

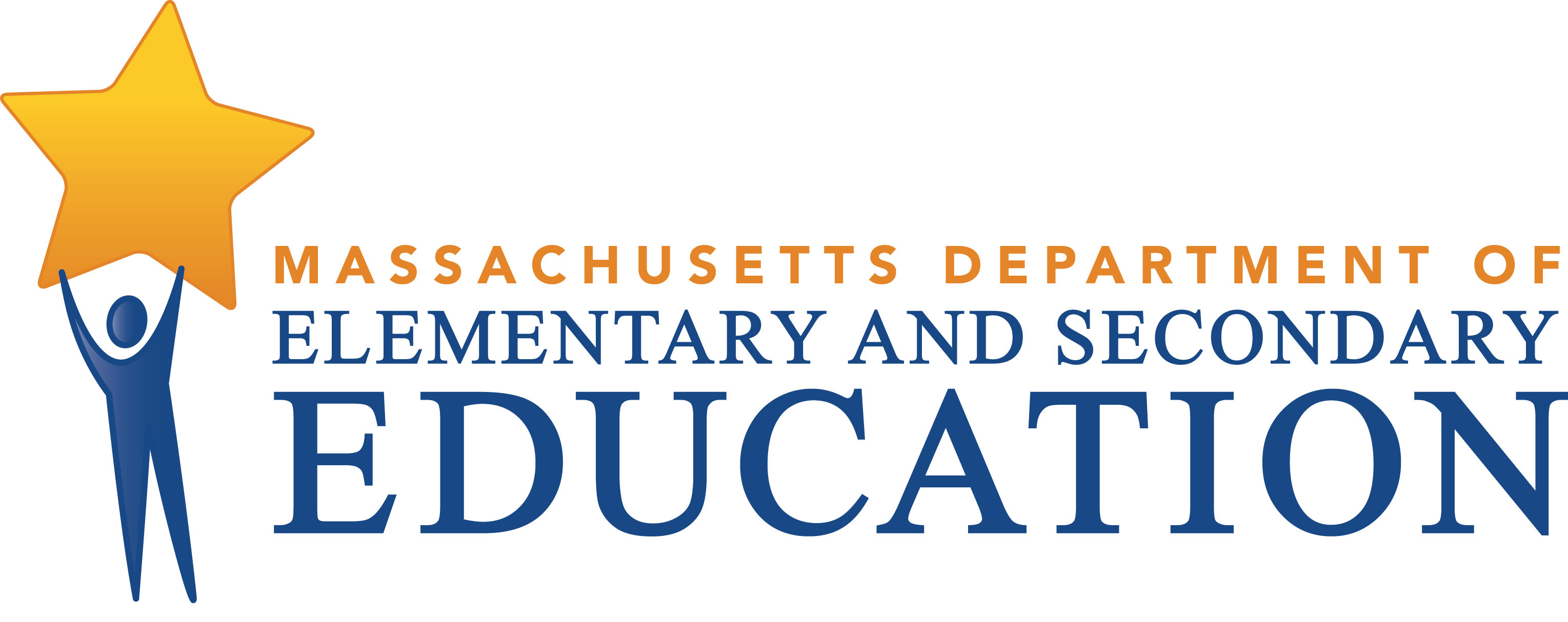
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# Exploring MA Special Education Data

Given the magnitude of special education services, policymakers and practitioners benefit from access to high quality data with which to monitor enrollment, programmatic, and fiscal trends to assess the effectiveness and efficiency of their special education services. The Massachusetts Department of Elementary and Secondary Education developed a [Resource Allocation and District Action Report](http://www.doe.mass.edu/research/radar/) (RADAR) for special education to provide districts new perspectives on their local services. This policy brief explores data from RADAR and other state data to assess the current state of special education services and practices in Massachusetts and examine longer-term trends. It provides context for local analyses by showing how services across the state are similar and different, how they have changed over time, and where they may be headed in the future.

This brief examines the following questions about special education in Massachusetts:

* How does special education in Massachusetts compare to the U.S.?
* How do school districts with higher percentages of students with disabilities differ from those with lower percentages?
* How do school districts differ in the academic achievement of students with disabilities?
* How do school districts with higher rates of inclusion differ from those with lower inclusion rates? How do differing inclusion rates impact special education services and achievement?
* How does special education staffing vary among school districts? How has staffing changed over time?
* How has spending on special education services changed over time?



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**Key Findings about Special Education in Massachusetts**

**How does special education in Massachusetts compare to the rest of the nation?**

* Massachusetts has one of the highest rates of identifying students for special education services in the nation, nearly 37 percent higher than the national average in 2017-18.
* The percentage of students with disabilities placed in inclusion settings increased in both Massachusetts and the nation as a whole.
* A significantly larger share of all special education staff in Massachusetts were paraprofessionals compared to the rest of the nation, and the state had a smaller share of special education teachers.
* Students with and without disabilities in Massachusetts outperform the nation on the National Assessment of Education Progress (NAEP) math and reading assessments. However, both Massachusetts and the nation experienced large achievement gaps between students with and without disabilities. These gaps continued to grow over time.

