

A Research  
Report  
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# Michigan Teacher Shortage Study: 2024 Report

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# Michigan Teacher Shortage Study: 2024 Report

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# Section One: Introduction

In the wake of the COVID-19 pandemic, there have been growing concerns about teacher burnout exacerbating existing teacher shortages, both nationally and in Michigan (e.g., Camp et al., 2023; Cohen, 2022; Mauriello & Higgins, 2022; Querolo et al., 2022, Redding & Nguyen, 2023). Within the context of these persistent and potentially worsening shortages, understanding the scope of the problem can appropriately inform state and local action to ensure that schools and districts are fully staffed to best support their students.

## PURPOSE OF THIS REPORT

This is the third in a series of annual reports about teacher shortages in Michigan that the state legislature requested in December 2020 (2020 PA 316). The Education Policy Innovation Collaborative (EPIC) at Michigan State University prepared this report in collaboration with the Michigan Department of Education (MDE) and the Center for Educational Performance and Information (CEPI).

Per the legislation, EPIC released an [initial report](#) in January 2022 that summarized the existing sources of state administrative data available at the time to begin quantifying the shortage, provided a baseline from which to base future comprehensive data analyses, and outlined several recommendations to policymakers about data-gathering activities necessary for future comprehensive reports (2020 PA 316). The second report provided a more comprehensive analysis of Michigan's teacher shortage, including information about teacher vacancies, teacher retention rates, and candidates completing in-state teacher preparation programs. This third report, and all future annual reports, will build on the findings and analyses from the second report and continue the comprehensive tracking of Michigan's teacher shortage.

In addition to updating the analyses from [EPIC's first comprehensive report](#), we continue to adjust and expand on our past analyses based on the results from prior reports and any additions or improvements to the data available each year. Although the state data on this topic remains somewhat limited, these analyses still help to paint a picture of teacher shortages across Michigan, assist policymakers to target policies and programs in ways that can best support the state and local communities in growing their teacher workforces, and highlight ways that new or better data may provide a deeper understanding of local and statewide teacher shortages.

## CURRENT TEACHER WORKFORCE INITIATIVES

Michigan has a vast and growing number of programs and initiatives that aim to strengthen the state’s teacher workforce and address ongoing teacher shortages. To interpret trends in the data about Michigan’s teacher workforce and teacher shortages, it is important to consider how both new and established initiatives may be working to support teacher retention and development and attract new teachers to the profession. Table 1.1 lists current state-funded teacher workforce initiatives in Michigan. These initiatives each target specific stages of the teacher pipeline, including **recruiting** prospective teachers into the profession, **preparing** teacher candidates for certification and employment, and **retaining** teachers in the profession and in the schools and districts that need them the most.

Table 1.1. Michigan Teacher Workforce Enhancement Initiatives		
Program Name	Pipeline Stage(s)	Target Impact
Grow Your Own (GYO) Staff Grants	<ul style="list-style-type: none"> <li>✓ Recruitment</li> <li>✓ Preparation</li> <li>Retention</li> </ul>	Encourage existing school support staff to pursue initial teacher certification
Future Educator Fellowship	<ul style="list-style-type: none"> <li>Recruitment</li> <li>✓ Preparation</li> <li>Retention</li> </ul>	Financially support pre-service teachers currently enrolled in an educator prep program
Student Teacher Stipend	<ul style="list-style-type: none"> <li>Recruitment</li> <li>✓ Preparation</li> <li>Retention</li> </ul>	Financially support pre-service teachers during their student teaching semester(s)
LAUNCH	<ul style="list-style-type: none"> <li>✓ Recruitment</li> <li>✓ Preparation</li> <li>Retention</li> </ul>	Increase the number of high school graduates with certification in child development fields
EXPLORE Grants	<ul style="list-style-type: none"> <li>✓ Recruitment</li> <li>Preparation</li> <li>Retention</li> </ul>	Inspire students in grades 6–12 to pursue careers in education
Career and Technical Education (CTE) Teacher Grants	<ul style="list-style-type: none"> <li>✓ Recruitment</li> <li>✓ Preparation</li> <li>✓ Retention</li> </ul>	Recruit, retain, and develop CTE teachers
Special Education Teacher Tuition Reimbursement	<ul style="list-style-type: none"> <li>Recruitment</li> <li>✓ Preparation</li> <li>Retention</li> </ul>	Support existing certified teachers in pursuing special education endorsements

Table 1.1. Michigan Teacher Workforce Enhancement Initiatives		
Program Name	Pipeline Stage(s)	Target Impact
TeachMichigan	Recruitment Preparation ✓ Retention	Retain high-impact teachers in high-needs schools
Talent Together	✓ Recruitment ✓ Preparation Retention	Encourage existing school support staff & community members to pursue initial teacher certification
Student Loan Repayment Pilot	✓ Recruitment Preparation ✓ Retention	Recruit and retain certified teachers, especially in high-needs schools
National Board Certification Fund	Recruitment ✓ Preparation ✓ Retention	Award existing National Board Certified educators, and to incentivize teachers in Title I schools to seek this certification
Rural Educator Credentialing Hub	✓ Recruitment ✓ Preparation Retention	Encourage prospective teachers to pursue certification & placement in rural districts
Mentoring Grants	Recruitment Preparation ✓ Retention	Support and retain newly certified teachers
Educator Compensation Program	✓ Recruitment Preparation ✓ Retention	Increase compensation for teachers
Out-of-state Certification Acceptance	✓ Recruitment Preparation Retention	Invite teachers with certifications from other states to teach in Michigan schools

Understanding the variety of teacher workforce support initiatives taking place in Michigan allows for a broader contextual understanding of how current policies are addressing the most pressing needs to mitigate the teacher shortage, and which areas might need more consideration. This policy landscape plays a role in shaping changes and trends in Michigan's teacher workforce and informs how we interpret the data we present throughout the remainder of the report.



# Section Two:

## Data and Methods

The analyses in this report draw from several data sources, each of which provides different types of information about the population of Michigan teachers and the needs of Michigan students and schools. In our [initial report](#), we summarized the strengths and weaknesses of these data sources and offered several recommendations for improving these data or collecting additional data that would enable researchers to better understand the extent of teacher shortages in Michigan. In this section, we provide updated descriptions of the data and discuss recent efforts and progress toward implementing our initial recommendations. Finally, we summarize the key metrics for our analyses in this report as well as our calculation methods.

### DATA SOURCES

Here we briefly describe each of the data sources we use for the analyses in this report. For a more thorough discussion about *all* of the existing state administrative data sources that may help provide context and scope to the discussion about and understanding of teacher shortages in Michigan, please see [EPIC's initial report](#).

#### Registry of Educational Personnel (REP)

The REP is designed to collect basic employment information about all individuals working in traditional public school (TPS) districts and public school academy (PSA, or charter) districts in Michigan. These data include demographic information (e.g., race/ethnicity, gender, age), employment records (e.g., employment status, dates of employment), and details of employees' assignments (e.g., role, location of assignment, content area). Districts are also asked to report information about funded positions that are vacant. Longitudinal datasets for researchers contain historical data from past REP collections as early as the 2003-04 school year, however, some reporting fields and requirements have changed over time.

Nonpublic schools also report a limited subset of these data elements each fall through the Nonpublic School Personnel Report (NPSPR), which is part of the REP system. This information has not historically been included in the school personnel datasets that are available to researchers, so we have not been able to include it in prior reports. This year's report will be our first to include nonpublic school personnel

data, which we recently obtained through a new data sharing agreement. Given the limited scope of the NPSPR, this new dataset can help us to determine only which of the certified teachers who are not employed within the state public school system are employed in non-public schools and cannot provide any details about their job assignments (e.g., whether they are employed as teachers or in other roles) or the duration of their employment in those schools.

## Michigan Online Educator Certification System (MOECS)

MOECS is a secure web-based system that allows educators to apply for and renew their certificates/licenses as well as input and store professional learning hours necessary for certificate/licensure renewal. The system allows school districts to apply for temporary credentials, such as substitute teaching permits, for their educators. Additionally, the MOECS system stores demographic information (e.g., gender, ethnicity, age), educator preparation program records, and criminal conviction history which supports school safety legislation.

MOECS is a rolling database, meaning that updates to the data take place continuously throughout the year and are not limited to specific collection periods. However, CEPI takes snapshots twice a year to coincide with the REP collection periods and includes these data within the datasets that researchers receive for approved studies. These snapshots are available for the 2011-12 end-of-year collection and all subsequent collection periods.

## Title II

Title II reports are publicly available through the U.S. Department of Education. The data file is a culmination of the data that state departments of education, teacher certification testing vendors, and state-approved teacher preparation providers submit annually. These data include program enrollment and completion information by subject area, major, and program area, licensure test participation and results, and narratives with summary information about Michigan's teacher preparation programs and the systems in place for preparation and certification, for both traditional and alternative route programs.

## Michigan Student Data System (MSDS)

MSDS is used to collect student-level data for state and federal reporting, as well as for funding allocations. Although these data pertain to students rather than teachers, data from the MSDS General Collection provide information about the size and characteristics of Michigan's student population, which can help us to estimate the number of teachers needed in particular areas or with particular credentials. For instance, knowing how many students with disabilities attend school in a particular district may be helpful for approximating how many special education teachers the district needs.

Longitudinal K-12 student-level datasets contain historical data from MSDS collections as early as the 2009-10 school year, though some reporting fields and requirements have changed over time. The Teacher Student Data Link (TSDL) collection within MSDS identifies the teacher of record for each of a K-12 student's courses. This level of granularity may allow us to better assess which types of students are most affected by shortages. Although the TSDL collection began in 2010-11, it was reduced to only a subset of students starting in 2015-16. As of 2020-21, it is now once again a required collection for all students. The Student Transcript and Academic Record Repository (STARR) in MSDS collects student academic records from Michigan colleges and universities, which can help to identify students who are studying to become teachers.

## UPDATES ON DATA RECOMMENDATIONS

EPIC's [initial report](#) discussed the strengths and weaknesses of these data sources and outlined several recommendations aimed to improve researchers' and state agencies' ability to monitor and study Michigan's teacher shortages. As we noted last year, many of these changes will take years to implement. Here, we provide updates on where each of our recommendations currently stands.

### “Legislatively Require Vacancy Reporting, Collect Additional Details About Vacancies, and Require More Timely Reporting of Personnel Changes”

As we noted in our [initial report](#), the data reporting requirements in Section 19 (3) of MCL 388.1619 at that time only applied to educational personnel (and not to unfilled vacancies), and only required reporting twice per year. In 2023, the legislature updated this language to require that districts also report information about vacant positions (Michigan Public Act 103, 2023, p. 103). These changes will go into effect when MDE and CEPI implement the Michigan Online Registry of Educators (MORE), a new educator employment and credentialing data system that will eventually replace the REP and MOECS. Once MORE is deployed, the state will move closer to gaining a more accurate picture of vacancies in future collections.

The updated legislation also includes a new clause requiring districts to report all personnel changes within 30 days, rather than only twice per year. This will allow for a deeper understanding of the types of staffing challenges that districts are facing and provide a better and more nuanced understanding of when they are happening. This change will go into effect immediately, as the REP system already allows districts to update their personnel data at any time during the year.

## “Investigate Factors That May Contribute to Inaccurate or Incomplete Reporting and Introduce Additional Data Quality Checks, Guidance, and Training for Districts to Improve Reporting”

In the years since our initial report, MDE and CEPI have continued their efforts to improve data quality, accuracy, and reporting practices through targeted communications, training sessions for districts, and expanding on the data quality checks they complete during each collection cycle to identify and alert districts about possible errors or gaps in their data. In our [previous report](#), we showed early evidence suggesting that these changes may be helping to improve the quality and completeness of the data, however, there is still a long way to go. For instance, a recent [audit](#) raised concerns about the reliability of the school employment data that districts report through the REP, particularly for contracted staff which may include substitute teachers hired through an agency or virtual teachers hired through third-party providers. Gaps in the data for these types of employees could have implications for studying teacher shortages, as districts may rely more on substitutes and virtual teachers to meet their staffing needs when they cannot fill positions with full-time, locally based, and appropriately credentialed teachers.

Upcoming changes to the funding penalties for inappropriately placed teachers may indirectly affect the quality of data about teachers' assignments. CEPI and MDE have been working to provide more guidance, training, and tools to support districts as they prepare to face higher stakes when aligning teachers' job and course assignments with their credentials. The heightened focus on reporting details about teachers' job assignments could help to improve the accuracy of data elements like REP assignment codes, subject course codes, and teachers of record, all of which are important for our analyses of Michigan's teacher workforce.

## “Continue Efforts to Establish a Link Between Student and Education Personnel Datasets”

Over the past two years, MDE and CEPI have made substantial progress in establishing a link between their student and educator datasets. As part of this process, CEPI's identity management team worked closely with EPIC and other partners to develop, validate, and improve a crosswalk between identification codes from the student and educator data systems that belong to the same person. EPIC researchers have begun integrating this crosswalk into ongoing analyses about Michigan's teacher workforce. As part of their ongoing efforts to modernize their data systems, CEPI is also working to procure and implement a system to establish a single, unique identifier that will be used for both students and teachers as well as any other “person” record that CEPI collects.

## “Incorporate Additional Data From MDE and, if Feasible, External Data Sources Into Researcher Datasets”

In last year’s report, we communicated that the state entered into a new data sharing agreement with EPIC to provide additional data about teachers and teacher candidates in Michigan. These data include information about student teaching placements for candidates completing a Michigan teacher preparation program, information from applications for substitute teaching permits that provide more insight about why, how, and for how long districts are using substitutes to fill longer-term teaching vacancies, and information about Michigan educators who work in nonpublic schools. We have begun to incorporate these new data into our analyses where appropriate.

Independently, EPIC has also been collecting, compiling, and evaluating the usefulness of data from various publicly available sources that may enhance our understanding of Michigan’s teacher workforce and fill some of the gaps in the state data. These include data about teacher compensation from a broader database of government employee salaries as well as information from collective bargaining agreements negotiated between local school districts and teachers’ unions, such as salary schedules, policies governing teacher placement and advancement on the salary schedule, and financial incentives that districts offer to recruit or retain teachers. We are also examining data from some of the most common platforms that Michigan school districts use to post vacant teaching positions (e.g., Applitrack and TalentEd Hire) as potential tools to fill some of the gaps in the state vacancy data.

## “Use Surveys to Supplement Administrative Data and Provide More Context About the Experiences of Teachers and Administrators”

Before developing any new surveys, the first step we identified in the initial report was to examine data available from previous and ongoing surveys. To assist with this, MDE compiled information about their relevant educator surveys. These include a suite of surveys about teacher candidates’ preparedness to teach, as perceived by the teacher candidates themselves upon completing their initial student teaching placement, supervisors from in-state teacher preparation programs who are assigned to these candidates, and the cooperating teachers with whom the candidates completed their initial student teaching placements. MDE administers similar annual surveys to graduates from in-state teacher preparation programs a year after they receive their initial certificates and lead administrators working with first-year teachers. EPIC researchers have reviewed all these survey instruments and are working with MDE to be able to include survey responses from teacher candidates, their supervisors, and their cooperating teachers in future analyses about Michigan’s teacher workforce. Throughout this year’s report, we also highlight relevant findings from other recent

studies in Michigan that collected data through surveys or interviews. Where appropriate, we showcase findings from these studies that help to contextualize some of the specific patterns that emerged in our analyses.

## Overall Progress Since Initial Report

There has been significant progress toward each of these areas since we initially made these recommendations. However, some changes and efforts are in their early stages and will take more time to implement. As such, the metrics in this report (described in the next subsection) are still affected by many of the same limitations as those in our previous reports. Each year, we will continue to incorporate new and/or improved data as they become available.

## METRICS OF INTEREST

For the [initial report](#), EPIC, MDE, and CEPI collaborated to identify a list of metrics of interest based on the requirements in the legislation, the data readily available for the initial report, and a review of resources and reports from other states related to teacher shortage. This year we've refined and expanded this list based on newly available data and results from our past two reports.

EPIC researchers consulted with data experts from MDE and CEPI before determining the specific definitions, rules, and calculation methods for each of these metrics. Where appropriate, we align our definitions as closely as possible with similar calculations that MDE or CEPI have published in other reports. However, in some cases, EPIC developed slightly different definitions to tailor our analyses to address the specific topics of interest for this report. As we describe each metric, we note any known differences between our definitions and those that appear in other state reports.

## Vacancies

[2020 PA 316](#) outlines four requirements regarding the content to be included in each annual comprehensive teacher shortage report. First, the report must include:

*"The number of educator vacancies in this state, disaggregated by geographic region and by any broad subject areas and educational settings required for those vacancies."*

As we discussed in [last year's report](#), we do not believe that the vacant positions that districts report in the REP accurately reflect the number of vacancies in the state. We still present data on district-reported vacancies to highlight changes over time and discrepancies between data sources, but we supplement these data with several other related metrics to provide a more robust (yet still incomplete) picture of teacher shortages in Michigan.

### Filled and Vacant Teaching Positions and Full-Time Equivalencies (FTEs)

First, we summarize the number of teaching positions and teaching FTEs each year within categories based on the funded position statuses that districts reported in the REP. Specifically, we categorize all teaching positions into the following groups:

- **Permanently filled:** The position is filled by a permanently assigned employee.
- **Temporary vacancy – temporarily filled:** The position is temporarily assigned to a substitute, temporary employee, or outside contractor while the permanent employee who is normally assigned to the position is on leave or on loan.
- **Temporary vacancy – unfilled:** The position is normally assigned to a permanent employee who is on leave or on loan and no one has been assigned to fill their position until they return.
- **Permanent vacancy – temporarily filled:** The position has been posted but has not been filled and a substitute, temporary employee, or outside contractor is assigned to fill it on a temporary basis.
- **Permanent vacancy – unfilled:** The position has been posted but has not been filled and no one is assigned to fill it on a temporary basis.

We consider each district-specific employment record associated with one or more teaching assignments to constitute a separate “teaching position.” An individual person can only have one teaching position in any given district at one time but may have teaching positions in multiple districts at the same time. In addition to the total number of teaching positions each year, we calculate the total teaching FTEs, which are weighted proportionally to the FTE for each teaching assignment. If most teachers work full-time and teach in only one district, the FTEs and total teaching positions will be about the same. There may be discrepancies between the FTEs and total teaching positions if there are a lot of part-time teaching positions or people teaching in more than one district at the same time.

### Teachers With Temporary Credentials

Increases in the number of teachers with temporary credentials could (but does not always) signify that a district was unable to hire enough teachers who are fully certified and endorsed for the content they’re teaching. To capture trends in teachers with these types of credentials, we calculate the total number of *unique educators* each year who both hold a temporary credential (i.e., a full-year substitute teaching permit, extended daily substitute teaching permit, annual career authorization, or special education approval) and are actively employed with a teaching assignment. These counts, by definition, are lower than the counts of *temporary credentials issued* in OEE’s annual [Educator Workforce Reports](#), as the same person can be issued more than one credential. We do not include daily substitute teaching permits in these counts (however, as noted above, we do include *extended* daily substitute teaching permits, which allow an educator to cover a teaching assignment for a longer period than a daily substitute teaching permit).



### Under-Credentialed Teachers

We categorize all permanently or temporarily filled teaching assignments based on the credentials of the employee filling the assignment. Specifically, we consider whether the employee has a teaching certificate or a temporary teaching credential, and whether they have an appropriate endorsement for their assignment. We then calculate the percentage of teachers who are “under-credentialed” as the total FTE across assignments filled by an appropriately placed teacher divided by the total FTE across all filled teaching assignments (i.e., all teaching assignments except unfilled vacancies).

We also calculate appropriate placement rates among “teachers of record” for certain types of courses in the TSDL; we calculate these rates as a percentage of all “teachers of record” associated with a particular type of course (e.g., elementary self-contained, high school math). We identify appropriate combinations of endorsement codes and assignment codes or subject course codes using the same definitions that CEPI and MDE developed and used for their reports. We also examine two subsets of under-credentialed teachers: those who are not certified, and those who are certified but assigned “out-of-field,” meaning that they do not have an appropriate endorsement for the subject area(s) or student group(s) they teach.

### Retention Rates

The next requirement focuses on teacher retention. Specifically, the report must include:

*“The educator retention rates in this state, disaggregated by geographic region, broad subject areas and educational settings, number of years in the profession, and educator demographics.”*

### Mobility in and Out of the Teaching Profession

We compare fall-to-fall changes in educators’ employment within the state public school system to identify individuals entering or exiting the teaching profession each year. We define educators “entering the teaching profession” as those with teaching positions in the fall of a given year who were not teaching the prior fall. We define educators “exiting the teaching profession” as those who are not teaching in the public school system in the fall of a given year but were teaching the prior fall. Because these definitions are based only on two consecutive years, some “enterers” may have worked as teachers in earlier years, and some identified as “exiting” may have returned to teach in a later year. Similarly, support staff and other personnel who transition to a teaching role are considered “enterers” under this definition, while teachers who transition to other roles (e.g., teachers who become administrators) are classified as having exited the profession. We separately examine trends in the number of first-year teachers, which we define as teachers who were never observed with a teaching assignment in any previous collection.



### Within- and Between-District Transfers

We define a within-district transfer as a change in an individual's assignment as a teacher working in a single building one fall to a teaching assignment in a different, single building in the same district the next fall. Some within-district transfers are initiated by the teacher (e.g., if there is an open position in a different building that the teacher would prefer to their current position) while others are initiated by the district (e.g., if a district needs to move some of its current employees to meet staffing needs in certain schools). Sometimes within-district transfers can be indicative of staffing challenges or teacher shortages, but this is not always the case.

Similarly, we define a between-district transfer as a change in an individual's assignment as a teacher working in a single district one fall to a teaching assignment in a different, single district the next fall. Although these teachers remain in the profession after the transfer, this type of mobility can exacerbate existing shortages as teachers tend to move from less advantaged to more advantaged districts.

### Retention in Schools, Districts, and the Teaching Profession

In addition to these different types of teacher mobility, we examine overall rates of teacher retention at the state, district, and school levels. We define "retention in the teaching profession" as the percentage of teachers in a given year who returned to teach in any Michigan public school or district the following year. Under this definition, teachers who move to a different school or district in Michigan are still "retained" because they are still teaching somewhere within the state public school system. "Retention in a district," on the other hand, is the percentage of teachers who returned to teach *in the same district* the following year. In this case, we consider teachers who move to a different school in their district to be "retained" because they are still teaching within the same district. We define "retention in a school" as the percentage of teachers who returned to teach *in the same school* the following year. We limit our school- and district-level retention calculations to single-school and single-district teachers, respectively.

## Teacher Preparation

The third requirement pertains to teacher candidates completing postsecondary teacher preparation programs. The report must include:

*"The number of graduates from approved, in-state teacher preparation programs, disaggregated by the broad subject areas and educational settings of those graduates, if any."*

In prior reports, we showed trends in postsecondary teacher preparation program enrollment and completion from Title II reports, as well as trends in new teaching certificates issued each year in Michigan and the locations where graduates from Michigan teacher preparation programs were working as first-year teachers. We've updated the trends from our prior reports to include the most recent Title II and state

data available and expanded on past analyses to provide more insight about the types of school districts where recent graduates from Michigan's teacher preparation programs are teaching.

