0.31 standard deviations higher on a measure of on-time benchmarks.[7] Moreover, females are 10.1 percentage points less likely to be pregnant as teenagers, and males are 4.4 percentage points less likely to be incarcerated.

While the HCZ program focuses on both school and community interventions, Boston College's City Connects program focuses on providing comprehensive support services that assess individual elementary school students' academic, social/emotional, family, and health needs, and connects them to relevant community-based services. The program assists schools by connecting them with community agencies and service providers, and streamlining student referral and case management.

A recent report suggests that children who attended City Connects through Grade 5 closed half of the achievement gap in English and two-thirds of the achievement gap in math by Grade 8 relative to the Massachusetts state average. After controlling for school and student characteristics

6 The No Excuses school model focuses on reading and math achievement, enforces high behavioral expectations through a formal discipline system, and increases instruction time relative to traditional public schools. Teachers receive more feedback about their teaching compared with peers in traditional schools and regularly use data from student assessments to modify instruction. Moreover, school days and school years are typically longer than those in traditional public schools (Dobbie and Fryer 2013).

7 The on-time benchmarks index constructed by the authors consists of two variables: whether a student graduated from high school in four years and whether he or she enrolled in college immediately after graduation.

and pre-existing academic achievement differences, students who attended a City Connects elementary school outperformed peers on Grade 6 to Grade 8 achievement tests, with effect sizes ranging from 0.29 to 0.67.[8] In addition, children who attended a City Connects school had lower high school dropout rates compared with children who did not attend a City Connects school, adjusting for child and family background characteristics.

4.3 | Lessons from High-Performing Disadvantaged School Districts

A recent report by the Program Evaluation Division of the North Carolina General Assembly[9] uses a nationwide database to identify high-performing school districts that predominately serve disadvantaged students. Across more than 11,000 school districts with complete achievement and socioeconomic data in the Stanford Education Data Archive, the report identifies 18 percent as districts serving predominately disadvantaged students based on districts that are in the top quartile of FRPL eligibility and in the bottom quartile of a composite measure of socioeconomic status. Of these almost 2,000 schools, only 94 performed at grade level or better over a seven-year period (2009-15) between Grade 3 and Grade 8 on math and English language arts achievement tests.

These findings are further evidence that schools with disadvantaged students struggle to attain high performance. The report also looks closely at the high-performing disadvantaged districts to learn what characteristics they share. First, on average high-performing disadvantaged districts outperform other disadvantaged districts by Grade 3. After Grade 3, the high-performing districts maintain their advantage with similar growth rates in improvement as lower-performing disadvantaged districts.

Second, the authors conducted case studies of 12 of the high-performing disadvantaged districts to learn more about their common features. Consistent with relatively strong Grade 3 achievement, all of the districts prioritized providing early education. The high-performing districts also focused on increasing or maximizing student learning time; attracting, developing, and retaining high-quality teachers; using data and coaching to improve instruction; seeking additional outside resources, and promoting a local school board focus on policy and academic achievement.

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8 See *The Impact of City Connects: Student Outcomes, Progress Report 2016* (https://www.bc.edu/content/dam/files/schools/lsoe/cityconnects/pdf/City%20Connects%20Progress%20Report%202016.pdf).

9 See *North Carolina Should Focus on Early Childhood Learning in Order to Raise Achievement in Predominantly Disadvantaged School Districts*, Final Report to the Joint Legislative Program Evaluation Oversight Committee, May 2019 (https://www.ncleg.net/PED/Reports/documents/Disadvantaged_Schools/DisadvantagedSchools_Report.pdf).

4.4 | Common Themes

A few common themes emerge across these successful school districts and schools. First, schools are given greater autonomy. In New Orleans, the schools under the OPSB were replaced with independent schools that were directly accountable to the state's RSD. In New York, the Promise Academy was given autonomy in implementing its own community and school programs. The report on high-achieving disadvantaged districts finds that school principals were given autonomy to lead, which helped attract, develop, and retain high-quality teachers.

Second, there is a focus on school quality. Research on the Promise Academy demonstrated that flexibility in teacher recruitment and retention combined with improvements in pedagogical methods led to better outcomes. A common theme in the high-performing disadvantaged districts study is a focus on school quality, including maximizing student learning time and using data and coaching to improve instruction.

Third, support services for students and their families correlate with enhanced education outcomes. Students in the Boston Connects program receive individualized services that are associated with gains in achievement test scores and reductions in dropout rates. Meanwhile, providing a variety of student and family supports is a key strategy to advancing student outcomes in the Harlem Children's Zone.

These examples indicate that closing achievement gaps is challenging, but possible.

5 | Conclusion

This report highlights the extent of education achievement gaps in Minnesota. Cross-sectional and time-series patterns are examined for three main outcomes—performance on standardized test scores, graduation rates, and indicators of college readiness. The focus is on documenting disparities across racial groups, students of different socioeconomic backgrounds, types of schools, and urban and rural school districts. However, this report does not identify the underlying causes of these achievement gaps across demographic and socioeconomic groups.

AGAIN, THE FOLLOWING PATTERNS ARE HIGHLIGHTED.

- On average, Minnesota performs well compared with all other states on standardized test scores, graduation rates, and college readiness. However, it has some of the largest gaps in the nation on these measures by race and socioeconomic status.
- Racial and income gaps in standardized test scores and college readiness have increased over time, while gaps in graduation rates have decreased.
- Even as graduation rates overall have increased in recent years, college readiness indicators have declined. This demonstrates that Minnesota is graduating an increasing proportion of students who are unprepared for college.
- On average, there is no gap between urban and rural school districts on standardized test scores and graduation rates in recent years. However, there is a large variation achievement gaps across schools within rural districts and across schools within urban districts.
- These gaps are not only racial; low-income white students significantly trail higher-income white students across Minnesota.
- Variation in outcome gaps across schools also exist within the charter school system and across schools within traditional public school districts.
- Minnesota has successfully reduced variation in education inputs, such as per capita expenditures across districts and class sizes across schools. However, achievement gaps across race and socioeconomic status have persisted for decades.

In addition to these patterns, this report provides examples of success within K-12 schools for improving outcomes for minority and low-income students. The main takeaway from these examples is that achievement gaps are not a given. They can be reduced or closed.

Policymakers and practitioners can use the analysis in this report to motivate discussion about how to address these persistent achievement gaps. Minnesota has failed to close achievement gaps for decades, but there is hope that the state can break this trend and provide an education that works for all Minnesota students.

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