**How do special education policies and practices regarding enrollment and placement, staffing, and placement trajectories differ across Massachusetts’ districts?**

* The percentage of students with disabilities in Massachusetts gradually increased between 2012 and 2019. Percentages varied significantly across the state’s school districts.
* Across all districts, a higher percentage of students with disabilities was correlated with more economically disadvantaged students.
* Districts placed more students with disabilities in inclusion settings over time.However,the percentage of students with disabilities in districts was not affected by placement settings.
* Districts with smaller enrollments and elementary districts tended to have higher rates of students with disabilities placed in inclusion settings.
* Students with disabilities served in districts with higher inclusion rates had higher proficiency rates on the MCAS math assessment and were more likely to no longer require special education services within a four-year period.
* Districts with larger enrollments and higher concentrations of economically disadvantaged students typically had fewer special education staff in proportion to their number of students with disabilities.
* The number and type of special education staff were correlated with districts’ inclusion rates. However, a district’s placement decisions did not appear to influence the number of special education teachers or paraprofessionals in a district.

**How have expenditures for students with disabilities changed over time?**

* Between 2012 and 2018, total district expenditures per pupil increased by 21.0 percent while special education expenditures per student with disabilities increased by 25.7 percent. We found no statistically significant relationship between special education practices, such as using more paraprofessionals, and per student expenditures.

This policy brief consists of three sections. The first section presents trends over the past decade for both Massachusetts and the nation for several key special education indicators including enrollment, placement, staffing, and student outcomes. The second provides a brief overview of RADAR data and presents examples of how RADAR data, along with other state data, may be used to analyze statewide trends and differences among school districts in the rate at which students are identified for special education services, the academic achievement of students with disabilities, student placements, special education staffing, and spending for special education services. The final section provides a brief overview of special education data pertaining to regional vocational technical districts.

## How does special education in Massachusetts compare to the nation?

This section presents data for the U.S.[[1]](#footnote-1) and Massachusetts on trends in the number of students receiving special education services, student placement, staffing, and achievement.

### Massachusetts has a higher percentage of students with disabilities than most other states.

Key factors driving the total number of students receiving special education services are the rate at which students are identified and enrolled for services, and the length of time they continue to receive services. U.S. Department of Education (USDOE) data show that the percentage of students ages six to 21 with disabilities nationally was 12.2 percent in 2017-18. In comparison, the percentage of students ages six to 21 with disabilities in Massachusetts was 16.7 percent—4.5 percentage points higher than the national average, or a nearly 37 percent difference in the number of students receiving services. As Figure 1 shows, the percentages of students identified for special education services in Massachusetts and the nation remained consistent over most of the past decade with a slight uptick in 2018.

**Figure 1. Special Education Enrollment of Students Ages 6-21 as Percent of Total Enrollment**

### The educational placements to which students are assigned have changed over time.

IDEA requires students with disabilities to be placed in the least restrictive environment appropriate to their individual needs. Student placements range from what may be described generally as inclusion in the general education classroom for all or part of the school day; to separate specialized classrooms; to specialized day or residential schools. The trend over time has been to serve more students, regardless of disability, in the general education classroom. Nationally, the percentage of students served primarily in the general education classroom, defined as spending 80 percent or more of the school day there, increased from 58.0 percent in 2009 to 63.4 percent in 2018 for students ages six to 21. Massachusetts experienced a similar increase in the rate of inclusion, from 56.4 percent in 2009 to 63.8 percent in 2018. Figure 2 shows that Massachusetts’ trajectory over this period rose from including fewer students than the national average between 2009 and 2015 to equaling and then exceeding the national average between 2016 and 2018.

**Figure 2. Students with Disabilities Age 6 to 21 Included**

**in General Education Classroom 80% of the Time or More**

Over the same time period, Massachusetts districts reduced the proportion of students placed in partial inclusion settings (in the general education classroom for between 40 percent and 79 percent of the school day) from 20.9 percent to 15.0 percent. Students with disabilities in substantially separate classrooms decreased from 15.2 percent to 13.4 percent. The national percentage of students served in these two settings also declined, but at a lesser rate than in Massachusetts.

### The number of special education staff per number of students with disabilities in Massachusetts was somewhat higher than the national average. The state employs a larger proportion of paraprofessionals and fewer teachers than the nation.

For this analysis, we used a USDOE special education staff data collection for all 50 states. These staff are categorized according to 13 different positions, which have been condensed for this analysis to Teachers, Paraprofessionals, and Other Staff.[[2]](#footnote-2) In 2008, the state had a slightly higher student-to-staff ratio than the nation, 6.0 students per staff person in Massachusetts compared to 5.6 nationally. In each of the following years, Massachusetts’ student to staff ratio was lower than other states; it had somewhat fewer students with disabilities per special education staff person, or proportionally more staff. By 2017, the state’s student-to-staff ratio was 5.2 students with disabilities per special education staff person compared to 5.8 nationally.