### Teachers Issued an Initial Certificate

As a measure of how many new potential teachers are earning the necessary credentials to teach in Michigan, we examine the number of candidates who earned initial teaching certificates each year. We consider the first standard, standard CTE, interim, or temporary teacher employment authorization an individual receives to be their "initial certificate."<sup>1</sup> Our counts capture all initial certificates with issue dates falling between July 1<sup>st</sup> of the fall calendar year and June 30<sup>th</sup> of the spring calendar year of a given school year.<sup>2</sup> We calculate these as counts of *unique educators* issued an initial teaching certificate; these are lower than counts of *all initial teaching certificates* issued because some educators received more than one initial teaching certificate at the same time (e.g., both a standard teaching certificate and a standard CTE certificate).

### Title II Completer Counts

We also present counts of candidates who completed approved postsecondary teacher preparation programs in Michigan each year, based on publicly available Title II reports. These are slightly different from the counts of teachers who earned initial certificates, which include candidates from out-of-state teacher preparation programs in addition to Michigan programs. The Title II completer counts may also include some students who met all the requirements to complete their preparation program but did not receive a Michigan teaching certificate, such as those who teach in other states. The completer counts from Title II generally align with public reports derived from other postsecondary data sources (e.g., the College Degrees and Certificates Awarded report on MISchoolData, which uses data from CEPI's Student Transcript and Academic Record Repository [STARR] collection), but are not exactly the same due to differences in the specific definitions that each report uses.

### Employment After Initial Certification

To understand what happens after new teachers earn their initial certificates, we use employment and assignment information from the REP (including new data about nonpublic school employment) to assess whether and where they worked in the year after they became certified to teach in Michigan. We categorize newly certified teachers into one of the following five groups: 1) public school teachers, 2) non-teaching role in a public school (excluding daily substitute assignments), 3) any role in a non-public school, 4) daily substitute, or 5) not a school employee. For these categories to be mutually exclusive, we assign each person to only the first category that applies to them. For example, if a person has a public school teaching assignment, we do not assign them to any other categories regardless even if they have other types of assignments or also work in a nonpublic school.

### **Locations of First-Year Teachers' Initial Job Placements**

To understand where these newly certified teachers are coming from and where they tend to go after they complete their teacher preparation programs, we examine relationships between the locations of the teacher candidates' hometowns (based on the K-12 districts where they attended high school), the postsecondary institutions where they completed their teacher preparation, and their first teaching jobs. For these analyses, we focus just on students who graduated from approved in-state teacher preparation programs and taught in a Michigan TPS or charter school as a first-year teacher between 2018-19 and 2022-23. We also examine the types of districts where in-state teacher preparation program graduates worked during their initial placements, the distance between teachers' initial job placements and their postsecondary universities or hometowns, and ways that these patterns vary across graduates from different teacher preparation institutions.

### **Regional Analysis**

The final requirement focuses on geographic variation in the type and extent of teacher shortages across the state. Specifically, the report must include:

*"An analysis of the regions in this state that present the highest need for educators based on educator shortages in those regions, disaggregated by the broad subject areas and educational settings of the positions in which there are shortages in those regions."*

### **Local Variation in Individual Report Metrics**

In addition to the statewide trends we calculate for each of the vacancy, retention, and teacher preparation metrics described above, we estimate several of these metrics separately for individual school districts and generate heat maps to show how they vary throughout the state. For each point on the map, we calculate the average value of each metric for the TPS district within whose boundaries the point is located, any charter schools located within that same district's boundaries, and close neighboring districts. This means that the values depicted on these maps represent the average value across all public and charter schools in a specific location, rather than the exact value for one specific district.

### **Regions of the State Exhibiting the Most Severe Shortages**

None of the metrics we described in this section are perfect indicators for the presence or severity of teacher shortages. Thus, while the heat maps for each metric provide context and insight about specific types of staffing challenges and how they vary across the state, none of these metrics on their own can definitively determine which areas of the state are experiencing the most severe shortages. Rather, we consider which areas of the state consistently show evidence of shortages across multiple, imperfect indicators. In addition to comparing patterns across the maps for individual indicators to identify commonalities, we also construct composite measures using sets

of related indicators to estimate and visualize the overall extent of teacher shortages in each area of the state. We use principal component analysis to combine several indicators of teacher shortages into a smaller number of composite measures that capture as much of the variation from each individual indicator as possible.

## SUMMARY

Although there are several available data sources that can inform our understanding of Michigan’s teacher shortage, there are many limitations to the data that make it difficult to measure and interpret trends in teacher vacancies, retention rates, and teacher preparation program completion. The recommendations we outlined in our initial report aim to improve the quality and usefulness of these data, however, many of these are long-term efforts that will take years to implement. Considering the current strengths and weaknesses of the data about vacancies, retention, and teacher preparation in Michigan, we include multiple alternative measures whenever possible to offer a more nuanced assessment of teacher shortages.

# Section Three: Vacancies

Vacancies directly represent student-facing positions that school district administrators have not yet been able to fill with teachers who have the appropriate certification and endorsements. This is an important indicator of shortage that can let policymakers know how many, what types, and where teachers are needed. However, Michigan's school personnel datasets currently only capture a limited amount of information about teaching vacancies, making it difficult to assess the true extent of shortages throughout the state. To the extent possible with the data available, this section addresses the first of the four required topics outlined in [2020 PA 316](#):

- a. *"The number of educator vacancies in this state, disaggregated by geographic region and by any broad subject areas and educational settings required for those vacancies."*

While districts may report vacant teaching positions in the REP, they were not required by law to do so during the collection periods we analyze in this report. As a result, the vacancies in the data are implausibly low and are likely underreported across the state. To create a fuller picture of vacancies, we consider districts' use of temporary employees, virtual instructors, and teachers who are not fully credentialed for the content they teach. Although these measures are not perfect substitutes for vacancy counts, we may expect districts to rely more on these types of teachers when they are struggling to hire enough permanent, dedicated, and appropriately credentialed staff to meet their instructional needs. In this section, we update the analyses from [last year's comprehensive report](#) to include information from the 2022-23 school year, the most recent data available. We further examine trends in data indirectly related to vacancies and discuss what these proxies suggest about the number and types of teacher vacancies throughout the state.

## DISTRICT-REPORTED TEACHING POSITIONS

In previous reports, we showed that relatively few school districts reported any vacancies at all, and the low number of district-reported vacancies likely did not reflect the true number of vacancies throughout the state. We found that permanently filled teaching FTEs decreased over the last decade, generally mirroring declines in student enrollment. At the same time, teaching *positions*, which give equal weight to full-time and part-time teachers, increased.

We attributed these discrepancies between trends in teaching positions and FTEs to the increasing prevalence of teachers working in more than one school district simultaneously, including teachers contracted through third-party course providers like [Michigan Virtual](#), who often have concurrent teaching positions in dozens of school districts with FTEs as low as 0.01 per district. Many of the patterns we observed in district-reported vacancies appeared to be driven by changes in the ways that districts use Michigan Virtual teachers as well as changes in how they report these teachers in the REP. Table 3.1 extends these trends in district-reported filled and vacant teaching FTEs through the 2022-23 school year, and Figure 3.1 shows how Michigan Virtual teachers contribute to these statewide trends.

## Districts Reported Fewer Vacant Teaching Positions, but More Vacant FTEs in 2022-23 Than in the Previous Year

The counts of vacant positions in the bottom panel of Table 3.1 are higher than counts of vacant FTEs in the top panel, suggesting that, on average, the vacancies that districts reported in the REP are less than full-time teaching positions. The number of vacant teaching FTEs increased by about 10% from 2021-22 to 2022-23, while vacant teaching positions *decreased* by about 2%. This was the first and only time across the full span of years in our analysis that the trends in teaching positions and FTEs did not move in the same direction. This pattern suggests that more of the vacancies reported in 2022-23 are full-time teaching positions than the vacancies reported in earlier years.

## Counts of Permanently Filled Teaching Positions Decreased for the First Time Since 2016-17, but FTEs Remained Stable

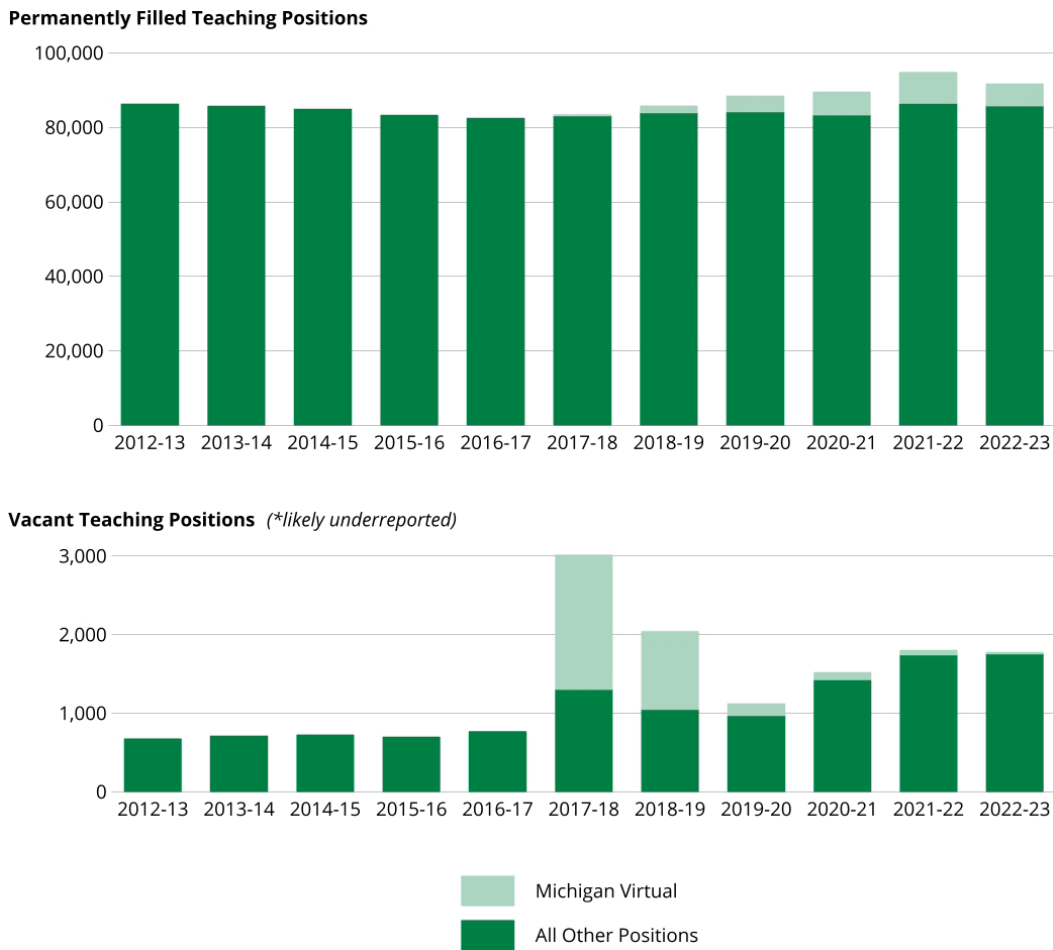
Figure 3.1 shows the total counts of filled and vacant teaching positions separately for Michigan Virtual (depicted in light green) and all other positions (depicted in dark green). Excluding Michigan Virtual, the number of permanently filled teaching positions has remained relatively stable over time. The number of filled Michigan Virtual teaching positions, on the other hand, decreased in 2022-23 after experiencing increases each year from 2017-18 to 2021-22, possibly reflecting a decreased reliance on virtual courses after the height of the COVID-19 pandemic.<sup>3</sup> While some districts may have used third-party virtual teachers as a short-term solution in response to vacancies, our findings from [last year's report](#) suggest that small, rural districts—which are typically less able to offer as wide an array of courses as their urban and suburban counterparts (Sipple & Brent, 2015)—are using these types of teachers as part of a longer-term strategy to expand their course offerings.

**Table 3.1. District-Reported Filled and Vacant Teaching Positions (Fall)**

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
<b>Total Teaching FTEs</b>											
Permanently Filled	84,263	83,654	82,716	81,277	80,565	81,179	81,763	81,665	80,825	82,795	82,344
Vacant (*likely underreported)	498	558	590	541	598	1,020	801	599	875	1,228	1,351
<i>Temporary Vacancy — Temporarily Filled</i>	384	419	400	354	413	507	397	348	439	405	370
<i>Temporary Vacancy — Unfilled</i>	31	27	71	77	61	42	61	45	53	80	57
<i>Permanent Vacancy — Temporarily Filled</i>	59	76	82	82	87	441	286	117	244	347	449
<i>Permanent Vacancy — Unfilled</i>	24	36	37	28	37	30	57	89	139	396	473
<b>Total Number of Teaching Positions</b>											
Permanently Filled	86,344	85,747	84,892	83,301	82,470	83,521	85,845	88,492	89,566	94,890	91,756
Vacant (*likely underreported)	679	714	728	701	773	3,018	2,044	1,125	1,519	1,802	1,768
<i>Temporary Vacancy — Temporarily Filled</i>	536	557	520	482	552	765	655	568	744	724	561
<i>Temporary Vacancy — Unfilled</i>	34	28	73	84	71	47	66	49	55	83	65
<i>Permanent Vacancy — Temporarily Filled</i>	81	90	96	103	107	2,173	1,264	412	567	588	655
<i>Permanent Vacancy — Unfilled</i>	28	39	39	32	43	33	59	96	153	407	487

Notes: FTE sums are rounded to whole numbers. We consider each combination of a person and a district to be a “teaching position,” e.g., if one person works in two different districts, they have two teaching positions. “Permanently Filled” positions include those reported in the with funded position status code for “Filled position, regular.” “Temporary Vacancies” are positions reported as “Funded, employee on loan or leave,” while “Permanent Vacancies” are those reported as “Vacant, funded, open position.” Vacancies are “Temporarily Filled” if the funded position status code indicates that a temporary employee or outside contractor is assigned to the position. Vacancies are “Unfilled” if they are reported with a funded position status code indicating that “no one is assigned to fill the position.”

Figure 3.1. District-Reported Teaching Positions, Michigan Virtual Versus all Other Teaching Positions



Notes: “Permanently Filled” positions are those with funded position status “Filled position, regular.” “Vacant” positions include unfilled vacancies, temporarily filled vacancies, and positions that are temporarily unfilled or assigned to temporary employees while a permanent employee is on leave.

## TEMPORARY TEACHING CREDENTIALS AND APPROPRIATE PLACEMENT

School districts may apply for substitute teaching permits and other types of temporary credentials to allow educators who do not have the necessary credentials to fill a teaching position if there is no fully credentialed teacher available. By comparing educators’ credentials to their teaching assignments, we can gain some insight about how many and what types of teaching positions districts have not been able to fill with fully credentialed teachers, and what these trends may mean for students’ access to qualified educators. While some districts likely use these types of credentials as a temporary solution to fill vacant positions until they can hire a fully



credentialed teacher, others may use it as a long-term strategy to recruit and train new teachers who can begin working in their schools while they are actively pursuing a teaching credential (e.g., through a “grow your own” program). Thus, increases in the number of educators with temporary credentials can sometimes signify a worsening shortage and other times signify progress toward addressing a shortage.

### The Number of Michigan Teachers With Temporary Credentials Remains High, but Waivers and Policy Changes Make Year-to-Year Comparisons Challenging

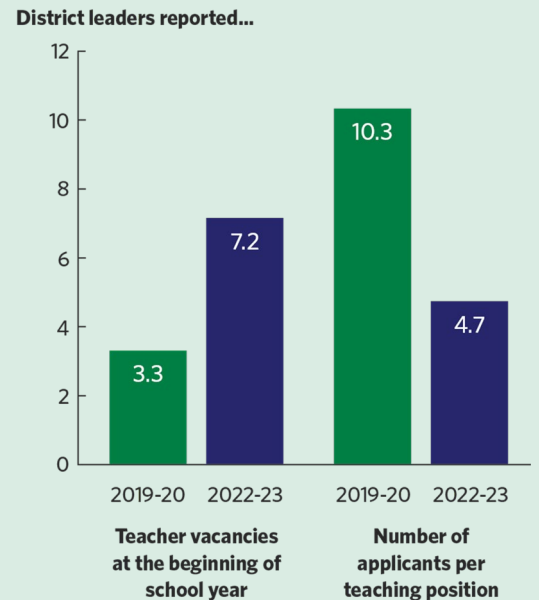
As both of our previous reports have shown, the number of teachers with temporary credentials has increased over time. Figure 3.2 shows that counts of teachers with special education approvals and annual career authorizations continued to increase in 2022-23. However, changes in permit requirements and waivers make it difficult to interpret trends in other types of temporary credentials.

The number of teachers with full-year substitute teaching permits was stagnant from 2019-20 to 2020-21, experienced a sharp increase from 2020-21 to 2021-22, and was once again stagnant from 2021-22 to 2022-23. One factor that contributed to the sharp increase was a new requirement for virtual teachers to have full-year substitute permits, even if they already held the appropriate certificate and endorsement for their teaching assignment; this took effect in 2021-22 and was rescinded for the 2022-23 school year. We do not show a count of teachers with extended daily substitute teaching permits in 2022-23, as the state waived the requirement that districts apply for extended permits for substitute teachers covering the same assignment for more than 90 days.

## TEACHER VACANCIES AND APPLICANT POOL

While there is no statewide database of teacher vacancies in Michigan, recent survey research in 67 districts throughout the state provides some insight about vacant positions, the pool of applicants for these positions, and how they have changed since the onset of the COVID-19 pandemic.

Torres et al. (2023) shows that district leaders reported having about **twice as many teacher vacancies** and only **half as many applicants** for each vacant position in 2022-23 as they did in 2019-20.

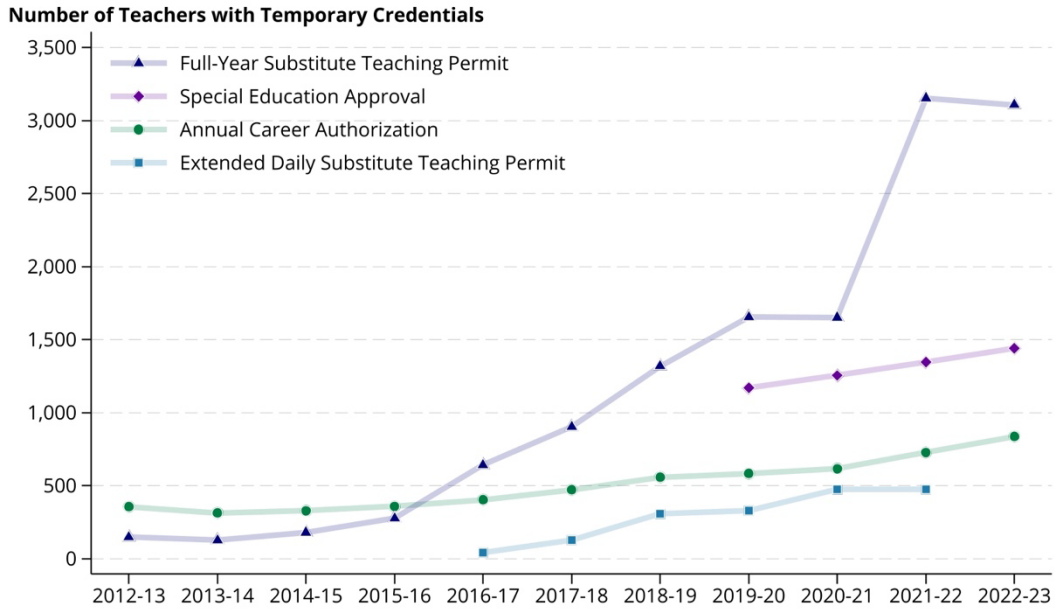


Source: “Final Report: The State of the Educator Workforce in Michigan: An In-Depth Look at K-12 Staffing Challenges.” Torres et al., 2023.

In districts that predominantly serve students who are economically disadvantaged, on average more than 10% of teaching positions were vacant at the start of the 2022-23 school year.

The study found that special education teacher vacancies were the most difficult for districts to fill, followed by math and science teacher vacancies.

Figure 3.2. Individuals With Temporary Teaching Credentials



Notes: All data points represent counts of unique educators with a particular type of credential who were actively employed with teaching assignments.

While in past reports we showed trends in the number of teachers with full-year substitute permits broken down by subject area and educational setting, we did not include updated versions of these figures in this year’s report, as the recent changes in the permit policy for virtual teachers makes it difficult to make meaningful comparisons between the data from 2021-22 and 2022-23.

### There Were More Certified Teachers Assigned Out-of-Field Than Non-Certified Teachers With Temporary Credentials

To gain insight about how districts’ reliance on teachers with temporary credentials differs across subject areas, we updated our past analyses about the alignment between teachers’ credentials and their teaching assignments using newly available data from the 2022-23 school year. Table 3.2 shows the percentages of Michigan teachers who are certified, who do or do not have an appropriate endorsement for the content they are teaching, and who are not certified but have a full-year substitute permit. The top panel shows these as percentages of the total teaching FTE that districts reported in the REP and the bottom panel shows them as percentages of the “teachers of record” that districts reported for each course in the TSDL. We calculate both sets of percentages for elementary teachers who teach core subjects and for math, ELA, science, and social studies teachers at the secondary level.

As was the case last year, the percentages of teachers who are certified and the percentages who are appropriately endorsed are consistently higher when we

calculate these based on teachers’ assignments in the REP than when we calculate them based on the courses for which they’re listed as a “teacher of record” in the TSDL. As we discussed in [last year’s report](#), this may be an artifact of district reporting practices.<sup>4</sup> If this is the case, we should start to see greater alignment between the REP and TSDL panels in future reports as a result of the increased data quality checks, training, and guidance that CEPI has been providing to districts to ensure that they are reporting the appropriate assignment codes in the REP and course codes in TSDL.

<b>Table 3.2. Percent of Teachers Appropriately Credentialed for Their Assignments/Courses, 2022-23</b>					
<b>Percent of Teaching FTEs</b>					
	<b>Elementary</b>	<b>Math</b>	<b>ELA</b>	<b>Science</b>	<b>Social Studies</b>
Certified Teachers	95.6%	96.6%	96.8%	96.1%	97.6%
<i>Appropriately Endorsed</i>	95.2%	91.9%	90.4%	88.3%	94.2%
<i>Assigned Out of Field</i>	0.4%	4.7%	6.5%	7.8%	3.4%
Full-Year Substitutes	4.2%	3.1%	3.2%	3.7%	2.2%
No Credential Found	0.1%	0.3%	0.1%	0.1%	0.1%
<b>Percent of Teachers of Record</b>					
	<b>Elementary</b>	<b>Math</b>	<b>ELA</b>	<b>Science</b>	<b>Social Studies</b>
Certified Teachers	92.9%	95.0%	94.7%	93.6%	95.7%
<i>Appropriately Endorsed</i>	92.2%	89.4%	90.2%	84.5%	90.7%
<i>Assigned Out of Field</i>	0.7%	5.6%	4.5%	9.1%	5.0%
Full-Year Substitutes	6.6%	4.4%	4.6%	5.7%	3.7%
No Credential Found	0.5%	0.6%	0.7%	0.7%	0.6%

*Notes: Some teachers in the “no credential found” category may have daily substitute teaching permits or credentials that are tied to a different ID number than their employment data.*

The percentage of teachers who are appropriately credentialed for the courses they teach was lower in 2022-23 than in 2021-22. For example, the percent of math teaching FTEs taught by an appropriately credentialed teacher declined by about 3 percentage points, from 95% (as we showed in [last year’s report](#)) to 92% in 2022-23. In both years, the teachers who are not appropriately credentialed for their assignments more often than not were certified teachers who had teaching assignments outside of their endorsement area. It was comparatively less common for teachers to have only a temporary credential like a full-year substitute teaching permit, and very rare for teachers to have neither a teaching certificate nor a full-year substitute permit.