Compared to the nation, paraprofessionals in Massachusetts comprised a higher proportion of total special education staff and teachers a smaller proportion. In 2008, on average, states employed roughly the same percentage of special education teachers and paraprofessionals. Massachusetts, on the other hand, employed nearly twice as many paraprofessionals as teachers. Figures 3 and 4 show how staffing in the U. S. and Massachusetts changed over time. Between 2008 and 2017, the composition of special education staff in both Massachusetts and the nation experienced a reduction in the proportion of special education teachers and other staff along with a corresponding increase in the proportion of paraprofessionals. During this same period, the number of students with disabilities per special education staff person fell below the national average (the state had proportionally more staff).

**Figure 3. U.S. Special Education Staff**

**Figure 4. Massachusetts Special Education Staff**

### Massachusetts’ students with disabilities outperform the nation in reading and math. Both Massachusetts and the nation had large achievement gaps between students with and without disabilities—and the gaps are growing.

The National Assessment of Educational Progress (NAEP) is an assessment administered to a representative sample of students in grades 4, 8, and 12 across the country that allows for a comparison of student achievement across states. Students with and without disabilities in Massachusetts consistently perform better in math and reading on NAEP than the majority of other states. However, the state and the nation had large achievement gaps in both subjects between students with and without disabilities.

In math, Massachusetts’ achievement gaps between students with and without disabilities in fourth and eighth grades were significantly larger than the national average. In 2009, the percentage of Massachusetts’ fourth grade students with disabilities proficient or higher on the NAEP math assessment was 33.0 percentage points lower than the percentage of students without disabilities, while nationally the gap was 23.0 percentage points. The gap for eighth grade students in Massachusetts was 42.0 percentage points compared to 28.0 percentage points nationally. By 2019, the gaps in Massachusetts had increased to 37.0 percentage points for fourth grade and 43.0 percentage points for eighth grade. Nationally, the gap increased to 30.0 percentage points for both fourth and eighth grades by 2019.

In Massachusetts, the gap in 2009 NAEP reading scores of proficient or higher between fourth grade students with and without disabilities was 36.0 percentage points compared to 23.0 percentage points nationally. For eighth grade, the gap in Massachusetts was 33.0 percentage points compared to 27.0 percentage points nationally. In 2019 the reading achievement gaps in both Massachusetts and the nation increased. The fourth-grade gap in Massachusetts increased by only one percentage point, while nationally the gap increased by 5.0 percentage points. For eighth grade, the gap in Massachusetts increased by 7.0 percentage points while the gap nationally increased by 3.0 percentage points.

A similar disparity in achievement was found between students with and without disabilities in the results of the Massachusetts Comprehensive Assessment System (MCAS). On the 2018 MCAS, 47.7 percent of all Massachusetts students were proficient or higher in mathematics and 51.0 percent were proficient or higher in English Language Arts (ELA). In comparison, only 14.1 percent of students with disabilities were proficient or higher in math and 14.5 percent in ELA, resulting in achievement gaps of 33.6 points in math and 36.5 points in ELA.

One factor in the difference in performance on the MCAS between students with and without disabilities may be the number of students with disabilities taking the MCAS Alternative Assessment, or MCAS-Alt. The 7.8 percent of students with disabilities that took the MCAS-Alt were not considered proficient even if they met the highest MCAS-Alt scoring level of *Progressing*. These students had significant cognitive disabilities with individualized education programs that called for significant modifications to their learning standards and instructional approaches.

### RADAR and other special education data sets used in this brief

In 2017, DESE developed RADAR Special Education, initially making it available only to districts through its security portal. [RADAR Special Education](http://www.doe.mass.edu/research/radar/) includes *District Special Education Trends* (five- year trends for one selected district) and four reports that compare data for up to ten districts selected by users: *Special Education Enrollment and Placement*; *Special Education Staff*; *Students Identified for or Moved Off Services by Grade*; and *Four-Year Placement Trajectories by Initial Placement and Grade*. The enrollment and staffing reports show currently available data in visual and comparative reports, and the Identification and Placement Trajectory reports use datasets created by comparing student information data (SIMS) year over year. These latter two reports provide a window, though still very general, into how districts organize their special education services.

This brief provides statewide context for data in RADAR as well as other department data on special education performance and spending. The authors had access to detailed statewide data sets and conducted comparative statistical analyses across districts for the most recent data year, as well as trend analyses by looking at the following years: 2011-12, 2014-15, and 2018-19. (In the rest of the brief we will refer to these school years as 2012, 2015, and 2019.) While RADAR and other data sets include all districts, the analyses in this policy brief focus on 291 school districts: the 233 municipal districts and 58 academic regional districts.[[3]](#footnote-3) Of these, 208 are K-12 districts, 66 are elementary districts, and 17 are secondary districts. We include a brief summary of special education services in regional vocational districts at the end of the brief. Unless noted as “out-of-district placements”, the data are for students with disabilities, ages six to 21, who were being educated in-district. As noted in some reports, where applicable, groups of fewer than 6 students are not reported to protect student confidentiality.

To examine differences between districts with low and high percentages of students with disabilities, we identified districts that consistently enrolled a higher or lower percentage of students with disabilities over the three years included in the study.[[4]](#footnote-4) To be in one of these two groups, a district’s percentage of students with disabilities had to be at least one standard deviation higher or lower than the state average in all three years examined. Using this standard, we found 42 districts with a consistently high percentage of students with disabilities and 40 with a consistently low percentage. The consistently high percentage districts have somewhat larger enrollments, higher concentrations of economically disadvantaged students, and are more likely be located in an urban or rural setting than the low percentage districts.