## Throughout the State, Many School Districts Struggle to Find Teachers With Special Education or Science Credentials

The percentages of teachers who are certified but not appropriately endorsed are much higher for science than for other core subjects. This may be because science endorsements are more specialized than math endorsements (e.g., a single secondary “mathematics” endorsement qualifies a teacher to teach all secondary level math classes but there are separate endorsements for biology, chemistry, and physics, earth/space science, and physical science). It may be particularly challenging for small, rural districts to hire teachers who have the appropriate specialized credentials for a wide enough range of courses to meet their students’ needs given the relatively small number of teachers they employ, particularly for a field with as many specialized disciplines as science. While Michigan does offer a general “science” endorsement that is appropriate for teaching most core science courses, research has shown that having a science teacher with specialized training in the specific field of science they teach is positively associated with student achievement (Sancassani, 2023).

While the overwhelming majority of teachers throughout the state are certified to teach in Michigan, the availability of teachers with the right credentials for a particular assignment varies by region. Figure 3.3 shows the percentage of teachers in different geographic regions who are “under-credentialed,” which includes teachers who are not certified as well as those who are certified but do not have an appropriate endorsement for the specific teaching assignment(s) their districts reported in the REP. Overall, fewer than 10% of teachers are under-credentialed in most regions, with some rare exceptions in rural and remote areas. As we noted in [last year’s report](#), high rates of under-credentialed science and special education teachers are far more prevalent throughout many areas of the state.

We also separately examine the rates of teachers who are certified but assigned outside their endorsement area (shown in Figure 3.4) and teachers who are not certified to teach in Michigan (shown in Figure 3.5). We can observe that the subject area in which an assignment is most likely to be covered by a teacher without a teaching certificate in many areas of the state is special education. By comparing special education in these two figures, we can see that while the under credentialing in special education instruction is distributed between certified teachers teaching out-of-field and full year substitutes in most of the state, in the upper peninsula region, special education is more likely to be taught by out-of-field teacher than by full-year substitutes.

Figure 3.3. Under-Credentialed Teachers by Geographic Location and Subject Area, 2022-23

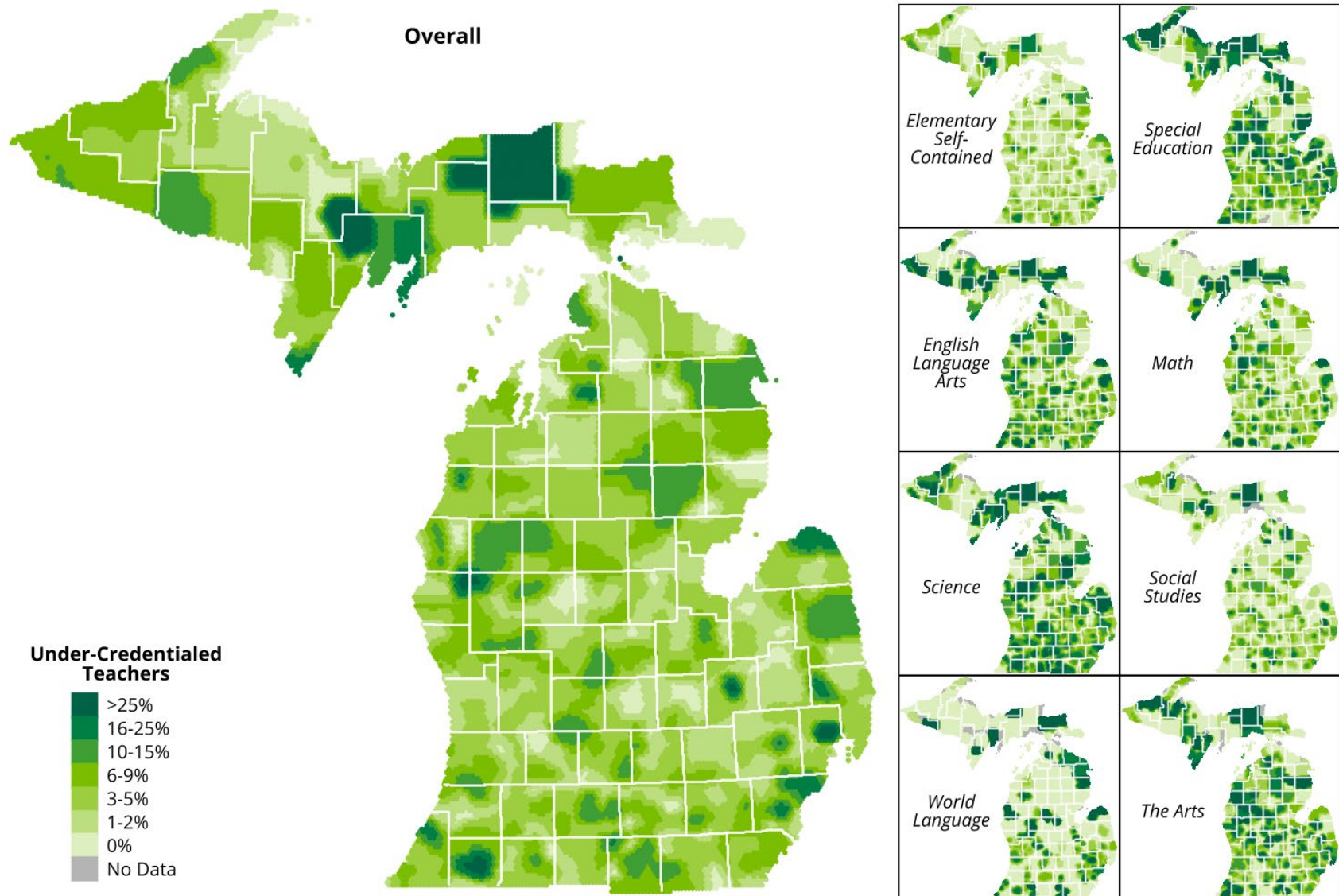




Figure 3.4. Certified Teachers Assigned Out-of-Field by Geographic Location and Subject Area, 2022-23

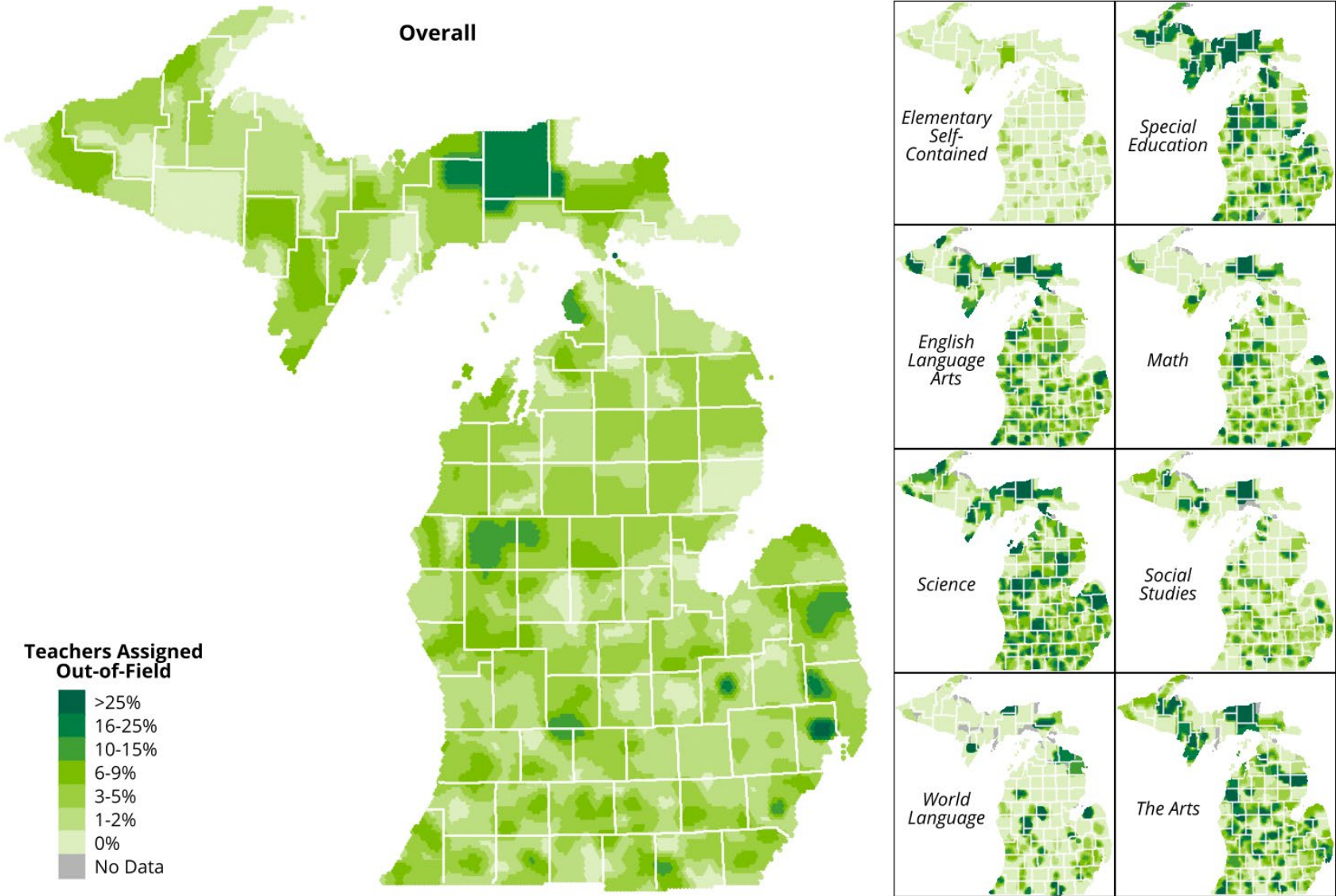
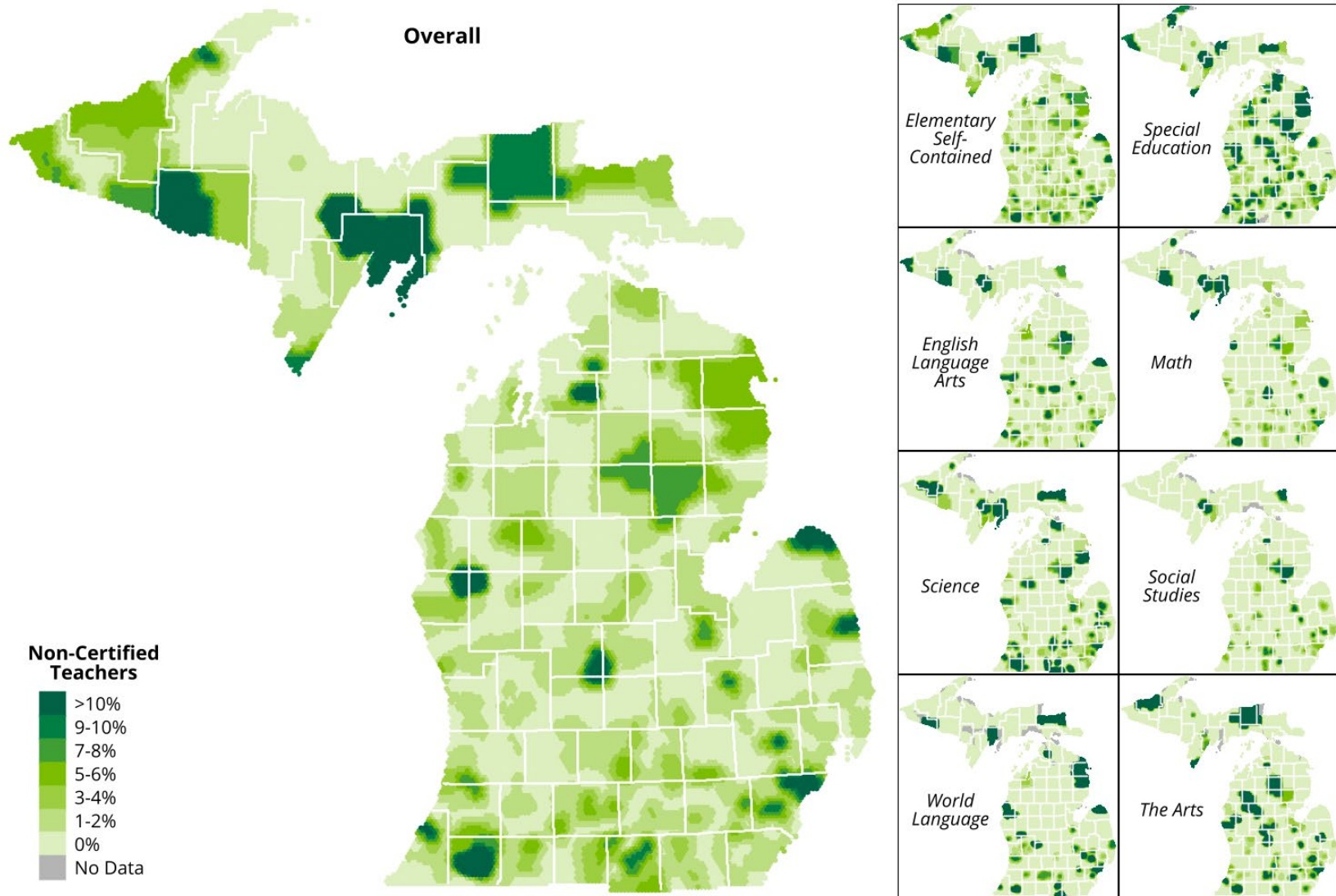


Figure 3.5. Non-Certified Teachers by Geographic Location and Subject Area, 2022-23



## SUMMARY

Though changes in the number and types of positions that districts report in the REP each year highlight some ways that districts may be responding to local vacancies, it remains clear that the data reported in the REP do not provide a complete picture of vacancies in Michigan. Information about school districts' use of temporary credentials provides context about the areas in which they have not been able to find or retain fully credentialed teachers. Districts' increasing reliance on under-credentialed teachers to meet their staffing needs could point to worsening local shortages or the types of strategies that local districts are adopting to address ongoing shortages.



# Section Four: Retention

In addition to recruiting enough teachers to fill vacant positions, school districts must be able to *retain* the teachers they have to maintain high-quality and stable learning environments for their students. Teacher turnover create a less stable environment for students, and it is costly for the district, taking time and monetary resources for recruiting, hiring, and mentoring away from other initiatives. Estimates of the cost to a district of each teacher who leaves range between \$7,500 and \$22,300 per teacher (Barnes et al., 2007).<sup>5</sup> The substantial investments that state agencies, local school districts, and other organizations have made to recruit new teachers into the profession will only be sustainable if these teachers remain in the profession and continue teaching in the types of schools and classrooms that need them the most.

In this section, we examine overall rates of retention throughout Michigan, as well as different patterns of mobility and attrition that affect local and statewide retention rates. These analyses address the second report requirement outlined in [2020 PA 316](#):

- b. *“The educator retention rates in this state, disaggregated by geographic region, broad subject areas and educational settings, number of years in the profession, and educator demographics.”*

In addition to updating the analyses from last year’s [comprehensive report](#), we include statewide, local, and subgroup-specific rates of retention in the profession, in districts, and in schools to deepen our understanding of how and where teacher retention varies throughout the state of Michigan.

## TEACHER RETENTION AND ATTRITION

We examine three types of teacher retention: retention within Michigan’s public school teacher workforce, retention in the same school district, and retention in the same school. As the top row of Table 4.1 shows, about 90% of Michigan’s 2021-22 public school teachers were still teaching somewhere in Michigan in 2022-23. About 85% of teachers returned to the same school district, and 76% returned to the same school. These district- and school-level retention rates are lower than the rate of retention in the state’s teacher workforce, as some teachers continued teaching in Michigan but switched to different schools or different school districts between fall 2021 and fall 2022.

## Retention Rates Were Lowest for Early Career and Charter School Teachers

Teachers with fewer than 5 years of prior teaching experience in Michigan were less likely than more experienced teachers to remain in the profession, or to continue teaching in the same school or district. The second panel of Table 4.1 shows that 86% of these less experienced teachers returned to teach anywhere in Michigan in 2022-23, compared to more than 90% in each of the other experience groups. This is consistent with well-established national attrition patterns whereby teachers in their first five years of the profession are more likely to exit teaching (Cooper & Alvarado, 2006; Gray & Taie, 2015; Hammerness, 2008; Ingersoll, 2003).

Only 76% of early career teachers returned to the same district, and just over half (51%) returned to the same school. These patterns suggest that less experienced teachers were not only more likely to leave the profession, but also substantially more likely to move between schools and districts than their more experienced peers. These differences may reflect more senior teachers' ties to their districts due to financial incentives built into salary schedules and pension plans (Quartz et al., 2008; Struyven & Vanthournout, 2014; Theobald & Gritz, 1996), as well as district policies that protect more senior teachers from involuntary transfers (Strunk et al., 2018). It may also be the case that some trial and error is needed early in teachers careers to find the right employment fit (Shure, Kristen & Weingarten, Zach, 2023).

All three retention rates were lower for teachers in charter schools than those in TPSs. While this may in part reflect differences in the average experience levels of teachers across the traditional public and charter school sectors (Baker & Dickerson, 2006; Carruthers, 2012; Stuit & Smith, 2012), charter school teachers' rates of retention in the profession and in their districts are notably lower than the corresponding rates for all early career teachers. This suggests that differences in average experience levels alone cannot account for the low retention rates in charter schools. School locale may be another contributing factor, as charter schools are disproportionately concentrated in urban areas. Teachers in urban districts were less likely to remain in the profession, stay in the same district, or stay in the same school than teachers in any other type of locale (shown in the bottom panel of Table 4.1).

Although we find some differences in retention rates across demographic groups, these may to some extent reflect differences in the composition of teachers across experience levels and school types. For instance, all three types of retention rates are lower for teachers of color than for White teachers. However, given that Michigan's teacher workforce has been growing more diverse in recent (Ackley, 2023; Hopkins et al., 2021), early career teachers make up larger shares of the Asian, Black, and Latino subgroups compared to White teachers. Teachers of color are also more likely to work in charter schools and in urban areas (Ingersoll & May, 2011), which as we previously noted, experience lower retention rates than other types of schools.

<b>Table 4.1. Retention Rates by Subgroup, Fall 2021 to Fall 2022</b>			
	<b>Percent of Teachers Who Returned to Teach in...</b>		
	<b>Any Michigan Public School</b>	<b>The Same District</b>	<b>The Same School</b>
<b>Overall</b>	90.1%	84.8%	75.5%
<b>BY YEARS IN THE PROFESSION</b>			
0-4	86.0%	76.3%	51.3%
5-9	91.4%	84.1%	78.7%
10-14	92.5%	87.1%	82.0%
15+	90.9%	88.1%	83.3%
<b>BY GENDER</b>			
Female	90.2%	84.8%	75.3%
Male	90.0%	84.7%	76.1%
<b>BY RACE/ETHNICITY</b>			
White	90.6%	85.4%	76.6%
Black	85.2%	78.0%	65.0%
Latino	87.7%	81.2%	67.4%
Asian	89.0%	83.1%	70.2%
Other Race/Ethnicity	85.1%	78.8%	66.4%
<b>BY SCHOOL TYPE</b>			
TPS	91.0%	86.6%	77.6%
Charter School	83.8%	70.3%	57.8%
<b>BY LOCALE</b>			
Rural	90.0%	84.2%	75.0%
Suburban/Town	91.0%	86.4%	77.9%
Urban	88.5%	81.9%	71.1%

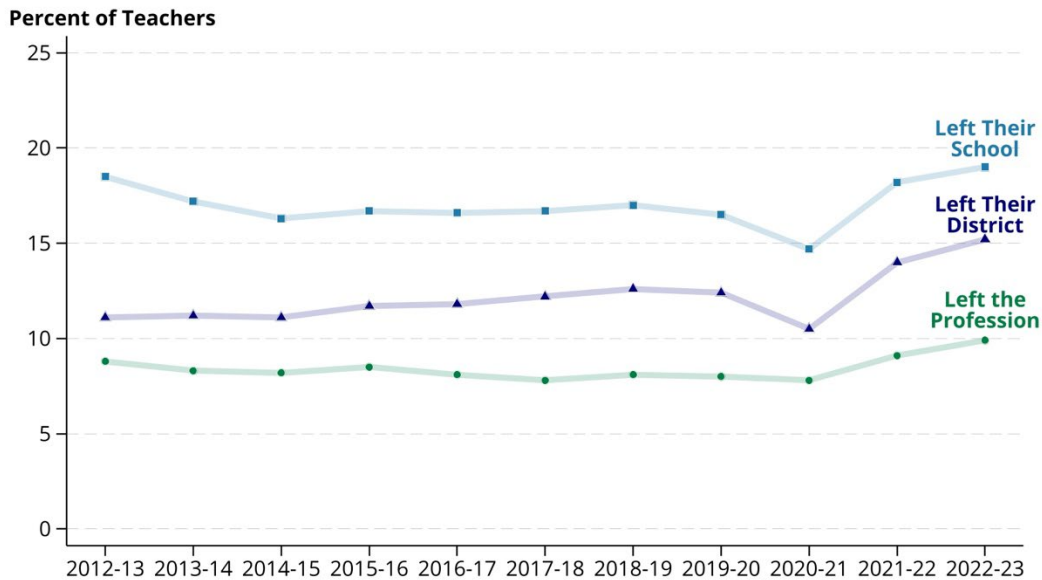
*Notes: For district- and school-level retention, we exclude teachers who taught in multiple districts or schools, respectively. The “other” race/ethnicity category includes teachers who are American Indian or Alaska Native, Native Hawaiian or Pacific Islander, or two or more races; we cannot show results for these races/ethnicities separately due to the low number of teachers in each group.*

## Teacher Attrition Rates Were Higher in 2022-23 Than at any Other Time in the Last Decade

The converse of teacher retention is teacher *attrition*, or teachers leaving their schools, districts, or Michigan’s public school teaching workforce altogether. The 90% overall rate of retention in Michigan’s teacher workforce in 2022-23 (shown in Table 4.1 means that the rate of attrition was about 10%. Similarly, the rates at which teachers returned to the same district (85%) or to the same school (76%) in 2022-23 imply that the district and school attrition rates that year were 15% and 24%, respectively. As Figure 4.1

shows, these 2022-23 attrition rates exceed those of any other school year since 2012-13. All three types of attrition were relatively stable for several years leading up to the COVID-19 pandemic, declined between 2019-20 and 2020-21 (though the decline in attrition from the profession was far less stark than the declines in school and district attrition that year), and have increased in each subsequent year.