## What do these data sets tell us about districts’ special education policies and practices in Massachusetts?

In this section we present examples of how RADAR Special Education and other data sets may be used to explore how the demographics of school districts and their policy and programmatic choices influence differences in key special education services characteristics such as the number of students with disabilities, student placement, staffing, expenditures, and academic achievement.

### The number and percentage of students receiving special education services continued to rise between 2012 and 2019, but varied considerably across school districts.

Massachusetts’ high overall percentage of students with disabilities masks wide variation among districts in the state, whose percentages of students with disabilities ranged from less than 10 percent to nearly 30 percent. A useful comparison is between districts that consistently had the lowest or highest percentages of students with disabilities in each of the three years of the study. The range for the districts with the lowest percentage of students with disabilities was 6.7 percent to 14.4 percent, while the highest percentage districts ranged from 21.2 percent to 29.9 percent. Table 1 summarizes changes in the percentages of students with disabilities across districts in the state between 2012 and 2019.

**Table 1. Percentages of Students with Disabilities**

|  | **2012** | **2015** | **2019** |
| --- | --- | --- | --- |
| **Mean** | 17.0% | 17.0% | 18.1% |
| **Minimum** | 4.4% | 2.5% | 6.7% |
| **Maximum** | 26.3% | 30.3% | 29.9% |
| **Range\*** | 21.8 | 27.8 | 23.2 |

*\*in percentage points*

### Across all districts, a higher percentage of students with disabilities was correlated with more economically disadvantaged students.

To examine which factors are associated with the large differences in the number of students with disabilities across districts, we used linear regression analysis to estimate the relationship between certain student and district characteristics and the percentage of students with disabilities. Our analysis found the factor with the greatest influence on this percentage is a district’s concentration of economically disadvantaged students.[[5]](#footnote-5) Our regression analysis found that a ten percentage point increase in the number of economically disadvantaged students corresponded to a 1.0 percentage point increase in a district’s percentage of students with disabilities. For example, a district with 30.0 percent of its students designated as economically disadvantaged and 12 percent as students with disabilities that had an increase of economically disadvantaged students to 40.0 percent would see its percentage of students with disabilities increase to 13.0 percent. Among the districts included in this analysis, the percentage of economically disadvantaged students ranged from 2.0 percent to 77.8 percent in 2019.

We also found the concentration of students from racial/ethnic minorities[[6]](#footnote-6) was associated with a small but statistically significant decrease in the percentage of students with disabilities. Controlling for poverty, a 10 percentage point increase in minority students was associated with a .25 percentage point decrease in a district’s percentage of students with disabilities. While this finding is for students from all minority groups, it masks wide variation among the groups. For example, Asian students had the lowest rate of eligibility for special education in 2019, with only 7.8 percent receiving services, far lower than the 18.1 percent average for all students. The eligibility rates for African American and Hispanic students, 20.7 percent and 20.6 percent respectively, were both above the average for all students. In comparison, the eligibility rate for white, non-Hispanic students was 16.5 percent.[[7]](#footnote-7)

Figure 5 shows that on average, the districts consistently serving high percentages of students with disabilities had higher concentrations of economically disadvantaged students than the average of all districts and more than twice that of the districts consistently serving low percentages. However, the high percentage districts also had lower concentrations of English learners (EL) than the state average. These districts did have significantly higher concentrations of ELs than districts serving low percentages of students with disabilities. The available data are not sufficient to provide a clear rationale for why high percentage districts tended to have fewer ELs, but one possibility is that a larger share of these districts is located in rural settings and may serve fewer EL students than urban and suburban districts.

**Figure 5. District Student Demographics by High and Low Percentages of Students with Disabilities**

### On average, districts placing a larger proportion of students into special education in grades 4 and 5 or exiting students in grades 6 to 8 have slightly fewer students receiving special education services compared to other districts.

RADAR Special Education data offers several data elements that enable analysts to gain insights into districts’ special education services that were not previously possible. One of these is the grade levels at which students are identified for or exited from special education services. This data element uses October Student Information Management System (SIMS) data to track individual students’ movement into or out of eligibility for special education services from year to year. A second data element provides four-year placement trajectories. This data element also uses SIMS data to track cohorts of students in a district that were receiving special education services in the first two years of a five-year period by initial placement. The placement of those students still in the district is recorded at the end of the period, providing counts of the number of students whose placement was unchanged, who changed placement, or who were found to be no longer eligible for special education services.

Figure 6 provides an example of one new type of data available from RADAR Special Education. The chart indicates by grade the number of students either identified for special education services or no longer receiving services for a fictitious school district. Figure 6 presents these counts for grades K through 11, with darker bars for one year and lighter bars for the four-year average.