**Figure 4.1. Attrition From Schools, Districts, and the Teaching Profession (Fall to Fall)**



*Note: We omit teachers who worked in multiple districts or multiple schools from district and school attrition rates, respectively.*

## Regional Teacher Attrition Rates Were Similar to State Averages Overall, but Some Areas Lost Substantial Shares of Teachers With Certain Specializations

Figure 4.2 shows how local rates of attrition from the profession varied throughout the state and across teachers' areas of specialization. In most regions, no more than 10% of teachers left Michigan's public school teaching workforce between 2021-22 and 2022-23, and only a few isolated areas experienced higher rates. However, some regions lost larger shares of teachers with certain specializations. For instance, districts in several parts of the Upper Peninsula lost 20% or more of their special education or science teachers between fall 2021 and fall 2022. The same was true for teachers of world languages and the arts in scattered areas of both the Upper and Lower Peninsulas. It's possible that some of these very high local rates are driven by small rural districts where even one teacher leaving the profession could translate to a high attrition rate due to how few specialized teachers there were in the district to begin with.

We include similar maps to examine patterns in attrition from districts, which capture both teachers who left the profession entirely and those who continued teaching but moved to a different district. As Figure 4.3 shows, local rates of attrition from districts fell between 11% and 15% in most areas of the state, but many regions experienced higher attrition of certain types of teachers. There are far more dark green regions on the subject-specific maps in Figure 4.3 than those in Figure 4.2, suggesting that many of the areas that experienced high attrition of specialized teachers lost these teachers to other districts. Figure 4.4 shows rates of attrition from schools, which includes teachers who move between schools within their district in addition to those who change districts and those who leave the profession altogether. These rates are significantly higher than district attrition rates in most parts of the state, suggesting that mobility between schools in the same district contributes significantly to year-to-year turnover in many Michigan schools.

Although overall rates of attrition from schools were between 6% and 25% in most parts of the state, the subject-specific maps in Figure 4.4 show that it was quite common for local areas to experience very low rates of attrition (below 1%) for some types of teachers and very high rates (above 25%) for others. This pattern suggests that shortages are not only highly localized to specific geographic areas, but also to specific subject areas within those districts. While one district may need a new science teacher and be fully staffed in math, its neighboring district may need a new math teacher and be fully staffed in science.

## COMPETITION BETWEEN DISTRICTS

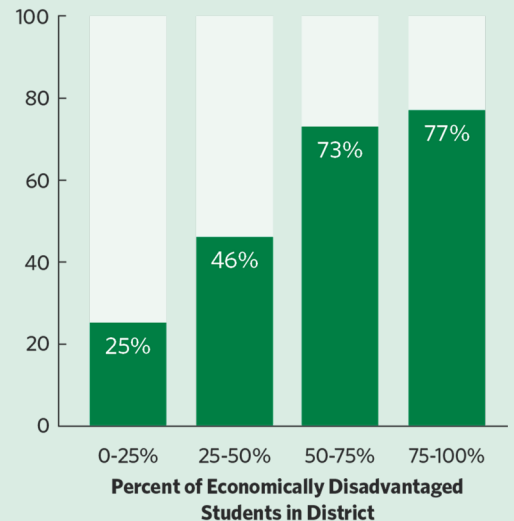
Two recent studies in Michigan found evidence that the limited supply of available teachers has led to a heightened sense of competition between neighboring school districts. This may be particularly challenging for districts that cannot offer the same financial incentives as their neighbors.

Singer et al. (2023) interviewed and surveyed leaders of some of Michigan’s lowest-performing schools about their staffing challenges. As the report explains:

**“Principals identified competition from neighboring districts—especially related to teacher salaries—as factors that negatively affect hiring for their schools.”**

Torres et al. (2023) found that many leaders reported instances of “poaching,” or actively recruiting teachers employed in other districts rather than waiting for them to apply for open positions on their own. Most leaders from low-income rural and urban districts felt that this was a serious issue.

**Percent of Districts Agreeing That Poaching is a Serious Issue**



Source: “Final Report: The State of the Educator Workforce in Michigan; An In-Depth Look at K-12 Staffing Challenges.” Torres et al., 2023.

Figure 4.2. Attrition From the Teaching Profession by Geographic Region and Subject Area, Fall 2021 to Fall 2022

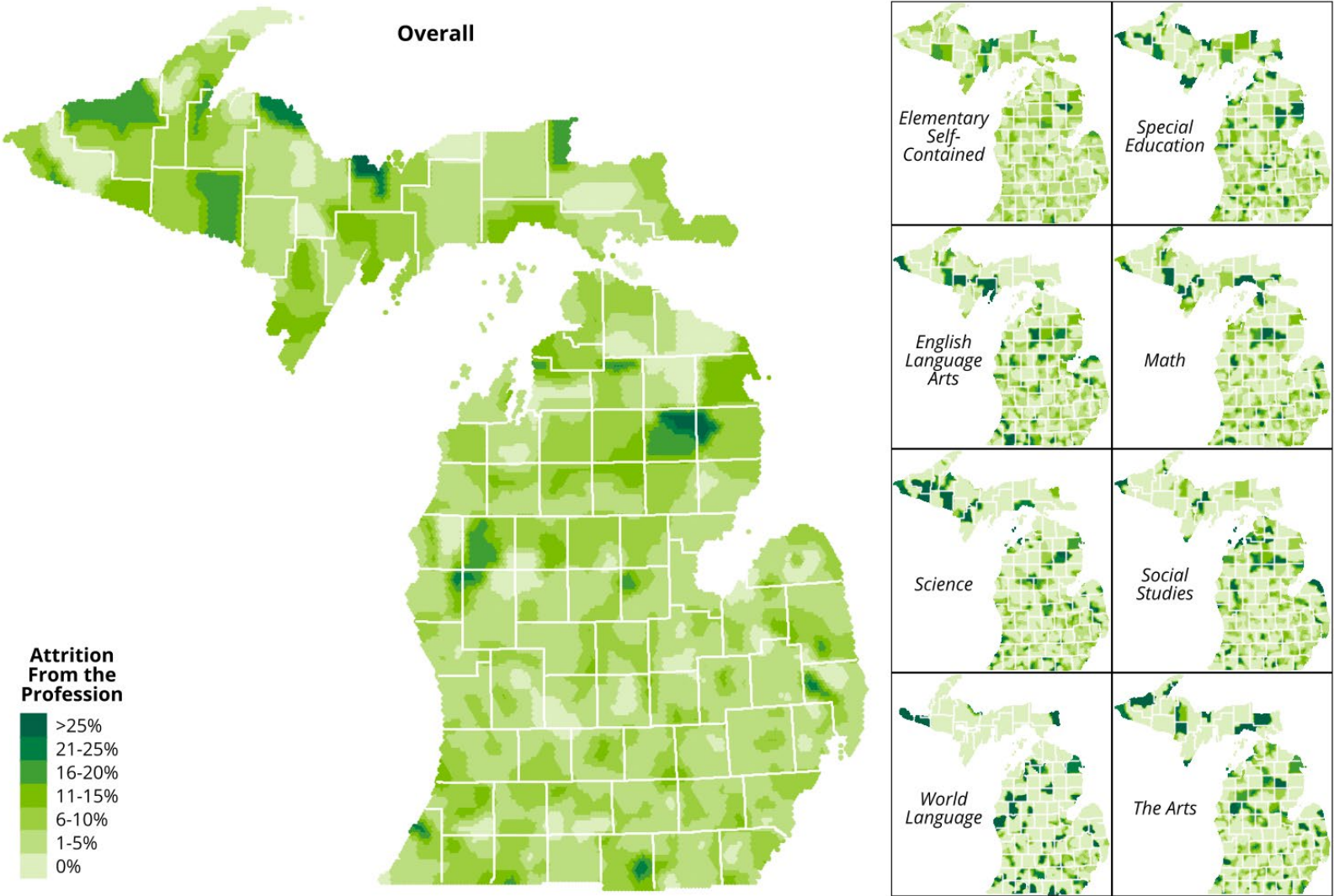




Figure 4.3. Attrition From Districts by Geographic Region and Subject Area, Fall 2021 to Fall 2022

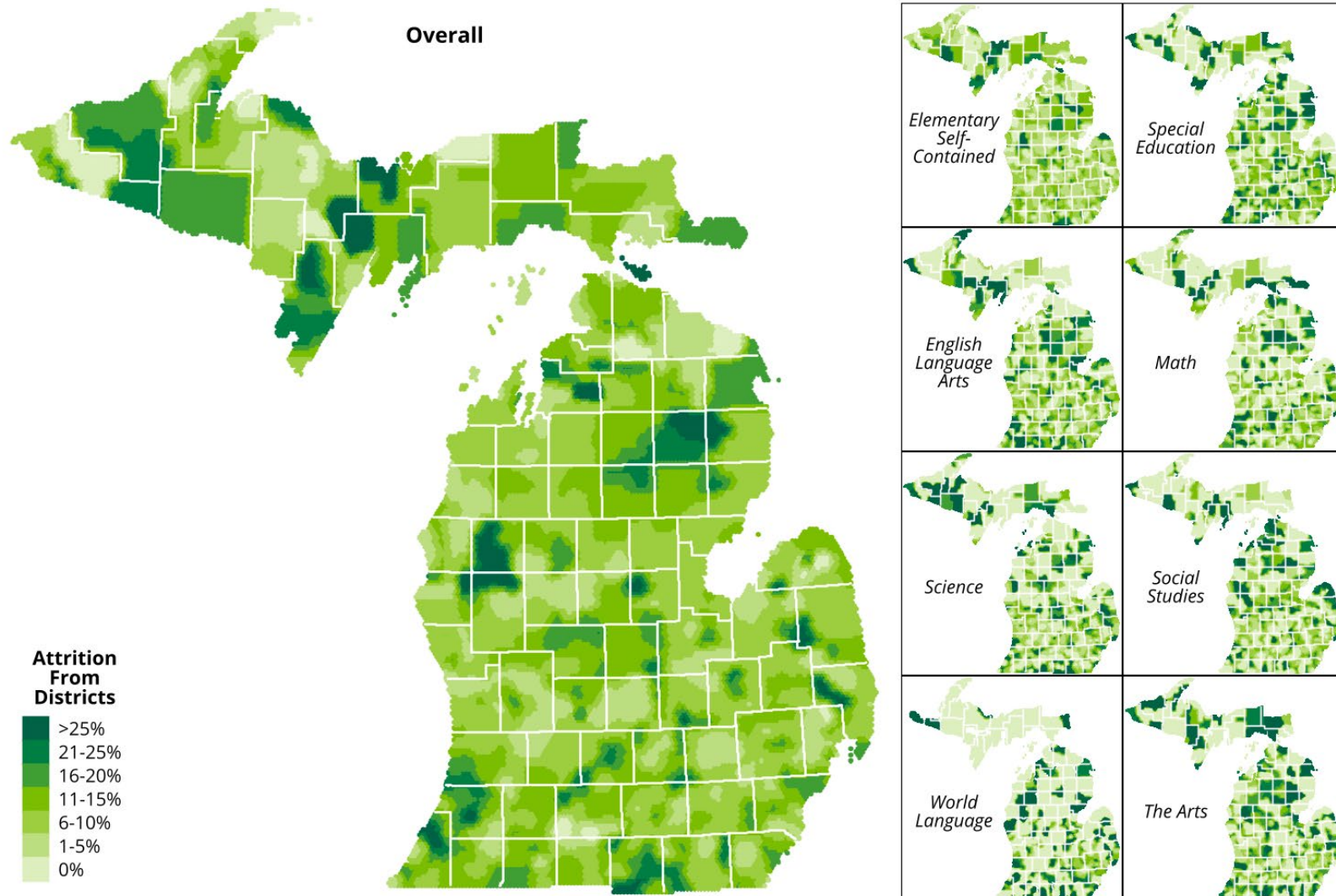
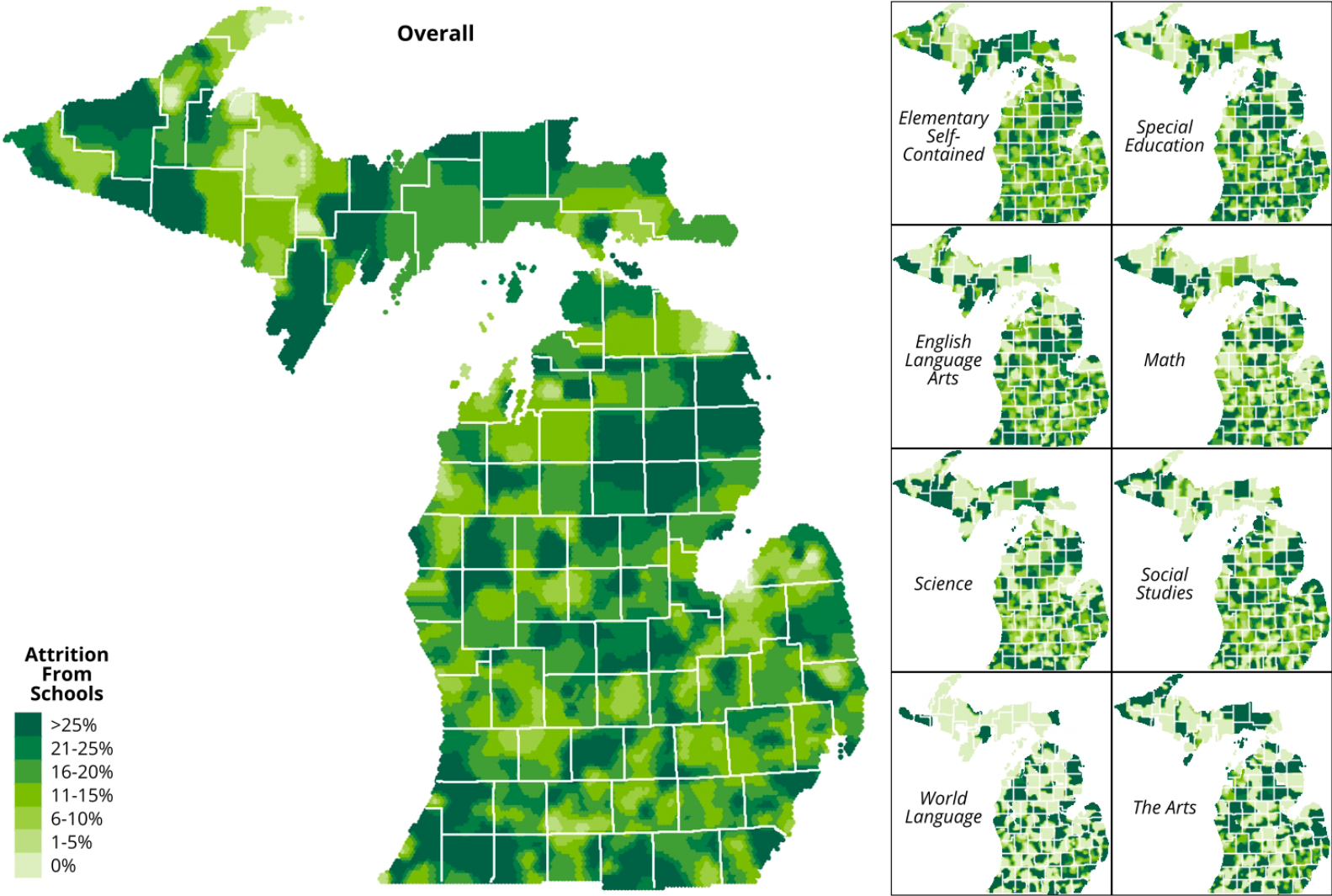


Figure 4.4. Attrition From Schools by Geographic Region and Subject Area, Fall 2021 to Fall 2022





## TEACHER MOBILITY

To better understand the nature and possible causes of teacher retention and attrition in Michigan, we examine several measures of mobility that contribute to teacher turnover. These include entry into and exit from the teaching profession, mobility of teachers between schools and districts, and the share of teachers each year who are inexperienced or new to their current districts. We examine each of these types of mobility individually to provide context about the factors driving the overall rates of retention and attrition that we showed in the prior subsection.

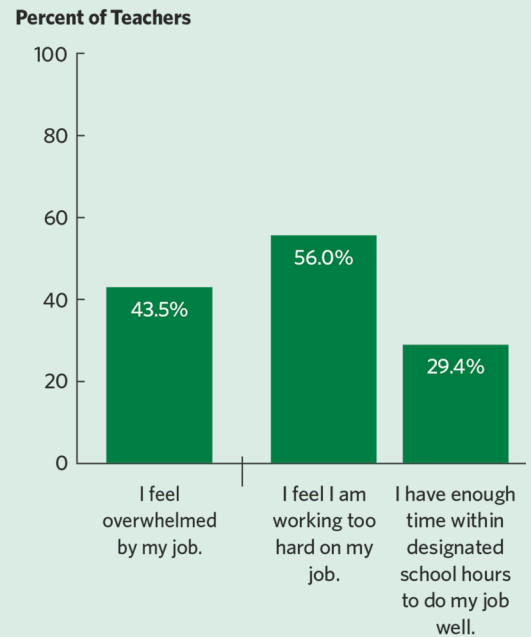
### Teachers Entering Michigan’s Public School Workforce in 2021-22 and 2022-23 Outnumber Those Who Left

Despite increases in attrition from the teaching profession (shown in Figure 4.1), even more new teachers entered the workforce in 2021-22 and 2022-23, resulting in a net increase in the number of teachers working in Michigan’s public schools. In [last year’s report](#), we showed that from 2012-13 to 2016-17, the number of teachers exiting from Michigan’s teacher workforce each year exceeded the number of new teachers entering. This trend reversed starting in 2017-18, except during the height of the COVID-19 pandemic in 2019-20 and 2020-21. As Figure 4.5 shows, both the number of teachers entering the profession and the number exiting were higher in 2021-22 and 2022-23 than at any other time since 2012-13. In both years, the number of teachers who entered the profession ultimately surpassed the number who exited. One possible explanation for this is that teachers may have chosen to delay major employment decisions, such as beginning their first teaching job or entering into retirement,

## EFFECT OF COVID-19 ON THE TEACHING PROFESSION

Recent studies about Michigan’s Partnership schools and districts, which serve some of the state’s most at-risk students, identified multiple factors that likely contributed to the high rates of teacher mobility and attrition in years following onset of the COVID-19 pandemic.

Singer et al. (2023) found that, because of substitute shortages in these districts, teachers have had to cover other classes during their planning time. Many teachers reported feeling overwhelmed or overworked, and few felt that they had enough time during the school day to do their jobs well. With less experience and fewer “tools in their toolboxes” to manage hardships of the job, these types of challenges may have been particularly difficult for early career teachers.



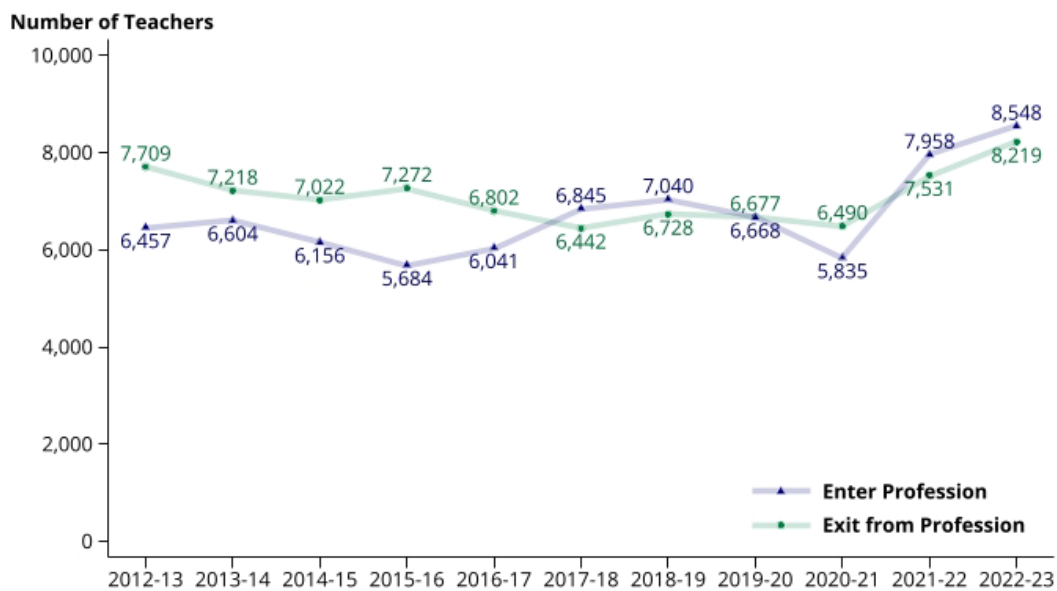
Source: “Human Capital Challenges in Round 4 Partnership Districts.” Singer et al., 2023.

Teachers who planned to leave their jobs cited workload and pay as the top reasons for their decision; those who planned to stay said that the leadership, students, and culture and climate in their schools were major factors (Harbatkin et al., 2023).

until after most school districts resumed in-person instruction in 2021-22. It is also possible that increased stress and burnout in 2019-20 and 2020-21 contributed to the high exit rates in subsequent years.

It is important to note that these numbers represent changes in teachers' employment between two consecutive years. This means that "exiter" may include some teachers who only temporarily stopped teaching and returned in later years in addition to teachers who left the profession permanently. Similarly, "enterers" may also include experienced teachers re-entering the profession (e.g., retired teachers returning to the classroom). Increases in these types of temporary exits and re-entries may partially explain the high overall entry and exit rates in pandemic-affected school years, given that teachers may have been more likely to leave temporarily due to health concerns or extended illnesses than in past years.