**Figure 6. Example of One District: Identified for or No Longer Receiving Services by Grade**

**(One Year and Four Year Average)**

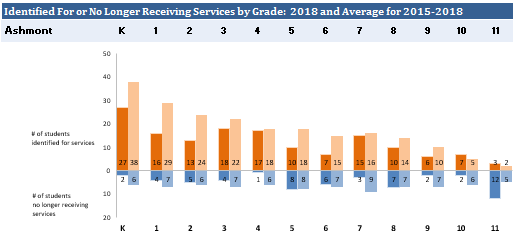
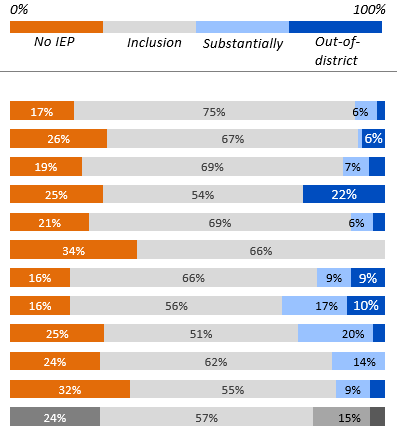


Figure 7 presents a RADAR Special Education chart of how placements changed from 2015 to 2019 for students who were in a particular placement in 2015 (either inclusion or substantially separate). The top bar is the legend, and the first district data bar shows that of the cohort of students in inclusion in 2015, 17 percent no longer had an IEP (they were no longer eligible for special education services), 75 percent continued to be served in inclusion, 6 percent were moved to a substantially separate placement, and 2 percent were moved to out-of-district placements. Data for 10 comparison districts follows, with the last bar providing the state average.

**Figure 7. Example of Placement Trajectory Data for 11 Districts and the State**



Using these newly available student data about movement into and out of receiving services, we found that the percentage of students with disabilities was affected by the grade range in which districts tend to first identify students for special education services and when they tend to exit the most students from special education services.

The student movement data show that, on average, between 2015 and 2018 nearly 55 percent of all students were first identified for special education services in grades kindergarten through 3. However, districts that identified a larger proportion of students somewhat later than other districts—in grades 4 and 5—tended to have slightly fewer students with disabilities. After controlling for economically disadvantaged students, districts enrolling a larger proportion of students in special education services in grades 4 and 5 experienced a one percentage point decrease in their percentage of students with disabilities for every 20 percentage point increase in students first identified in the 4 to 5 grade range.

Our analysis found that the grade in which districts determine students are no longer eligible for special education services may also lead to somewhat fewer students in special education. Districts that find students no longer eligible for special education services by the middle school grades tended to have lower percentages of students with disabilities. Controlling for economically disadvantaged students, districts that determine a larger proportion of students are no longer eligible for special education services in grades 6 to 8 tend to have a 0.5 percentage point reduction in students with disabilities for every twenty percentage point increase in students determined to no longer be eligible for special education services in grades 6 to 8.

The effect of when students are found eligible or no longer eligible for special education services is small, but these results suggest that district strategies around early intervention or shorter placement trajectories may be effective in reducing the number of students needing special education services.

We then examined the placement of students identified for services to gain an understanding of the relative number of students in each placement setting, how placement decisions vary across districts, and whether placement was associated with differences in student achievement. State special education data track eight different placements representing in- and out-of-district placement settings. For this analysis, we concentrated on four types of placements that represent nearly 99 percent of all students with disabilities, ages 6 through 21. These settings are inclusion (full and partial),[[8]](#footnote-8) substantially separate, and out-of-district. See Table 1A in the Appendix for a complete listing of placement settings used in Massachusetts data.

### Districts placed more students with disabilities in inclusive settings over time. However, the percentage of students with disabilities in districts was not associated with placement settings.

Figure 8 shows the percentage of students with disabilities placed in inclusive, substantially separate, and out-of-district services in each of the three years included in the study. [[9]](#footnote-9) These data differ from the inclusion data presented in Figure 2 above, which use USDOE-sourced data and include only students placed in full inclusion. The data presented here use state sources and the inclusion category is comprised of both partial and full inclusion settings. Between 2012 and 2019, there was a gradual trend toward greater inclusion of students with disabilities in the general education classroom for all or part of the school day, while placements in substantially separate or out-of-district settings gradually decreased.

**Figure 8. Percentage of Students by Placement by Year**

A district’s percentage of students with disabilities did not have a significant relationship with inclusion rates. The correlation between the percentage of students with disabilities and the percentage of students in inclusive settings was an insignificant -0.06. The correlations between the percentage of students with disabilities and the percentage of students in other placements, such as substantially separate settings or out-of-district placements, were also insignificant.

### Differences in inclusion rates were associated with district characteristics such as enrollment size and whether a district is an elementary or K-12 district.

Although the statewide trend was toward greater inclusion, there was a great deal of variability in student placements across districts. For example, in 2019, the percentage of students placed in inclusion ranged from 15.4 percent to 95.3 percent. The data show that certain district characteristics were associated with higher or lower rates of inclusion.

Lower rates of inclusion were generally correlated with larger enrollments. The correlation coefficient for enrollment size and the percentage of students with disabilities in a district was -0.46, indicating a moderately strong negative relationship. For example, the state’s 10 largest districts, with enrollments ranging from 10,000 to more than 50,000 students and representing 23 percent of all students included in this analysis, had an average inclusion rate of 71.9 percent compared to the state average of 79 percent. Half of these districts had inclusion rates of less than 70 percent and only two had an inclusion rate of more than 75 percent.