**Figure 4.5. Entry Into and Exits From the Teaching Profession (Fall-To-Fall)**



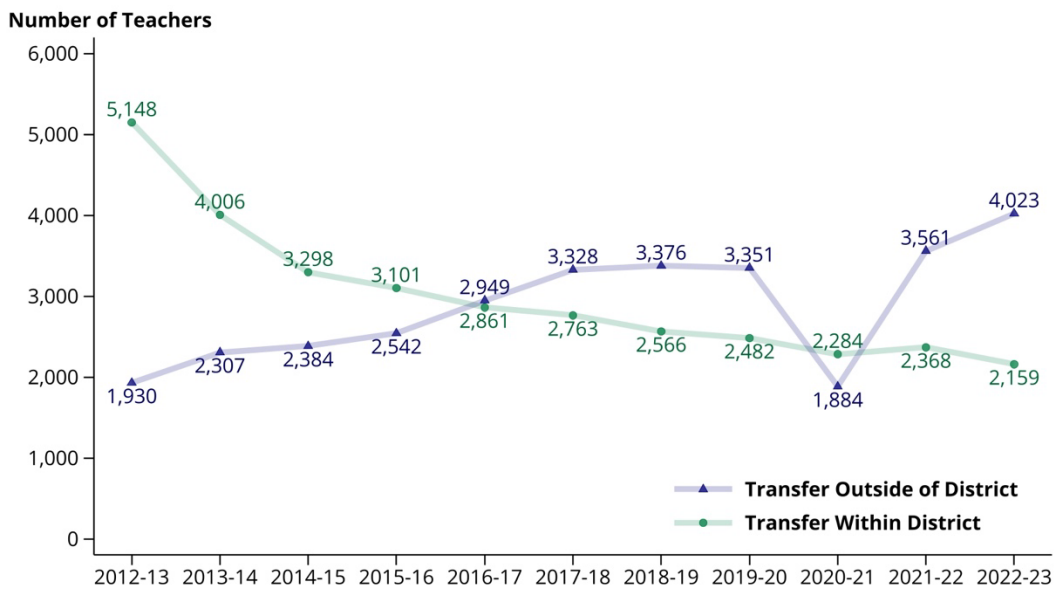
*Notes: "Enterers" may include some teachers who reentered the profession or switched from a non-teaching role within the state public school system to a teaching role. Exit rates may include some educators who left temporarily and returned to teach in a later year and some who switched from teaching to non-teaching roles within the state public school system.*

## In 2022-23, Teachers Were More Likely to Change Districts but Less Likely to Change Schools Within Their Current District

In [last year's report](#), we showed that in years leading up to the COVID-19 pandemic, the number of teachers transferring between schools in the same district decreased year after year while the number transferring between districts followed an increasing trend. Within-district transfers generally continued along the same decreasing trend during

and in the wake of the COVID-19 pandemic, other than a slight uptick between 2020-21 and 2021-22 which could indicate that districts were struggling to retain teachers and needed to reassign some teachers to different buildings to meet their staffing needs. Between-district transfers, on the other hand, decreased sharply in 2020-21 before increasing to a record high in 2021-22, possibly indicating that teachers who otherwise would have switched districts in 2020-21 waited until the following year to do so. Figure 4.6 extends these trends to include within- and between-district transfer rates from the 2022-23 school year. The updated figure shows that within-district transfers continued to decrease in 2022-23, while between-district transfers continued to increase. The increase in between-district transfers from 2021-22 to 2022-23 exceeds typical year-to-year changes in mobility rates prior to the COVID-19 pandemic but was not as stark as the increase between 2020-21 and 2021-22.

**Figure 4.6. Within and Between District Teacher Transfers (Fall-to-Fall)**



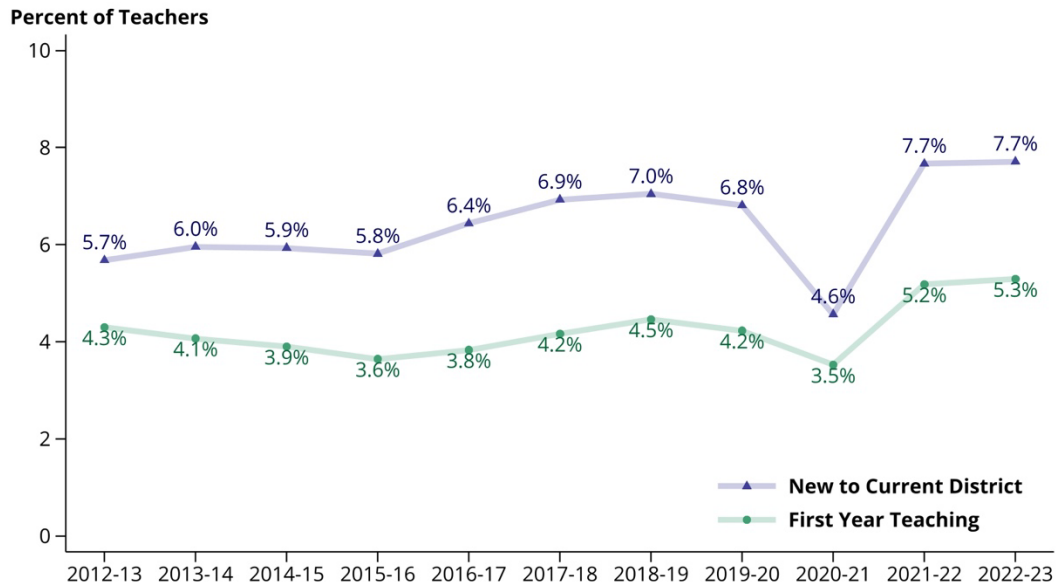
*Notes: We identify within-district transfers as a change in an individual's assignment from a teacher working in a single building one fall to a teaching assignment in a different, single building in the same district the next fall. Similarly, we identify between-district transfers as a change in an individual's assignment as a teacher working in a single district one fall to a teaching assignment in a different, single district the next fall.*

### Inexperienced Teachers and New Hires Made up Larger Shares of the Teaching Workforce in 2021-22 and 2022-23 Than in Past Years

As we showed in [last year's report](#), prior to the COVID-19 pandemic about 6% to 7% of Michigan teachers each year were new to their current districts, while about 4% were in their first year of teaching. Shares of both first year and newly hired teachers decreased

to all-time lows in 2020-21 and then increased to all-time highs in 2021-22. As Figure 4.7 shows, these rates remained high in 2022-23, changing very little relative to their 2021-22 levels. As we noted elsewhere in this section, these trends may be driven in part by teachers who otherwise would have begun their first teaching jobs or moved to new districts in 2020-21 school year but waited until 2021-22 or 2022-23 to do so.

**Figure 4.7. Percent of Teachers Who Are New to Their Current District or in Their First Year of Teaching (Fall)**



*Notes: Teachers who are “new to their current district” may include some teachers who previously taught in other districts. “First-year teachers” may include some teachers who previously worked in a non-teaching role in a traditional public or charter school in Michigan and some who taught in private schools or in other states.*

## SUMMARY

The analyses in this section highlight the dramatic effect the COVID-19 pandemic had on teacher mobility, attrition, and retention. While teachers were far less likely to make any employment change during 2020-21, whether entering, exiting, or moving districts, they were far more likely to make employment changes in the following years as compared to before the pandemic. Recent increases in the number of teachers entering Michigan’s public school teaching workforce each year have helped to offset increases in exits. In fact, more teachers entered the profession than exited in 2021-22 and 2022-23, resulting in net gains of Michigan teachers in both years. While this is good news for Michigan’s teacher workforce overall, it does not mean that all districts have the number and types of teachers they need. In the next section, we will further examine patterns in the types of new teachers entering Michigan’s public school workforce and the locations where they are (and aren’t) choosing to teach.

# Section Five:

## Teacher Preparation

As we showed in Section Four, more Michigan teachers left the profession between 2021-22 and 2022-23 than at any other time in the past decade. However, rates of entry into the teaching profession also hit record highs, surpassing teacher exits. This means that there was a net *increase* in Michigan teachers, but also that new teachers make up a larger portion of the workforce than in past years. Thus, it will be important to understand patterns in the types of teachers entering the profession and the types of districts in which they are teaching.

In this section, we expand on the analyses we included in [last year's report](#) to address the third reporting requirement outlined in [2020 PA 316](#):

- a. *"The number of graduates from approved, in-state teacher preparation programs, disaggregated by the broad subject areas and educational settings of those graduates, if any."*

In addition to updating last year's analyses of newly certified Michigan teachers to include data from the 2022-23 school year, we incorporate newly available information about Michigan's non-public school employees to better understand the population of credentialed teachers who aren't teaching in any of the state's public schools. We also examine characteristics of in-state teacher preparation program graduates' first-year job placements, including how far their first jobs are from where they grew up and where they went to college, as well as differences in the types of school districts where graduates from each program tend to teach.

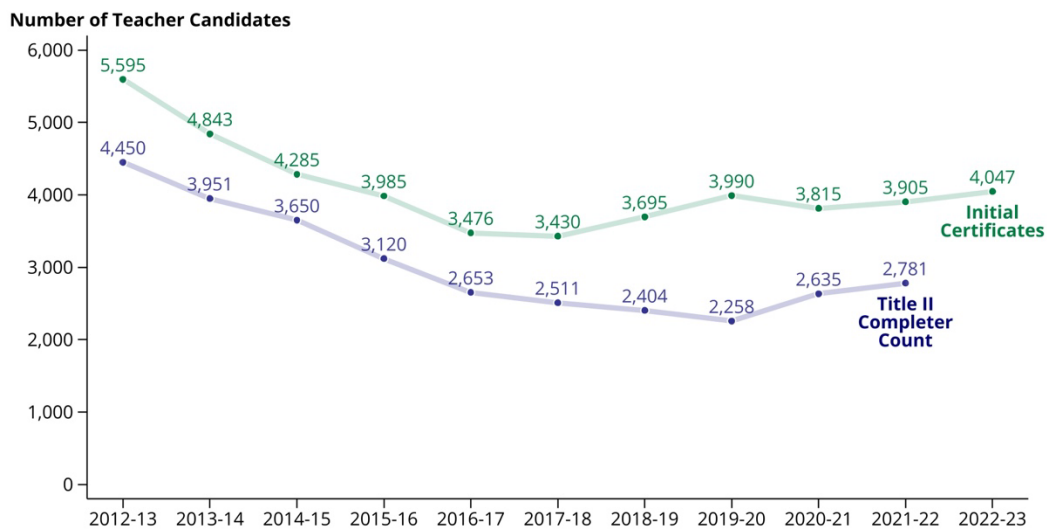
## PROGRAM COMPLETION AND INITIAL CERTIFICATION

We showed in prior reports that the number of candidates earning Michigan teaching certificates declined each year between 2012-13 and 2017-18, started to rebound after 2017-18, and decreased again during the height of the COVID-19 pandemic. Our initial report also showed that the number of candidates who completed teacher preparation programs in Michigan decreased each year from 2012-13 to 2019-20, based on the most recent Title II data available at that time.

## More Candidates Have Been Completing Teacher Preparation Programs and Earning Michigan Credentials in Recent Years

Figure 5.1 extends these trends to show the most recent data available about candidates who earned Michigan teaching credentials for the first time (shown in green) and those who completed in-state teacher preparation programs (shown in blue). The number of candidates who earned initial Michigan teaching certificates increased in both 2021-22 and in 2022-23.<sup>6</sup> Title II data also show increases in the number of candidates completing in-state teacher preparation programs in 2020-21 and 2021-22 (these data are not yet available for 2022-23).<sup>7</sup>

**Figure 5.1. Teachers Issued Initial Certificates and Title II Completer Counts**



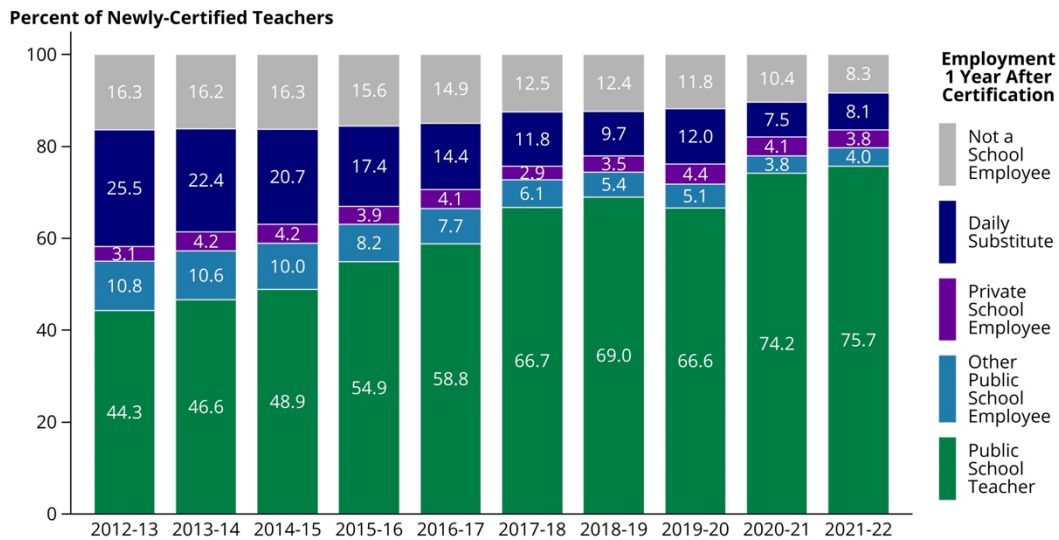
*Notes: The green line represents the number of teacher candidates who earned an initial Michigan teaching certificate. The blue line represents the number of teacher candidates who completed teacher preparation programs in Michigan; these data are not yet available for 2022-23.*

While there is a lot of overlap between the groups of educators earning initial certificates and those completing in-state preparation programs, they are not exactly the same. These discrepancies are mostly because counts of initial certificates include teachers who attended out-of-state preparation programs, while the blue line includes only candidates from programs in Michigan. As such, in years when data from MDE show increases in out-of-state applicants earning Michigan teaching credentials (Office of Educator Excellence, 2022) the gap between the two lines becomes larger. While out-of-state candidates make up a larger share of new certificate holders in recent years than they did a decade ago, the increasing trend in Title II completer counts suggests that in-state preparation programs account for at least some of the recent increase in initial certificates.

## More Than Three-Quarters of Teachers Who Became Certified in 2021-22 Taught in a Michigan Public School by 2022-23

While not all teacher trainees will teach within a year of certification, we know that being employed in a school is associated with eventual employment as a teacher (Goldhaber et al., 2022). Thus, we examine whether newly certified teachers taught in Michigan public schools the following year, and whether they worked in other types of roles or other types of schools. Figure 5.2 shows the employment of initially certified teachers within one full school year after certification. For example, in the rightmost bar, we can see that of the 3,905 newly certified teachers from Figure 5.1 who became certified in 2021-22, about 76% went on to teach in a Michigan public school by the end of 2022-23.

Figure 5.2. Employment Outcomes One Year After Initial Certification



Notes: The school years on the x-axis represent the year when a teacher earned their initial certificate. If a person worked in more than one of these roles, we only include them in the first category (in order from the bottom to the top of the legend) for which they qualify.

Of the remaining 24%, most were school employees somewhere in Michigan, but either had non-teaching roles or worked in a private school. Only about 8% of the teachers who earned their initial certificates in 2021-22 had not worked in any role in a Michigan public or private school by the end of 2022-23. However, this was not always the case. Over the past decade, the percentage of the newly certified teachers who became public school teachers within the next year has increased, while the percentage who worked in private schools remained about the same, and the percentages working in non-teaching roles at public schools, working as daily

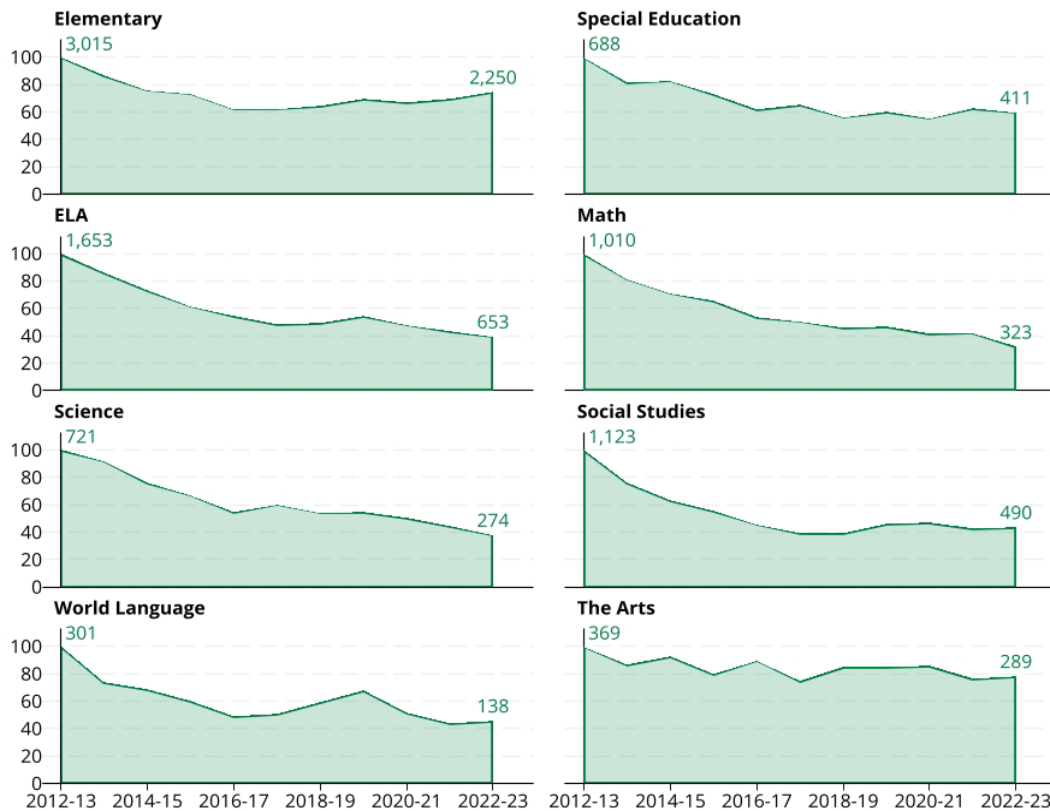


substitutes, and not employed in any Michigan school in any role all decreased. This pattern may reflect increases in the demand for teachers as shortages worsened.

## Initial Certification Rates Are Still Decreasing for Teachers With ELA, Math, and Science Endorsements

While the overall number of teachers earning initial certificates each year has started to increase, this is not the case for all types of teachers. In Figure 5.3, we show initial certificates issued by subject area compared to the number issued in 2012-13, the high-water mark of the last decade. For instance, there were 78% as many certificates issued with an arts endorsement in 2022-23 as there were in 2012-13. Trends in new certificates with an elementary or special education endorsement generally mirror the overall trends shown in Figure 5.1, while math, science, ELA, and social studies see more consistent declines across the full time span of our study. Initial certificates for teachers of the arts have remained relatively stable over time.

**Figure 5.3. Change in the Number of Teachers Issued Initial Certificates by Subject Area (Percent Relative to 2012-13 Rate)**



*Notes: The y-axis represents the number of Michigan teachers who earned initial certificates with a particular type of endorsement each year as a percentage of the rate from 2012-13 (e.g., if half as many teachers earned certificates in 2016-17 as in 2012-13, the 2016-17 data point would be at 50% on the y-axis). To provide additional context, we show the exact numbers of teachers who earned initial certificates in 2012-13 and 2022-23 in green text above the first and last data point.*



## FIRST-YEAR TEACHING PLACEMENTS

Teacher shortages are not evenly distributed across the state so policy solutions will vary by location and context, which is why we highlight where the graduates from Michigan's teacher preparation programs come from and where they go after they earn their credentials. In this section, we examine characteristics of recent graduates' initial teaching placements, as well as the proximity of their first teaching jobs to the K-12 school districts and postsecondary institutions they attended. In these analyses, we focus on educators who graduated from in-state, university-based teacher preparation programs and worked as first-year teachers in a Michigan public school between 2018-19 and 2022-23.

### Graduates From Different Teacher Preparation Programs Tend to Teach in Different Types of School Districts

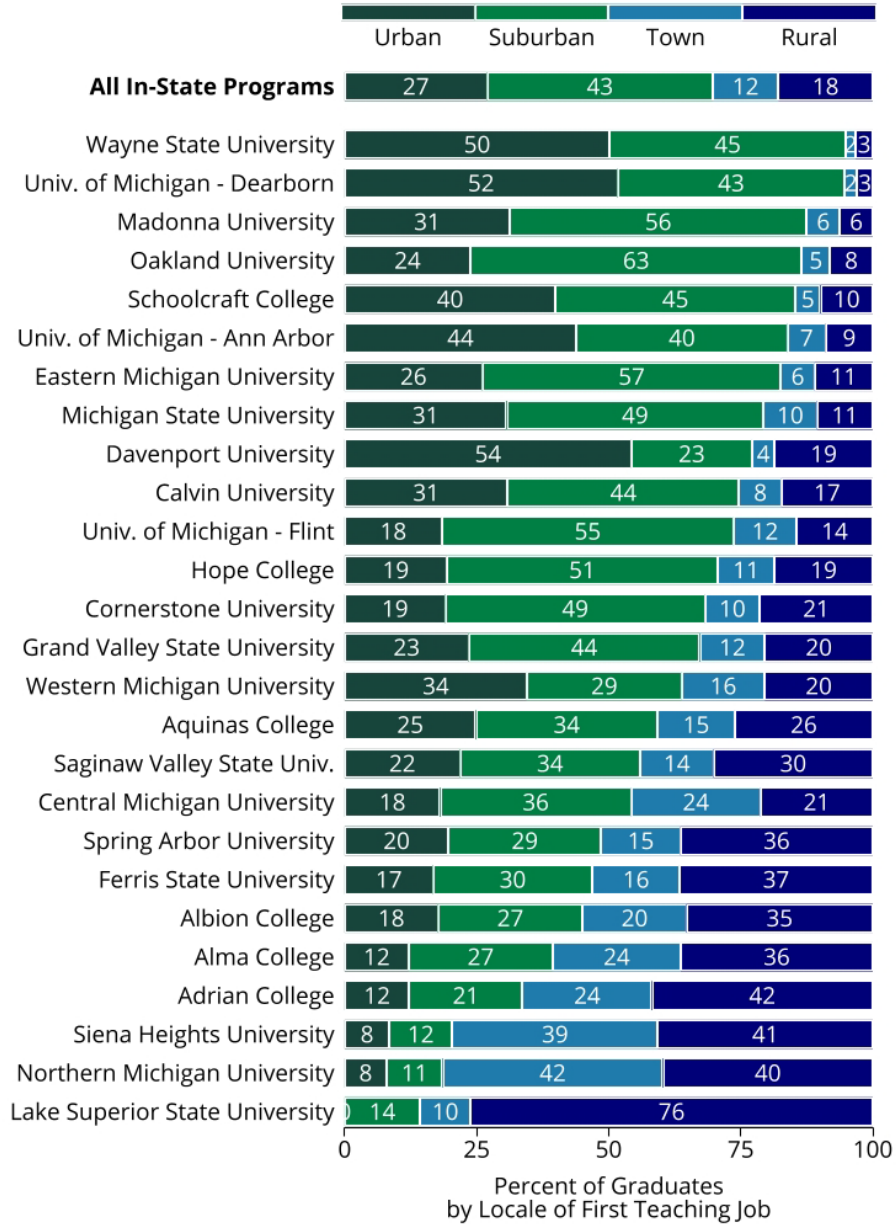
The distribution of teachers' initial job placements generally mirrors the distribution of Michigan's K-12 student population across urban areas, suburbs, towns, and rural settings. Figure 5.4 shows the percentage of graduates of in-state teacher preparation programs over the past 5 years whose initial placements were in each type of locale. Forty-three percent of first-year teachers from in-state preparation programs worked in suburban schools, while 27%, 18%, and 12% worked in urban areas, rural areas, and towns, respectively. Similarly, about 46% of Michigan's K-12 students attended schools in suburban areas, while 24% were in urban areas, 18% in rural areas, and 12% in towns (CEPI, 2023).

However, patterns in graduates' initial teaching placements vary substantially depending on the college or university where they completed their teacher preparation. For instance, about half of all first-year teachers from the University of Michigan – Dearborn and Wayne State University worked in urban areas, while only about 3% of first-year teachers from these universities worked in rural districts. First-year teachers from Davenport University were even more likely to work in urban areas (54%), but also had a substantial percentage of graduates (19%) working in rural districts. Graduates from Lake Superior State University were more likely to work in rural schools than teacher preparation graduates from any other in-state institutions. More than three-quarters of first-year teachers from Lake Superior State University worked in rural areas, whereas no other teacher preparation provider in Michigan had more than 42% of graduates working as first-year teachers in rural schools.

These patterns may partially reflect differences in the types of students who choose to attend particular colleges and universities. For instance, the same types of students who choose to attend college in urban areas may also prefer to work in urban areas after they graduate. As urban and rural schools experience more teacher turnover (shown previously in Table 4.1), focusing policy interventions on institutions whose

graduates are more likely to take teaching placements in these settings may help to better match new teachers with district staffing needs.

**Figure 5.4. Locale of First-Year Teaching Placements for Graduates From In-State Preparation Programs, 2018-19 to 2022-23**



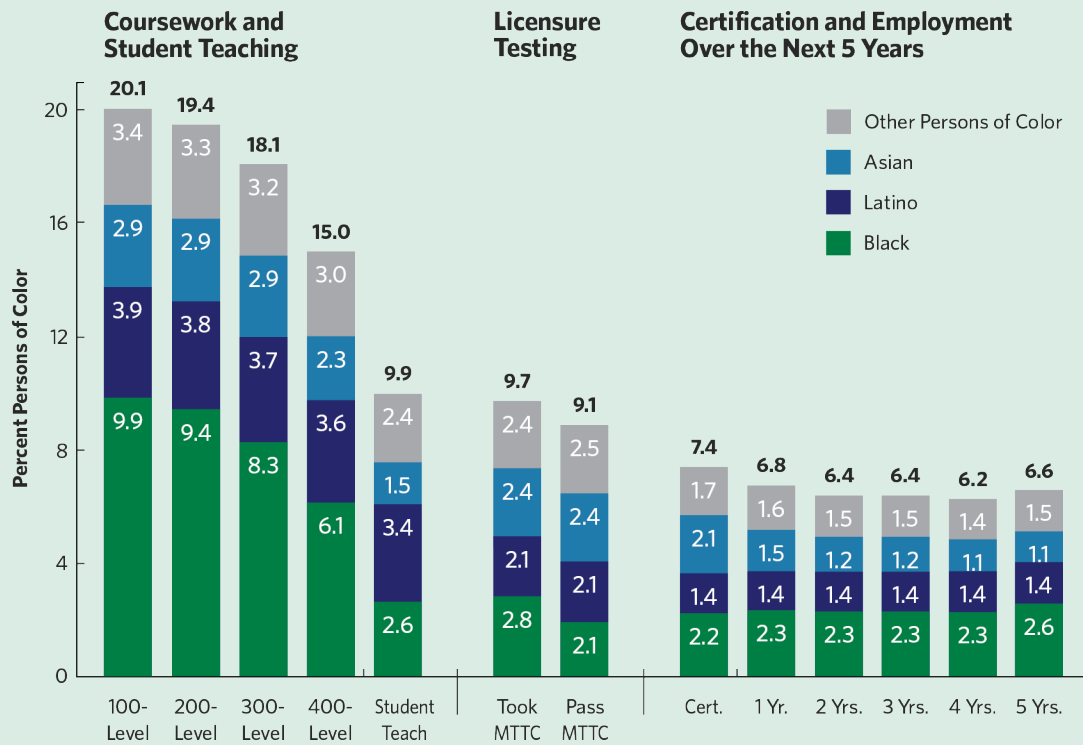
*Note: Our overall calculations include all graduates from in-state teacher preparation programs who worked as first-year teachers in a Michigan public school between 2018-19 and 2022-23. These include graduates from traditional and alternative route programs based out of colleges and universities. We also display institution-specific statistics for teacher preparation providers with at least 40 graduates who were first-time teachers between 2018-19 and 2022-23.*

## DIVERSITY AT EACH STAGE OF THE TEACHER PIPELINE

**The pool of prospective Michigan teachers becomes less diverse as candidates progress through the coursework, licensure, and employment stages of the pipeline.**

Kilbride et al. (2023) found that students of color make up about 20% of the total enrollment in introductory (100-level) teacher preparation courses but only 15% of enrollment in advanced (400-level) courses, 10% of student teachers, and less than 7% of early career teachers working in Michigan’s public schools.

These patterns suggest that efforts to diversify Michigan’s teacher workforce should center not only around recruiting more candidates of color into preparation programs, but also on retaining these candidates after they enter the pipeline.



Source: “Tracking Progress Through Michigan’s Teacher Pipeline.” Kilbride et al., 2023

## First-Year Teachers Generally Worked in Schools Near Their Hometowns or Near Where They Went to College

Research has shown that teachers prefer to work in schools that are “close to home” (Boyd et al., 2005; Reiningger, 2012) or near their teacher preparation programs (Fowles et al., 2014) and student teaching placements (Krieg et al., 2016). We showed in last

year's [comprehensive report](#) that more than 50% of Michigan's first-year teachers in 2021-22 worked within 30 miles of the college where they completed their teacher preparation. This year, we've updated our analyses to capture all first-year teachers over the past five years, from 2018-19 to 2022-23. We find that the same general distribution of graduates we observed in 2021-22 holds true for the five-year time span (shown in the top row of Table 5.1), suggesting that these are persistent patterns, and not idiosyncratic differences from year to year.

We also examined how far these first-year teachers' initial teaching jobs were from the districts where they attended high school, which we consider to be a close approximation of the locations of their hometowns.<sup>8</sup> More than two-thirds of all first-year teachers worked in a school district within 30 miles of where they attended high school. Although, as Table 5.1 shows, the percentage of graduates who stay close to home varies substantially across teacher preparation providers, in most cases these percentages are close to or higher than the percentages of graduates who stayed within 30 miles of their postsecondary institutions.

For some teacher preparation providers, including Eastern Michigan University and Oakland University, the percentage of first-year teachers who stayed within 30 miles of their postsecondary institutions are very similar to the percentages who stayed within 30 miles of their hometowns. In other cases, particularly those where fewer graduates remained close to their colleges/universities, far higher percentages taught near their hometowns. For example, while just 16% of first-year teachers from Ferris State University remained within 30 miles of the university, 68% taught within 30 miles of their hometowns.

These patterns suggest that, for the programs whose graduates' initial teaching jobs are more dispersed throughout the state, these teachers are generally returning to the areas where they went to school themselves. Teacher preparation providers in more densely populated areas, such as those in the Detroit Metro area, have the most graduates who remain in the local area for their first teaching jobs, as the surrounding communities likely have enough employment opportunities available to accommodate a large portion of the graduates.

## In-State Teacher Preparation Graduates' Initial Job Placements Are Less Geographically Dispersed Than Their Hometowns

Michigan's early career teachers grew up and attended school in communities throughout nearly every part of the state, and many of them returned to the same communities after they graduated. In Figure 5.5, we show the locations of first-year teachers' initial job placements alongside the locations of the districts where they attended high school. The two maps are generally similar to each other, as they each show teachers coming from or going to school districts throughout most areas of the

state, with larger clusters of early career teachers who came from or worked in Michigan's more densely populated regions. However, we find that teachers' hometowns are somewhat more dispersed geographically than their initial job placements.

<b>Table 5.1. Initial Job Placements of Graduates from In-State Teacher Preparation Programs, 2018-19 to 2022-23</b>				
<b>Teacher Preparation Provider</b>		<b>Graduates Working as First-Year Teachers Between 2018-19 and 2022-23</b>		
<b>College/University Name</b>	<b>Locale</b>	<b># of First-Year Teachers</b>	<b>% Within 30 Miles of Prep Program</b>	<b>% Within 30 Miles of Hometown</b>
<b>All In-State Programs</b>	---	11,663	51.9%	68.5%
Adrian College	Town	98	38.8%	74.4%
Albion College	Town	53	35.3%	50.0%
Alma College	Town	98	23.2%	53.2%
Aquinas College	Urban	157	63.1%	71.2%
Calvin University	Urban	164	73.5%	54.5%
Central Michigan University	Town	1,253	12.2%	64.4%
Cornerstone University	Urban	123	65.9%	73.2%
Davenport University	Suburb	76	50.0%	50.0%
Eastern Michigan University	Suburb	1,164	77.8%	81.0%
Ferris State University	Town	427	15.6%	68.1%
Grand Valley State University	Suburb	1,449	54.7%	59.5%
Hope College	Urban	267	59.1%	61.8%
Lake Superior State University	Town	41	45.2%	47.4%
Madonna University	Urban	82	72.5%	86.4%
Michigan State University	Urban	1,166	21.6%	61.2%
Northern Michigan University	Town	301	21.9%	56.9%
Oakland University	Suburb	925	85.3%	85.0%
Saginaw Valley State University	Suburb	806	40.1%	66.3%
Schoolcraft Community College	Urban	292	79.9%	77.6%
Siena Heights University	Town	60	54.2%	73.6%
Spring Arbor University	Suburb	173	41.6%	63.7%
Univ. of Michigan-Ann Arbor	Urban	424	52.3%	60.3%
Univ. of Michigan-Dearborn	Urban	304	92.4%	91.4%
Univ. of Michigan-Flint	Urban	201	84.6%	80.6%
Wayne State University	Urban	674	91.3%	85.9%
Western Michigan University	Urban	820	46.6%	59.4%

*Notes: Our calculations for all in-state programs include all graduates who worked as first-time teachers in a Michigan public school between 2018-19 and 2022-23. We also display institution-specific statistics for teacher preparation providers with at least 40 graduates who were first-time teachers between 2018-19 and 2022-23.*

These patterns suggest that both the locations of teacher candidates' postsecondary institutions and their hometowns influence their decisions about where to teach after they graduate. Past research has documented similar relationships in other states, as well as strong associations between candidates' student teaching placements and the types of schools and districts where they choose to teach after they graduate. To strengthen the teacher workforce and help match incoming teachers with local needs, it will be important to focus on communities experiencing the greatest need for teachers in efforts to recruit new candidates into teacher preparation programs and when matching candidates with schools and districts for their student teaching placements.

## Some Areas of the State Are Neither Producing nor Recruiting Teachers With Certain Specializations

Although first-year teachers in Michigan have both come from and gone to nearly every part of the state, we find that teachers with certain specializations are rare in some regions. In Figure 5.6, we show the locations of first-year teachers' initial job placements and hometowns separately for teachers with different types of subject area endorsements.

Nearly all of Michigan's first-year world language teachers came from a few concentrated areas, and nearly all worked in these same areas for their initial teaching jobs. Areas along the southern border of Michigan as well as in the Upper Peninsula produce relatively few math, science, and special education teachers. As research has shown that teachers prefer to work close to their hometowns (Boyd et al., 2005; Reininger, 2012), the dearth of specialized teachers coming from these areas likely contributes to the high reliance on under-credentialed teachers in many of these same subject areas and regions.

Figure 5.5. Locations of Initial Job Placements and Hometowns of First-Year Teachers From In-State Preparation Programs, 2018-19 to 2022-23

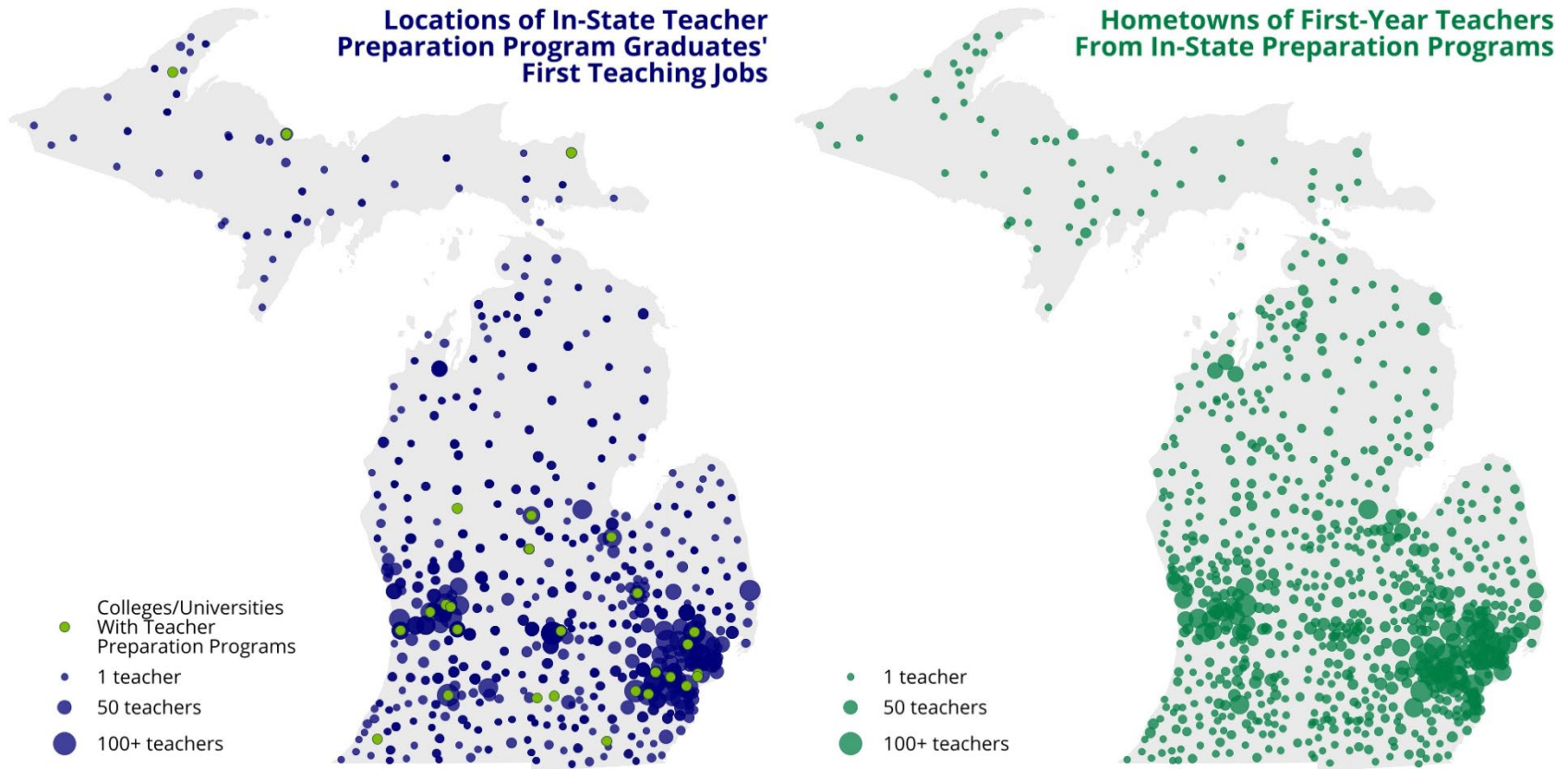
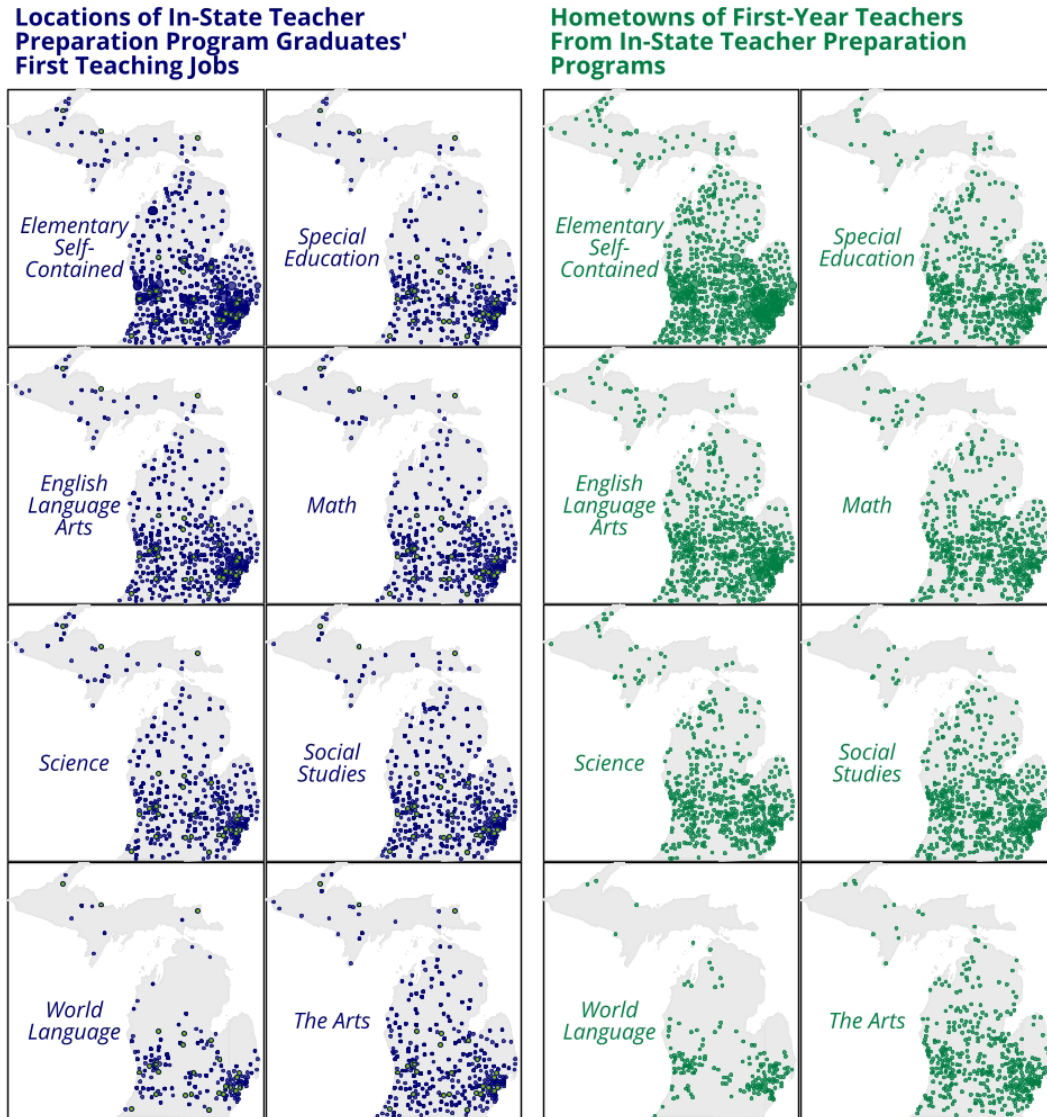




Figure 5.6. Locations of Initial Job Placements and Hometowns of First-Year Teachers From In-State Preparation Programs by Endorsement Area, 2018-19 to 2022-23



## SUMMARY

Recent trends in teacher licensure and initial employment after certification suggest that Michigan is making progress toward strengthening its teacher workforce and addressing ongoing shortages. The number of teachers earning their initial Michigan certification each year has been increasing, and at the same time, larger shares of newly certified teachers have started teaching in Michigan’s public schools shortly after earning their certification. Although the rates at which Michigan has been issuing initial certificates to new elementary school teachers has been rebounding in recent



years, this is not the case for all types of teachers. The numbers of math, ELA, and science teachers becoming certified each year have continued to decline. After teachers earn their initial certification, the majority worked in school districts that were near the colleges/universities where they completed their teacher preparation, and more than two-thirds taught in school districts close to their hometowns. However, patterns in teachers' initial employment locations vary widely by teacher preparation provider. Understanding how these factors affect teachers' initial employment decisions can help inform efforts to strengthen Michigan's teacher workforce to better meet the needs of schools throughout the state.

# Section Six:

## Highest-Need Regions

While there is no single indicator in Michigan’s state data that can perfectly identify or measure teacher shortages, there are many imperfect indicators that each give us different types of insight about the nature and extent of local shortages throughout the state. We examine patterns across these different measures to identify areas of the state that consistently and repeatedly stand out. These analyses address the final reporting requirement detailed in [2020 PA 316](#):

- a. *“An analysis of the regions in this state that present the highest need for educators based on educator shortages in those regions, disaggregated by the broad subject areas and educational settings of the positions in which there are shortages in those regions.”*

To estimate the severity of teacher shortages in different areas of the state, we consider several of the indirect indicators of teacher shortages from Sections Three and Four, including the rates at which teachers left their schools, left their districts, or left Michigan’s public school teaching workforce entirely, as well as districts’ reliance on teachers who are not fully certified or not appropriately endorsed for the content areas they teach<sup>9</sup>. We use these indicators to generate a composite measure that represents the estimated extent of teacher shortages in each local region. We then examine patterns in the types and locations of school districts that consistently show evidence of more severe shortages across these multiple dimensions. Finally, we compare the locations of Michigan’s most severe shortages to the maps from Section 5 that showed geographic patterns in where Michigan’s newest teachers are coming from and where they go for their initial job placements.

We stress that these estimates can only provide suggestive evidence based on the limited data available and are not direct measures of teacher shortages. While we can use these estimates as tools to highlight areas that are likely to be experiencing more severe teacher shortages, policymakers and other stakeholders should always consider other information as well when making decisions about where and how to address local teacher shortages. These composite measures describe how teacher shortages in a given area likely compare to teacher shortages elsewhere in Michigan. This means that, even in areas where we estimate lower extents of teacher shortages, there may still be teacher shortages that are just less severe than those in other parts of the state.

## OVERALL TEACHER SHORTAGES

The heat maps throughout this section show the estimated extent of teacher shortages in each location of the state, based on the composite measures that we constructed using a principal component analysis approach. The color scale in each figure ranges from “least extent” to “greatest extent,” relative to the extent of shortages in other areas in Michigan<sup>10</sup>. Thus, these estimates do not tell us whether there *is* a teacher shortage in a given area, but rather, how the *extent* of shortages in that area compares to the extent of shortages elsewhere in the state.