Elementary districts tended to have slightly higher rates of inclusion than other district types (K-12 or secondary districts) when controlling for the number economically disadvantaged students and enrollment. On average, their inclusion rate was 0.08 percentage points higher than other district types. Elementary districts tended to have smaller enrollments, which was also associated with higher rates of inclusion.

### Students served in inclusion settings had better educational outcomes in terms of MCAS math performance and special education trajectories.

Higher rates of inclusion were associated with higher performance on the MCAS math assessment and with more favorable special education placement trajectories. A 10 percentage point increase in inclusion was associated with a 2.3 percentage point increase in students with disabilities scoring proficient or higher on the MCAS. Districts with higher inclusion rates tended to have more students exiting special education after four years than districts with lower inclusion rates. We found that a 10 percentage point increase in the inclusion rate was associated with a 1.7 point increase in the percentage of students moving from inclusion or substantially separate settings to no longer receiving special education services over a four-year period. However, no significant relationship was found between inclusion and graduation rates.

### Special education staffing per 100 students with disabilities remained largely unchanged since 2012. The distribution of staff positions experienced slight changes, with a small reduction in the number of teachers and a corresponding increase in services staff.

RADAR Special Education and other data sources provide detailed district data on the total number of staff full-time equivalents (FTEs) as well as special education staff FTEs. Using these data, we were able to examine special education staffing from two different perspectives. The first is the number of special education FTEs per 100 students with disabilities[[10]](#footnote-10). The second is how special education staff are configured in a district; that is, of special education staff, what percentage are teachers, paraprofessionals, certified service staff, certified support staff, or administrators. The positions included in each of these staffing categories are listed in Table 2A in the Appendix.

The state average number of special education staff per 100 students with disabilities remained fairly stable over time. In 2012, there were 21.4 FTEs per 100 students with disabilities. The number of FTEs increased by about one FTE to 22.5 by 2015 before decreasing slightly to 22.2 FTEs in 2019. Similarly, special education staff as a percentage of total district staff remained stable, comprising approximately 27 percent of all district staff in each of the three years in the study.

The percentage of special education staff that were special education teachers decreased from 27.6 percent in 2012 to 24.0 percent in 2019. During this same period, the proportion of service staff rose from 13.0 percent to 15.6 percent. Figure 9 shows the breakout of special education staff FTEs by position for each of the three years examined. Paraprofessionals made up a majority of staff, comprising more than half of total special education staff. The smallest position group was administrators, accounting for about three percent.

**Figure 9. Percentage of Special Education Staff FTEs by Position**

#### More special education staff per 100 students was correlated with wealthier districts, elementary districts, and districts that placed more students in inclusion settings.

Districts with more special education staff FTEs per 100 special education students tended to be wealthier. A one percentage point increase in the combined effort yield (CEY) measure of local wealth[[11]](#footnote-11) was associated with an additional 3.9 FTEs per 100 students, controlling for the percentage of economically disadvantaged students and enrollment in a district. This is not surprising given that wealth and per pupil expenditures are correlated for both all and special education expenditures. Elementary districts had more special education staff per 100 students with disabilities than other types of districts—nearly eight more FTEs on average after controlling for the percentage of economically disadvantaged students and enrollment size.

A closer look at the relationship between the number of staff and inclusion levels found that districts with higher levels of inclusion had more special education support, services and administrative staff, although the difference was modest, especially for administrators. Inclusion had no significant impact on the number of special education teachers or paraprofessionals found in a district.

#### Fewer special education staff per 100 students with disabilities was correlated with larger districts and districts with more economically disadvantaged students.

Larger districts and districts with higher concentrations of economically disadvantaged students were associated with fewer special education FTEs per 100 students with disabilities. The impact of enrollment was almost negligible, but the concentration of economically disadvantaged students was associated with almost one less FTE per 100 students for every one percentage point increase in that group.

#### The number and types of special education staff were associated with differences in inclusion rates. However, a district’s placement decisions did not appear to influence the number of special education teachers or paraprofessionals.

Districts with higher rates of inclusion also tended to have more special education FTEs per 100 students with disabilities. This may be a result of serving students in more classrooms or programs compared to teachers working with a larger number of students in a separate classroom. Serving students with disabilities in an inclusion setting may also require more paraprofessional FTEs to assist general education teachers.

Districts’ placement decisions appear to be associated with the types of special education staff found in districts. Districts with less inclusion employed a larger proportion of special education support staff. However, no statistically significant relationship was found between a district’s placement decisions and the number of special education teachers or paraprofessionals it employed. Further, these effects are small, with small changes in staffing relative to changes in placements. This means that a 10 percentage point decrease in the number of students with disabilities placed in inclusion settings corresponds to just under a one percentage point increase in support staff FTEs. Districts with more inclusion tended to have slightly more special education administrators and services staff. A 10 percentage point increase in inclusion was associated with a one percentage point increase in special education administrative staff and a 2.8 percentage point increase in services staff.