### Teacher Shortages Are Very Local; the Extent of Overall Shortages Varies Widely Even Within Each Region

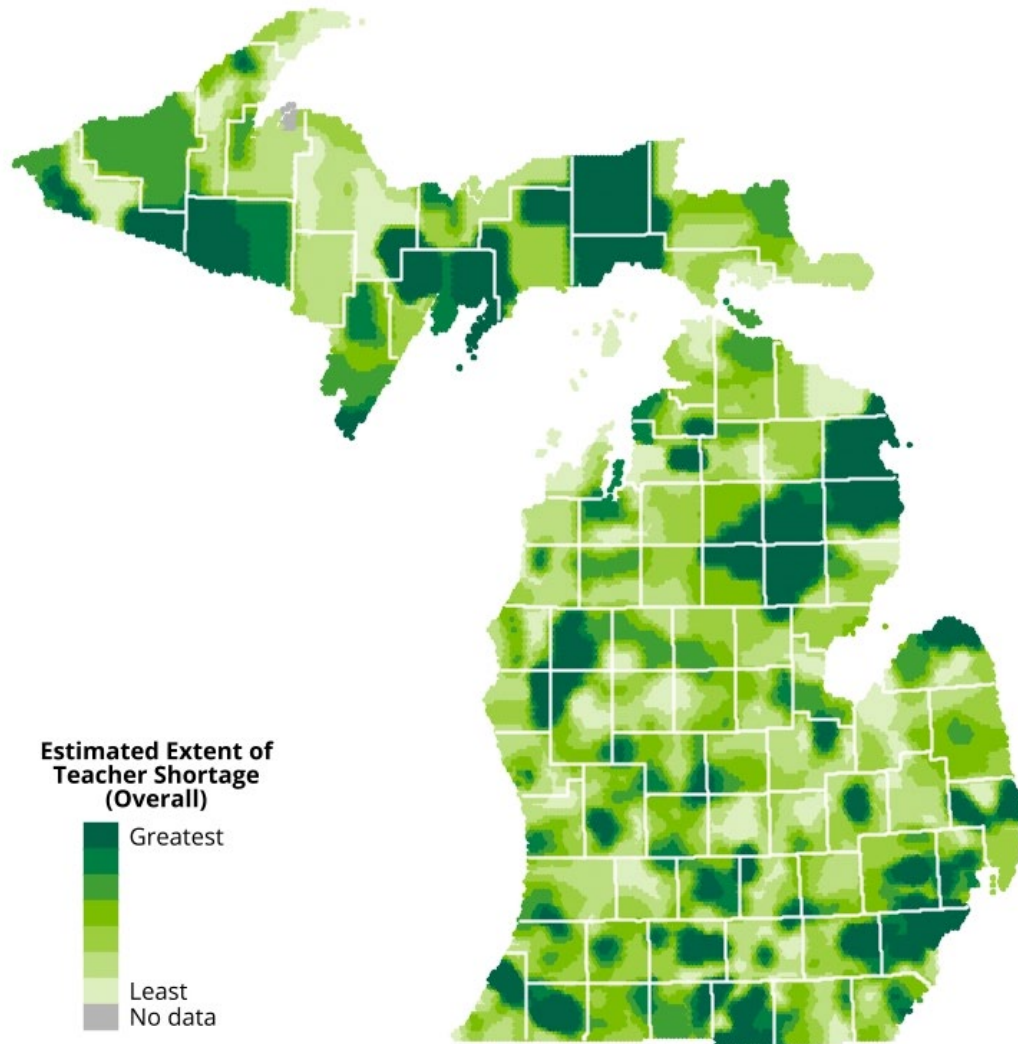
As we showed in [last year’s report](#), most of the variation in the extent of teacher shortages is at the local level rather than across broad regions of the state. Figure 6.1 shows our updated estimates of overall teacher shortages based on newly available data from the 2022-23 school year, which are generally similar to those from our previous report. We find that in most of Michigan’s [prosperity regions](#), there are some local areas experiencing more severe shortages and others where shortages are far less severe; in some cases, districts with some of the most severe shortages in the state are directly adjacent to districts with some of the least severe shortages. In other words, Michigan’s teacher shortages are very local, and can vary substantially within relatively small geographic areas.

While the most severe shortages in the southern half of Michigan are generally contained to a few small geographic pockets, severe shortages are particularly widespread across larger geographic areas in parts of the Upper Peninsula and northern Lower Peninsula. It is important, however, to note that these same regions include many rural districts that span large geographic areas (e.g., an entire county). In the Upper Peninsula, for instance, Luce County, which stands out as having particularly widespread shortages, has only one school district that serves the entire county. These types of districts typically serve smaller populations of students and therefore employ fewer teachers than other districts throughout Michigan, which can mean that relatively small numbers of teachers who leave their jobs, work under a temporary credential, or teach outside their endorsement area can have a large effect on the estimated extent of shortages in the district. Many counties in the northeastern part of the Lower Peninsula (e.g., Alcona, Alpena, and Ogemaw, and Oscoda counties) likewise experience widespread areas of severe shortage; however, most of these counties have only one TPS district.

We find a high concentration of overall teacher shortages in the Detroit Metro area, which are particularly widespread in Wayne County and somewhat localized in Oakland and Macomb counties. Along the southern border of the state, Cass and

Hillsdale counties show evidence of widespread acute shortages, while severe shortages in Berrien and Branch counties are more localized in certain districts. In mid-Michigan, there are several areas in the darkest shade of green directly next to areas in the lightest shade. This suggests that teachers are not evenly distributed across neighboring districts in this region.

Figure 6.1. Estimated Extent of Overall Teacher Shortages



*Notes: The overall teacher shortage composite measure is based on rates of attrition from schools, districts, and the teaching profession altogether, shares of teaching FTEs and core courses assigned to teachers with temporary credentials and teachers who are “under-credentialed” for the courses they teach; and districts’ relative ranking across all subject-specific shortage indicators for elementary, special education, ELA, math, science, social studies, world language, and the arts (Cronbach’s alpha=0.88).*

Many of the same counties that stand out as areas of shortage in 2022-23 are the same counties we identified in [last year’s report](#). This suggests that the composite

measures we constructed to estimate the extent of local shortages are likely capturing systemic challenges in these areas, rather than idiosyncratic shortages and changes in local employment conditions that vary by year, subject area, and region.

## SUBJECT AREA SHORTAGES

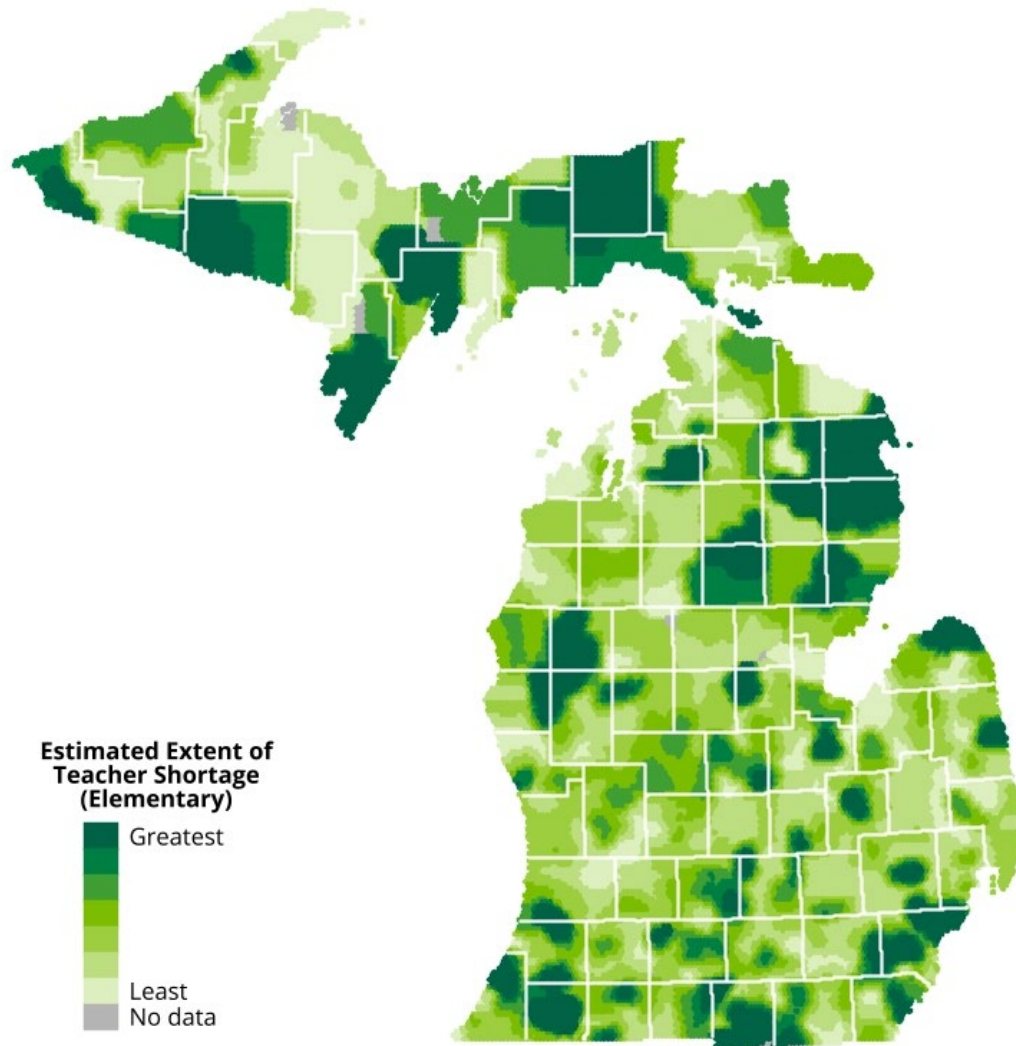
We constructed composite measures to estimate local shortages of teachers in certain subject areas and educational settings. We derived these measures from the same types of indicators as the overall measure, however, the subject-specific measures use versions of these indicators that we calculated using just the teachers of one specific subject area or educational setting. The overall composite measure includes both the overall indicators that we calculated using all types of teachers and subject-specific indicators that we calculated using various subsets of teachers. In other words, each of the subject-specific composite measures is based on fewer indicators (i.e., less information) than the overall measure. As a result, the subject-specific measures generally provide less reliable estimates of relative shortages than the overall measure. While these estimates are still helpful for visualizing patterns in relative teacher shortages and understanding the nature of shortages in certain areas, they should be interpreted with caution.

### Outside of the Areas Experiencing Severe Overall Teacher Shortages, Severe Elementary Teacher Shortages Are Relatively Rare

Compared to overall shortages, there is more variation in the extent of elementary teacher shortages both within and between broad regions of the state. Figure 6.2 shows the estimated extent of elementary teacher shortages throughout Michigan. Relatively few school districts experienced acute elementary teacher shortages aside from those with acute overall teacher shortages. As we noted in Section Three, relatively few elementary teachers are teaching out-of-field compared to core subjects at the secondary level. Prior to the launch of the new grade band specializations in the most recent school year, the majority of elementary teaching positions require the same endorsement, making the match between teacher credentials and district staffing needs less challenging than at the secondary level.

As we showed in Section Five, the number of newly certified elementary teachers entering Michigan's workforce each year has been increasing, which is not the case for other types of teachers, and we showed in [last year's report](#) that new incoming elementary teachers' initial job placements were more widely distributed throughout the state than those of other types of teachers. These patterns suggest that the greater availability of elementary teachers in most regions contributes to the relatively low prevalence of elementary teacher shortages in school districts that aren't experiencing severe overall shortages.

Figure 6.2. Estimated Extent of Elementary Teacher Shortages



*Notes: The elementary teacher shortage composite measure is based on rates of attrition from schools, districts, and the teaching profession altogether and the shares of teaching FTEs and core courses assigned to teachers with temporary credentials and teachers who are “under-credentialed” for the courses they teach (Cronbach’s alpha=0.85).*

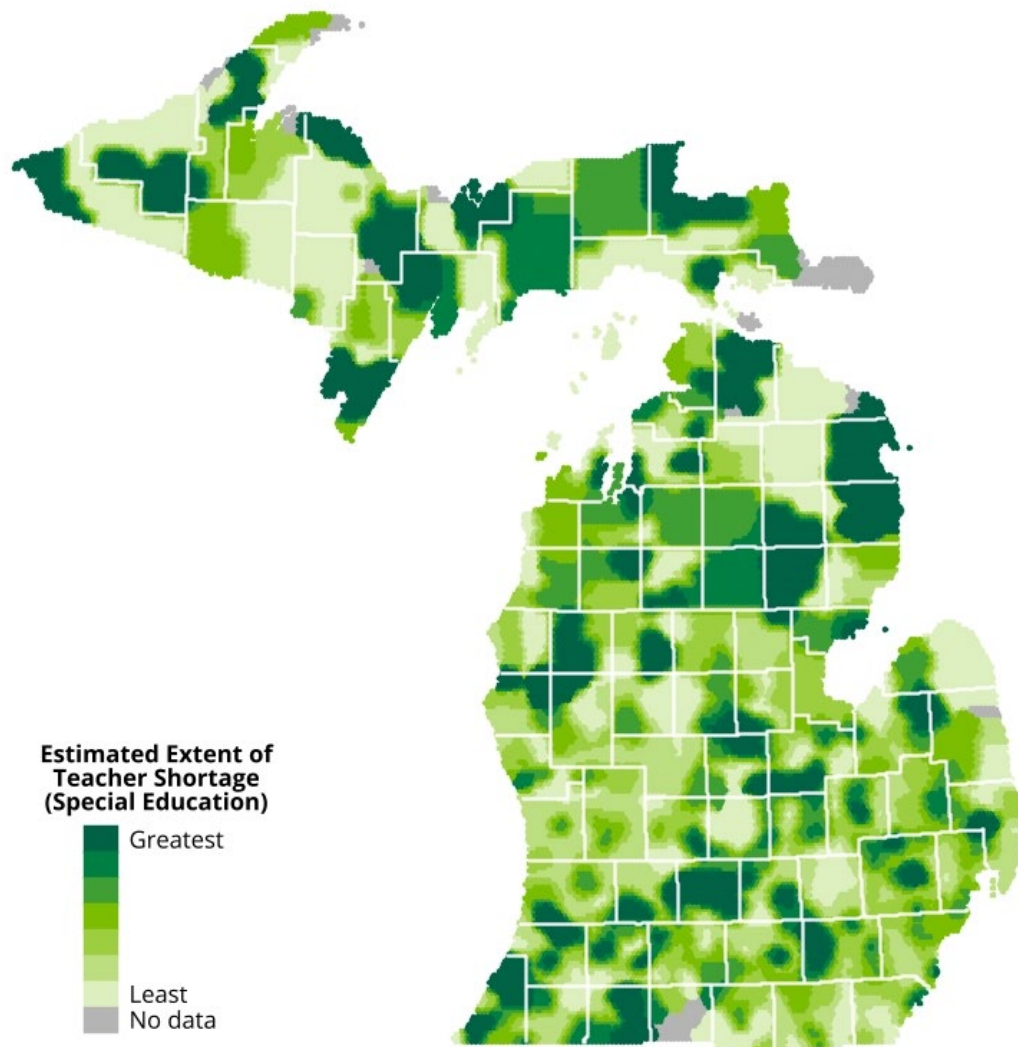
## Localized Teacher Shortages Suggest That Special Education Teachers Are Not Distributed Equitably Across Districts

The areas of the state with the most and least severe special education teacher shortages are often in the same local regions. As Figure 6.3 shows, there are several areas with acute shortages of special education teachers in the Upper Peninsula, as well as in the northern half of the Lower Peninsula, mid-Michigan, and the southwestern part of the state. However, most of these areas are directly adjacent to areas with the least severe special education shortages. This contrast between the highest- and lowest-shortage regions may suggest that school districts in these areas



are competing for the same limited supply of special education teachers, leading to an inequitable distribution favoring more advantaged districts that may be able to offer better monetary incentives and non-financial forms of compensation (e.g., benefits, class sizes, working conditions) than their neighboring districts. While Figure 6.1 and Figure 6.2 showed severe overall and elementary teacher shortages in some of the same regions, some of the areas with more acute special education shortages did not have particularly severe overall or elementary teacher shortages and vice versa.

Figure 6.3. Estimated Extent of Special Education Teacher Shortages



*Notes: The special education teacher shortage composite measure is based on rates of attrition from schools, districts, and the teaching profession altogether, as well as the shares of teaching FTEs assigned to teachers who are not certified, teachers who are certified but do not have special education credentials, and certified special education teachers who are assigned outside their endorsement area (Cronbach's alpha=0.83).*



## Districts in Northern Michigan, the Upper Peninsula, and the Southern Border of the State Are Facing Particularly Severe Subject Area Shortages

As we show throughout the remainder of this section and in Figures 6.4 through 6.9, many of the areas experiencing the most severe ELA, math, science, social studies, world language, and art/music teacher shortages are located in the Upper Peninsula, northern half of the Lower Peninsula, and along the southern border of the state. In Section Five, we showed that relatively few graduates from in-state preparation programs worked as first-year teachers in these regions between 2018-19 and 2022-23. Combined, these findings suggest that the supply of specific subject area teachers in these areas may not be sufficient to meet the demand.

While many of the areas with severe elementary and special education teacher shortages also have severe shortages of core subject-specific teachers as well, this set of maps reveals additional core subject teacher shortages in other parts of the state. ELA teacher shortages are relatively severe along the southern border as well as the northern Lower Peninsula. Core subject teacher shortages are relatively severe in and near Wayne, Eaton, and Alpena counties as well as some counties along the southern border of the state, while elementary and special education shortages are less acute in these regions.

There are also areas of the state with severe shortages in some subject areas but not in others. For instance, Menominee County in the Upper Peninsula has more severe shortages of math teachers, but fares relatively well in other subject areas. The Detroit Metro region has some of the most acute elementary, ELA, math, science, and social studies teacher shortages in the state, whereas other regions face more critical special education teacher shortages.

## World Language Teacher Shortages and Some Art and Music Teacher Shortages Are More Regional Than Local

The areas with the most severe world language teacher shortages (shown in Figure 6.8) are broader than those with shortages of other types of teachers, suggesting that these world language teacher shortages are more regional than localized. The contrast between different regions and sometimes neighboring districts are far starker in world language than in other subject areas. This may be due to the small number of such positions in a district relative to other subject areas. In some small districts, there is only one world language teacher.

Figure 6.9 shows the extent of teacher shortages in the arts, which includes both visual art and music teachers. In the southern half of the state, most of the areas with severe shortages are small, indicating that the shortages are localized as opposed to regional.

In the northern part of the state, the areas with more severe shortages tend to be quite large. This is partially because districts in rural areas tend to cover larger geographic regions but may also suggest that the shortages in this part of the state are more widespread. We noted similar patterns in the arts in [last year's report](#), suggesting there may be systemic challenges to staffing these positions in rural areas.

## STAFFING CHALLENGES IN RURAL AREAS

Arsen et al. (2023) interviewed superintendents from many of Michigan's rural school districts about the staffing challenges that contribute to acute teacher shortages in these areas.

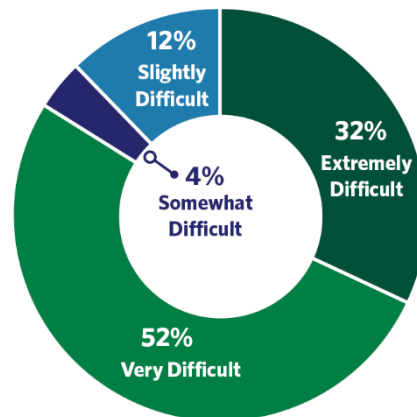
The interviews revealed that rural districts felt that financial constraints, geographic isolation, and declining interest in the teaching profession all hindered their ability to attract new teachers.

Teachers in small rural districts often taught several different subjects or grade levels but could not always meet all the specialized training and credentialing requirements for their wide range of assignments.

When teachers wear so many hats, losing one can be particularly difficult. One superintendent explained:

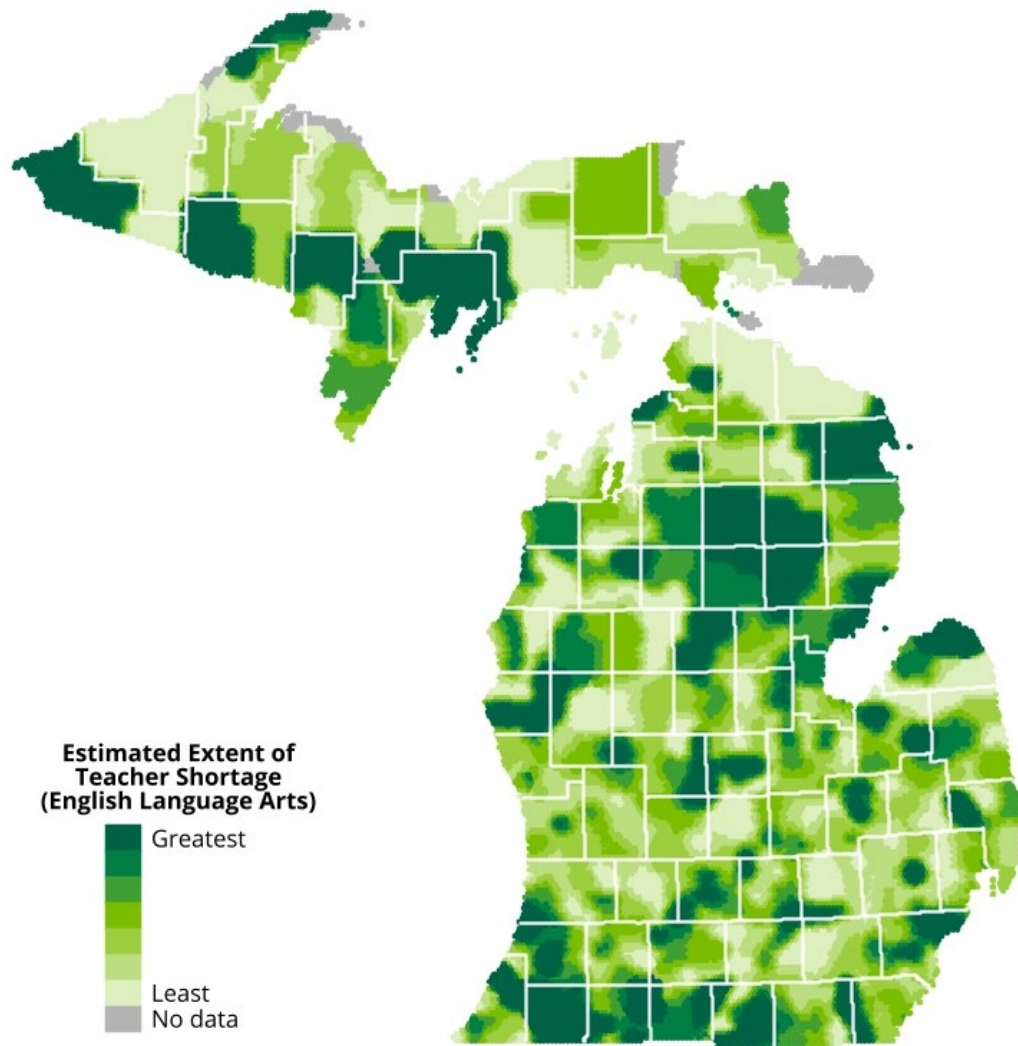
**"My guidance counselor left last year. So I lost a Spanish teacher, a guidance counselor, and an online instructor. I lost essentially three staff members in one."** (Interview from Arsen et al., 2023)

**Rural Superintendent Survey:**  
How difficult do you feel teacher recruitment and retention are for your district?



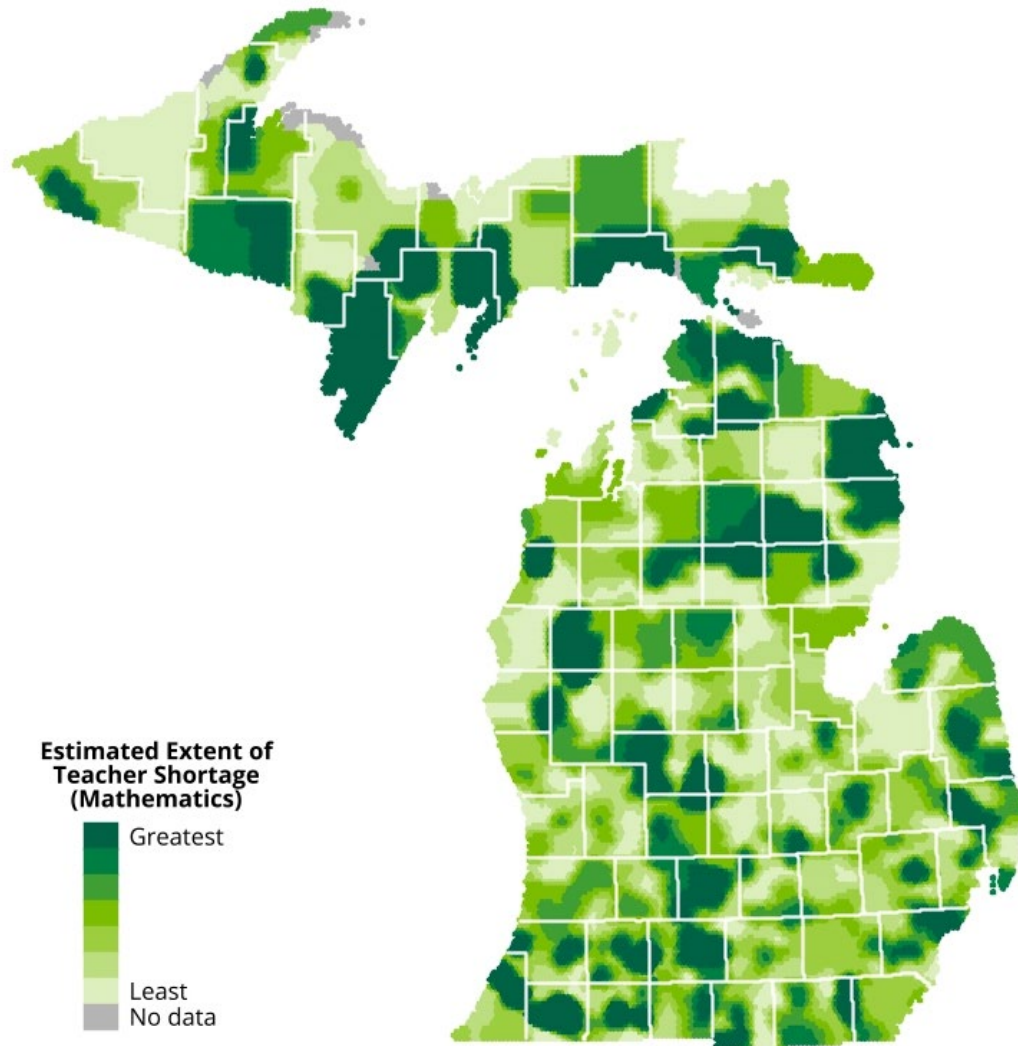
Source: "Educational Opportunities and Community Development in Rural Michigan: A Roadmap for State Policy." Arsen et al., 2023.