Our analysis of districts with consistently high or low percentages of students with disabilities found little difference in staffing between these two groups of districts or in comparison to all districts included in this study. Figure 10 shows that districts with high percentages of students with disabilities had a somewhat higher percentage all special education staff for teachers and a lower percentage for paraprofessionals. These districts also had the lowest percentage of special education administrators: 2.8 percent compared to 4.6 percent for the districts with low percentages of students with disabilities. The percentages of special education service and support staff in these districts did not differ substantially.

**Figure 10.** **Allocation of Special Education Staff by High and Low**

**Percentages of Students with Disabilities (2019)**

### Between 2012 and 2018, total per pupil district expenditures increased by 21.0 percent while special education expenditures per student with disabilities increased by 25.7 percent.

Comparisons of spending across districts are typically made on a per pupil basis—total expenditures divided by the number of pupils—to account for differences in spending due to the size of a district. In 2018 (the most recent year for which expenditure data were available), average per pupil district operating expenditures were $16,506. The average expenditure for special education services per student with disabilities was $21,835, which only accounts for the cost of delivering special education services to these students.[[12]](#footnote-12)

Total per pupil district expenditures increased from $13,637 in 2012, to $14,941 in 2015 and to $16,506 in 2018. This represents an increase of 21.0 percent between 2012 and 2018. Special education expenditures per student with disabilities also increased annually, from $17,376 in 2012, to $19,759 in 2015 and to $25,835 in 2018. This represents an increase of 25.7 percent between 2012 and 2018—a higher rate of increase than overall district expenditures. Figure 11 compares the state averages for fiscal years 2012, 2015 and 2018. Special education expenditures accounted for 19.1 percent of total district expenditures in 2018. The share of special education expenditures to total district expenditures increased gradually over the three years of finance data examined for this study, accounting for 20.8 percent of total expenditures in 2012, 21.5 percent in 2015, and 22.0 percent in 2018.

**Figure 11.** **Massachusetts Special Education Expenditures Per Student with Disabilities**

**and Total Per Pupil Expenditures**—**2012, 2015, 2018**

#### Special education services and practices characteristics, such as using more paraprofessionals, the rate at which students are placed in out-of-district settings, or the rate at which students are found to no longer be eligible special education services, had no statistically significant association with per pupil expenditures.

We found that a district using a higher proportion of special education paraprofessionals was not associated with less spending, nor was using a higher proportion of special education teachers associated with more spending. Further, the percentage of students in out-of-district placements, which are generally higher-cost, had no statistically significant effect on per pupil expenditures. This may be due to the fact that only 6.7 percent of students with disabilities ages six to 21 were served out-of-district in 2019. Finally, a measure of placement trajectories, that is, how many students were no longer receiving special education services within four years, was not associated with differences per pupil spending.

## An overview of regional vocational-technical districts

Massachusetts has 26 regional vocational-technical districts (RVT) that combine academic and vocational-technical instruction for grades 9 to 12. In 2019, 28,171 students in were enrolled in RVTs. The average district size was 1,083 students. Twenty-one percent of RVT students received special education services, slightly higher than the state average of 18.1 percent for students ages six to 21. The concentration of economically disadvantaged students was, on average, 29.2 percent.

On average, RVTs served nearly 85 percent of their students with disabilities in inclusive settings compared to 77.8 percent in other high schools. Fewer than one percent of students with disabilities were served in substantially separate services, compared to 12.1 percent in other high schools. This may be due to the types of specialized instructional programs offered in these schools.

In terms of staffing, RVTs had 14.3 FTE special education staff per 100 students with disabilities. The composition of the RVTs’ special education staff included 48.5 percent special education teachers, 27.8 percent of special education paraprofessionals—far lower than the 52 percent of paraprofessionals found in the districts analyzed for this study, 5.5 percent of support staff, 7.3 percent of services staff, and 10.9 percent special education administrators.

Students with disabilities have a higher graduation rate at RVTs. The RVTs’ four-year cohort graduation rate for all students was 95.4% compared to the state’s rate of 87.9%. For students with disabilities, the RVTs’ four-year cohort graduation rate was 91.9% compared to the state at 72.4%.

## Additional resources from the Massachusetts Department of Elementary and Secondary Education

The [RADAR webpage](http://www.doe.mass.edu/research/radar/) has links for downloading several tools: RADAR Benchmarking, RADAR Special Education, Change Over Five Years with Guiding Questions, and District Comparison Indicators. The site provides help and information for getting started, including an online tutorial about using RADAR in a review of data for planning purposes.

The Department’s [Profiles Statewide Reports](http://profiles.doe.mass.edu/state_report/) include data for all districts and schools over a number of years. A few reports are specific to “selected populations” which include students with disabilities, English learners, and economically disadvantaged students. Most reports, such as MCAS performance, graduation rates, dropouts, and college plans, include data about students with disabilities.

The Department’s [Special Education webpage](http://www.doe.mass.edu/sped/) also includes a wide variety of information about special education services.

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# Appendix

**Table A1. Special Education Placements**

| **Position Category** | **Placement** |
| --- | --- |
| In-district | Full inclusion |
| Partial inclusion |
| Substantially separate |
| Separate school in districts |
| Homebound/hospital |
| Out-of-district | Collaboratives |
| Private schools |
| Other public districts |

Source: RADAR Special Education, Massachusetts Department of Elementary and Secondary Education

**Table A2. Special Education Job Codes and Job Names by Position Category**

RADAR staffing data includes 18 special education staff job codes and job names that are organized into Administration, Services, Support, Teacher, and Paraprofessional position categories. These are summarized in Table A2 below.

| **Position Category** | **Job Code** | **Job Name** |
| --- | --- | --- |
| Administration | 1212 | Special Ed Administrator |
| 1312 | School Special Education Administrator |
| 6120 | Special Ed Administrative Aide |
| 6130 | Special Ed Administrative Clerk |
| Services | 3411 | Audiologist |
| 3421 | Occupational Therapist |
| 3431 | Physical Therapist |
| 3441 | Peripatologist |
| 3451 | Speech Pathologist |
| Support | 3351 | School Adjustment Counselor/Special Ed |
| 3361 | School Psychologist/Special Ed |
| 3371 | School Social Worker/Special Ed |
| Teacher | 2305 | Teacher |
| 2306 | Co-Teacher |
| 2307 | Virtual Course Teacher |
| 2308 | Virtual Course Co-Teacher |
| 2310 | Teacher - support content instruction |
| Paraprofessional | 4100 | Instructional Paraprofessionals |

1. The sources of national and Massachusetts data presented here are U.S. Department of Education state IDEA data collections found at <https://sites.ed.gov/idea/data/> and the National Center for Education Statistics’ NAEP Data Explorer found at <https://www.nationsreportcard.gov/ndecore/landing>. [↑](#footnote-ref-1)
2. The Other Staff category consists of audiologists, occupational therapists, physical therapists, speech-language pathologists, interpreters, counselors and rehabilitation counselors, psychologists, social workers, medical/nursing staff, orientation and mobility specialists, and physical education teachers and therapeutic specialists. [↑](#footnote-ref-2)
3. Regional vocational technical and agricultural secondary districts and charter districts were not included because they have special characteristics, including application and selection for admission and specialized missions, and finance data from charter and municipal/regional districts is not aligned. [↑](#footnote-ref-3)
4. A standard deviation is a measure of the amount of variation around the average of a variable. Districts with a standard deviation greater than 1.0 indicates that their percentage of students with disabilities was higher or lower than two-thirds of all districts. [↑](#footnote-ref-4)
5. Economically disadvantaged students are defined as those students from families eligible for SNAP, TAFDC, MassHealth, or students in foster care. [↑](#footnote-ref-5)
6. The minority student count used here consists of students who are African American, Asian, Hispanic, Native American, Native Hawaiian, and Multi-racial. [↑](#footnote-ref-6)
7. The percentage of students from each minority group eligible for special education services in 2019 was: African American, 20.7 percent; Asian, 7.8 percent; Hispanic, 20.6 percent; Native American, 21.8 percent; Native Hawaiian, 14.5 percent; Multi-racial 17.3 percent; and white non-Hispanic, 16.5 percent. [↑](#footnote-ref-7)
8. The term “inclusive setting” includes students placed in full and partial inclusion. [↑](#footnote-ref-8)
9. Massachusetts’ special education data includes the following placement categories: full inclusion (in the regular classroom at least 80 percent of the time), partial inclusion (in the regular classroom 40 to 79 percent of the time), substantially separate classroom, separate public day school, separate private day school, residential school, public residential institution, and home/hospital. In this brief, “inclusion” includes both full and partial inclusion, and out of district placements (not including home/hospital) are grouped. [↑](#footnote-ref-9)
10. Students with disabilities in both ages 6-21 and ages 3-5 are included in FTEs of staff per student with disabilities because staff serving these two groups are not differentiated. [↑](#footnote-ref-10)
11. The Combined Effort Yield, or CEY, is a measure of a city or town's local property wealth and income that is used to determine the community's ability to raise local tax revenues to fund its foundation budget for schools. [↑](#footnote-ref-11)
12. Total expenditures per pupil uses FTE pupils, which are based on the days a student was enrolled over the year. A student enrolled for 180 days is 1.0 FTE, while one enrolled for half the year is 0.50 FTE. For special education, there are expenditures for special education staff, programming, and transportation but to calculate costs per student with disabilities, we must decide how to count them. For the calculations above, we used the October 1 headcount of students with disabilities and averaged the costs of special education across them all, including out of district students, regardless of the level of services provided. However, many of these students are in full inclusion placements, and spend 80% of their day in general education classrooms while receiving special education services for 20% of their time. Another method used by DESE for some calculations was to determine FTEs of special education services based on placements. These FTEs count only the portion of the day students receive special education services, e.g. a full inclusion student counts as .2 FTE. In 2018, the 76,555.7 FTEs of services results in a cost of $46,701 per FTE. Using the October 1 headcount of 163,739 students with disabilities resulted in a cost of $21,835 per student. *Note that charter school students and expenditures are not included in any of these numbers.* [↑](#footnote-ref-12)