Figure 6.4. Estimated Extent of ELA Teacher Shortages



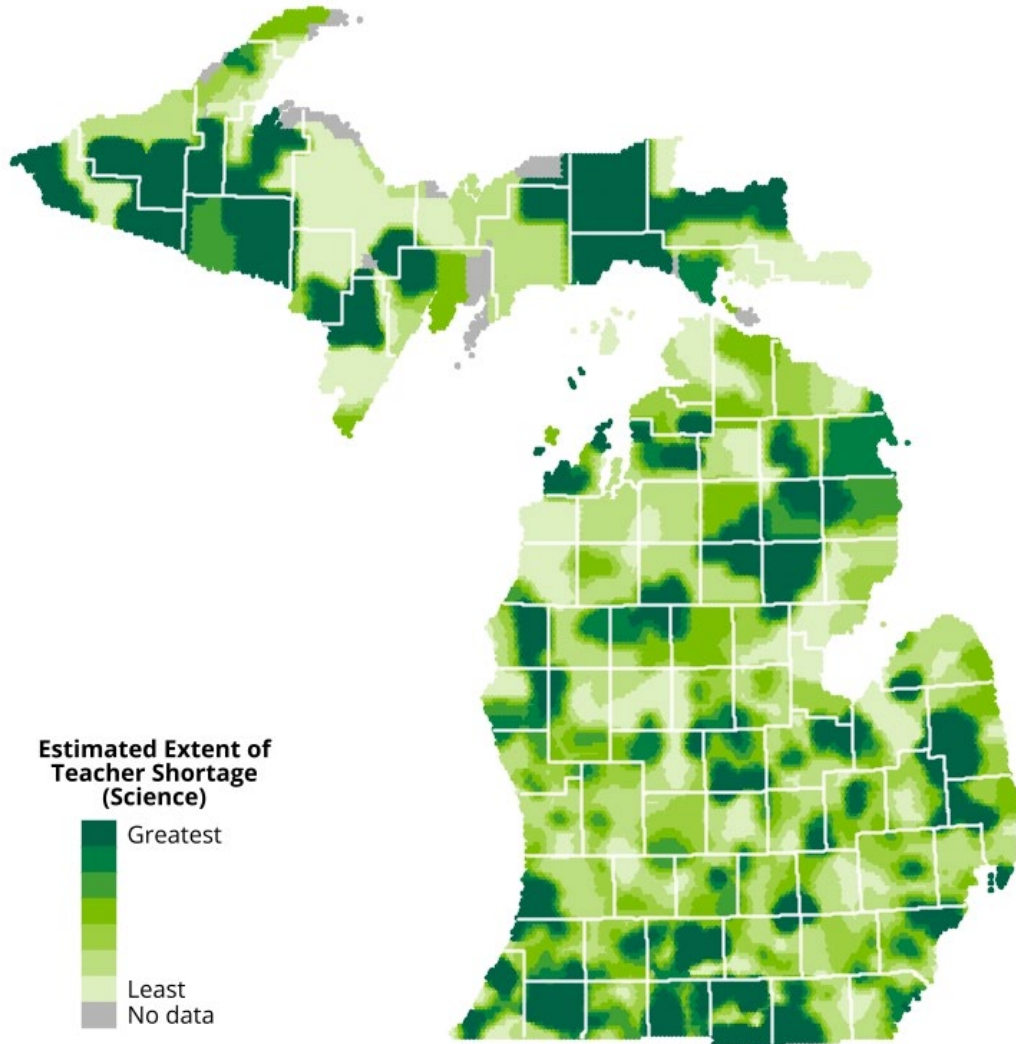
*Notes: The ELA teacher shortage composite measure is based on rates of attrition from schools, districts, and the teaching profession altogether, as well as shares of teaching FTEs and core courses assigned to teachers with temporary credentials and teachers who are “under-credentialed” for the courses they teach (Cronbach’s alpha=0.74).*

Figure 6.5. Estimated Extent of Math Teacher Shortages



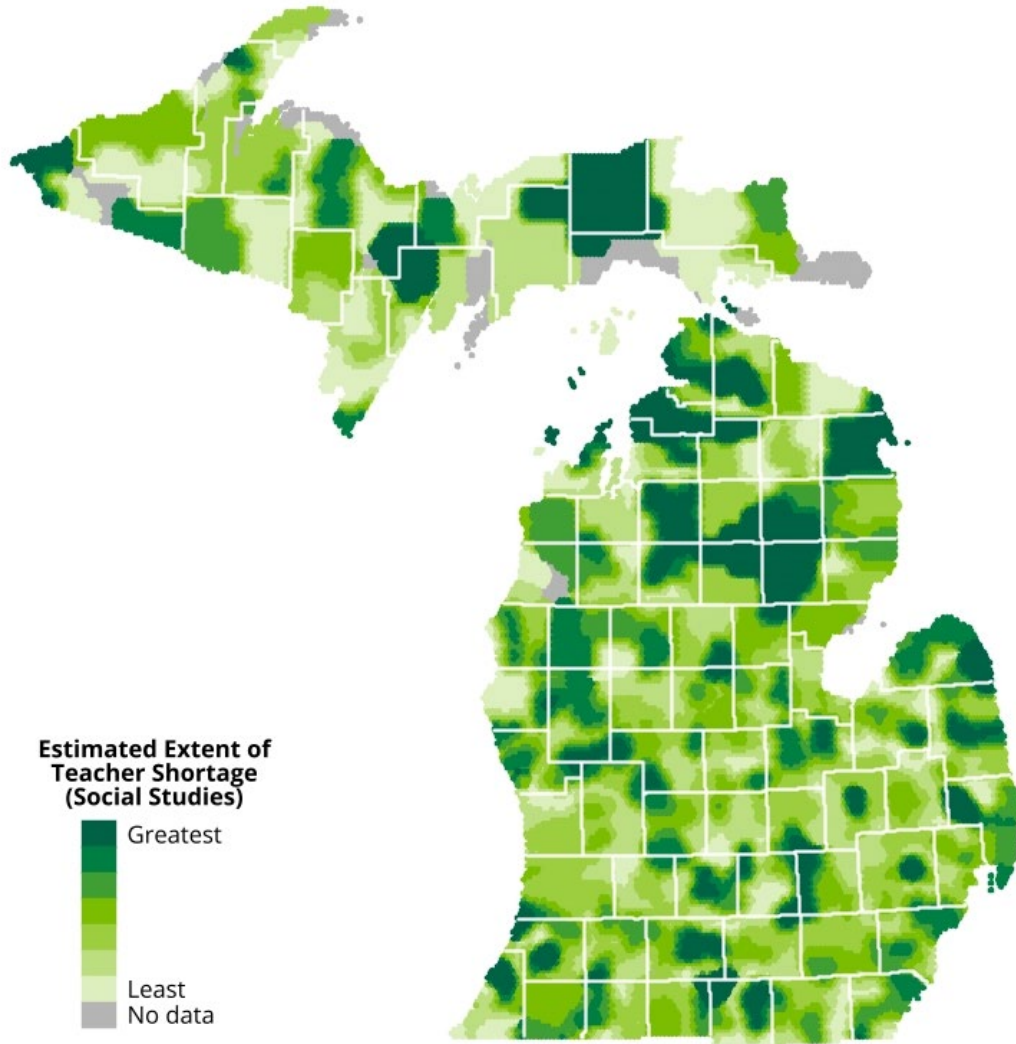
*Notes: The math teacher shortage composite measure is based on rates of attrition from schools, districts, and the teaching profession altogether, as well as shares of teaching FTEs and core courses assigned to teachers with temporary credentials, teachers who are assigned out-of-field, and teachers who are “under-credentialed” for the courses they teach (Cronbach’s alpha=0.74).*

Figure 6.6. Estimated Extent of Science Teacher Shortages



*Notes: The science teacher shortage composite measure is based on rates of attrition from schools, districts, and the teaching profession altogether, as well as shares of teaching FTEs and core courses assigned to teachers with temporary credentials and teachers who are “under-credentialed” for the courses they teach (Cronbach’s alpha=0.80).*

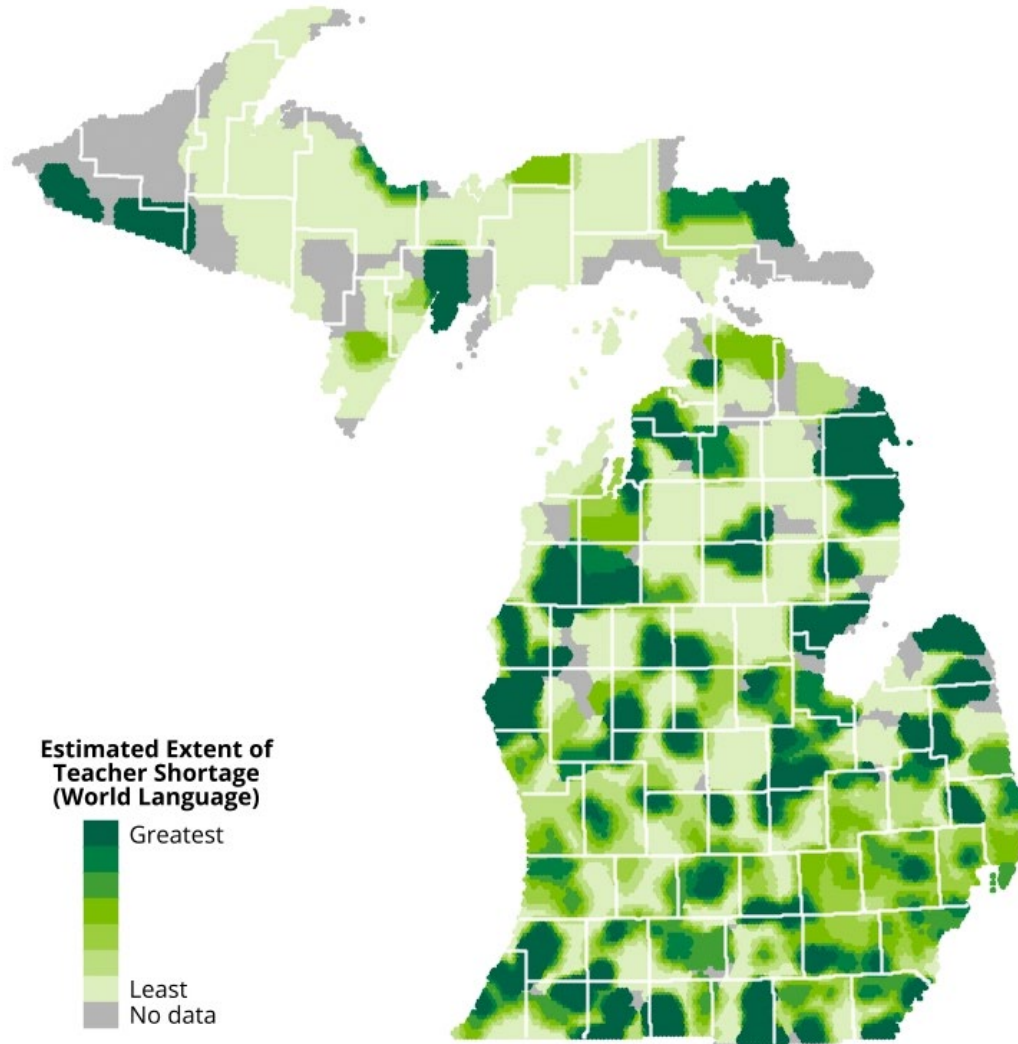
Figure 6.7. Estimated Extent of Social Studies Teacher Shortages



*Notes: The social studies teacher shortage composite measure is based on rates of attrition from schools, districts, and the teaching profession altogether, as well as shares of teaching FTEs and core courses assigned to teachers with temporary credentials, teachers who are assigned out-of-field, and teachers who are “under-credentialed” for the courses they teach (Cronbach’s alpha=0.80).*



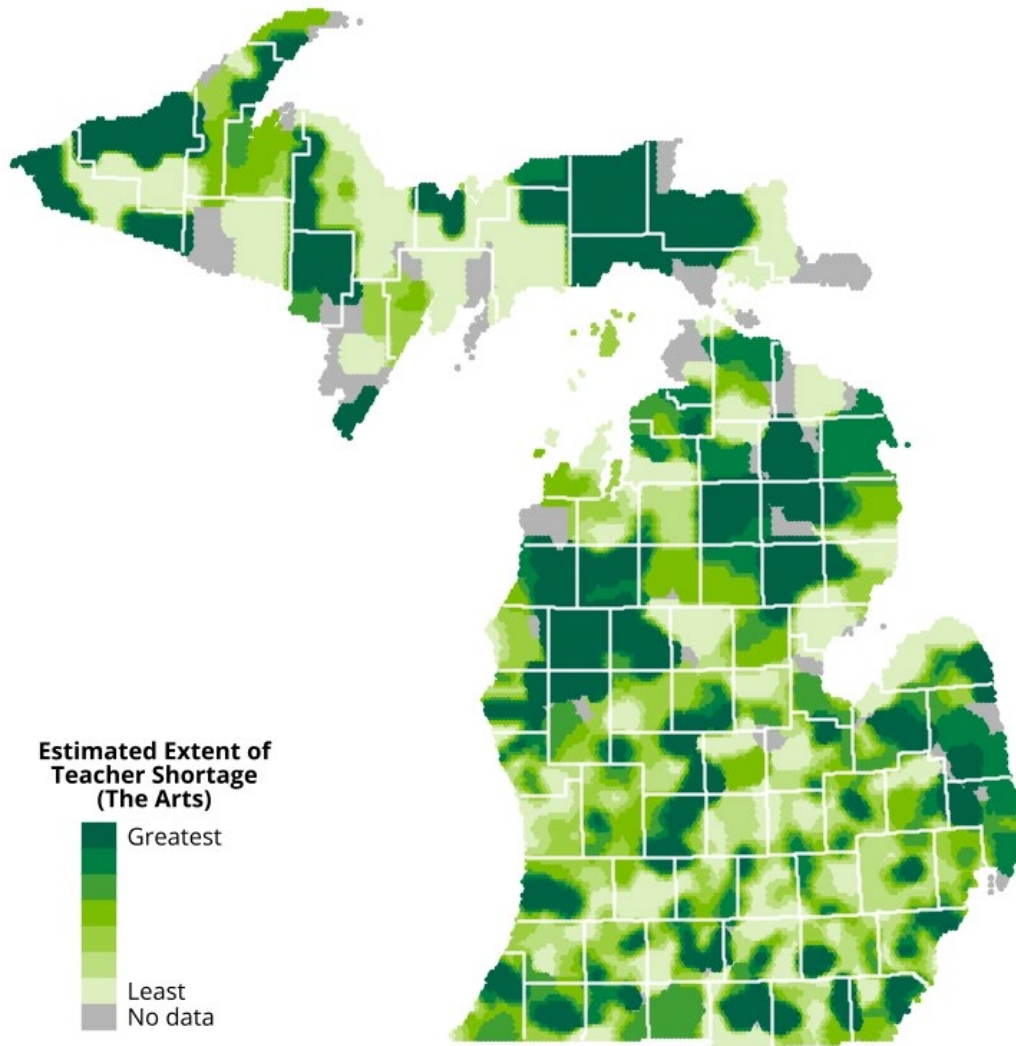
Figure 6.8. Estimated Extent of World Language Teacher Shortages



*Notes: The world language teacher shortage composite measure is based on rates of attrition from schools, districts, and the teaching profession altogether, as well as shares of teaching FTEs assigned to teachers with temporary credentials and teachers who are “under-credentialed” for the courses they teach (Cronbach’s alpha=0.73).*



Figure 6.9. Estimated Extent of Art and Music Teacher Shortages



*Notes: The art and music teacher shortage composite measure is based on rates of attrition from schools, districts, and the teaching profession altogether, as well as shares of teaching FTEs assigned to teachers with temporary credentials, teachers assigned out-of-field, and teachers who are “under-credentialed” for the courses they teach (Cronbach’s alpha=0.66).*

## HIGHEST-NEED SCHOOL DISTRICTS

To contextualize these geographic patterns in the types and severity of teacher shortages throughout Michigan, we compare characteristics of the school districts with the most severe overall and subject-specific teacher shortages. As a reminder, we estimated the extents of shortages within geographic school districts; because charter school districts do not have their own geographic boundaries, we include charter schools as part of the TPS district whose boundaries they are located within. We

examine characteristics of the 20% of school districts with the most severe estimated shortages, both overall and by subject area, to understand which types of districts are most affected by each type of shortage. To provide context about how these high-shortage districts compare to the state as a whole, we also show characteristics of all Michigan districts as reference points.

## School Districts in Urban Areas Tend to Face the Most Acute Overall Teacher Shortages, While Rural Districts Face More Severe Subject-Specific Teacher Shortages

Although only 6% of Michigan's TPS districts are in urban areas, Table 6.1 shows that urban districts make up a disproportionately high share (20%) of those with the most severe overall teacher shortages. The Detroit Metro region is particularly over-represented in the group of districts with the most acute teacher shortages; while only 15% of Michigan's TPS districts are in the Detroit Metro region, this region makes up 26% of the districts with the most severe overall shortages. However, districts in the Detroit Metro area are far less likely to face severe subject-specific teacher shortages. This suggests that while districts in this region may struggle to hire enough teachers to meet their needs, the teachers they do hire are more likely to be fully credentialed for the subjects they teach.

Rural districts, on the other hand, do not appear to struggle as much as urban districts to hire the number of teachers they need, but rather, cannot find the specific types of teachers that they need. Although rural school districts make up 50% of all TPS districts in the state, they only account for only 39% of the districts with the most severe overall teacher shortages but as much as 75% of the districts with severe shortages in some subject areas. As we discussed in Section Three, many rural districts are relatively small in terms of numbers of students and staff but often serve large, geographically dispersed areas; in this type of setting, it may be particularly challenging to match the credentials of the teachers available locally to the instructional needs of their students.

## Teacher Shortages Tend to be Most Severe in Areas With Diverse Student Populations and Large Charter Sectors

In general, the school districts experiencing the most acute teacher shortages serve more students from low-income households than the average district in the state. This is especially true for districts with severe overall and elementary teacher shortages; while 55% of students in the average school district are classified as economically disadvantaged, about 70% of students are economically disadvantaged in the districts with the highest overall and elementary teacher shortages. These disparities show teacher shortages disproportionately affect students from lower-income families.

**Table 6.1. Characteristics of Districts Experiencing the Most Severe Teacher Shortages**

District Characteristics	All Districts	Districts With the Most Severe Teacher Shortages (Top 20%)								
		Overall	Elementary	Special Education	ELA	Math	Science	Social Studies	World Language	The Arts
<b>DISTRIBUTION OF DISTRICTS ACROSS LOCALE TYPES</b>										
Urban	6%	20%	14%	5%	9%	7%	7%	8%	3%	4%
Suburban	28%	29%	26%	14%	16%	17%	11%	15%	14%	11%
Town	17%	12%	8%	14%	11%	13%	6%	10%	10%	12%
Rural	50%	39%	51%	67%	64%	63%	75%	68%	73%	73%
<b>DISTRIBUTION OF DISTRICTS ACROSS PROSPERITY REGIONS</b>										
Detroit Metro	15%	26%	22%	9%	10%	12%	8%	9%	8%	5%
East Central	7%	2%	7%	5%	5%	2%	4%	5%	7%	6%
East Michigan	13%	14%	10%	10%	16%	14%	18%	15%	14%	16%
Northeast	4%	6%	8%	7%	2%	7%	5%	8%	6%	6%
Northwest	7%	5%	4%	7%	5%	5%	6%	10%	8%	8%
South Central	5%	3%	6%	7%	5%	5%	3%	5%	5%	3%
Southeast	10%	12%	10%	4%	9%	2%	10%	5%	9%	8%
Southwest	12%	12%	10%	19%	16%	17%	17%	14%	13%	13%
Upper Peninsula	11%	12%	14%	21%	20%	23%	18%	20%	17%	19%
West Michigan	17%	9%	10%	11%	13%	12%	10%	10%	14%	15%
<b>STUDENT COMPOSITION (AVERAGE ACROSS DISTRICTS)</b>										
Economically Disadvantaged	55%	71%	70%	58%	61%	60%	60%	58%	60%	61%
Students of Color	24%	43%	39%	25%	27%	30%	26%	27%	23%	24%
Enrolled in Charter Schools	5%	19%	17%	10%	9%	9%	9%	9%	6%	7%

We also find that districts facing acute shortages of some types of teachers tend to serve more racially diverse student populations. Although, in the average Michigan district, students of color comprise about 24% of enrollees, they comprise about 43% of the student population in school districts with the most severe overall teacher shortages. This indicates that teacher shortages disproportionately affect students of color. We find similar patterns for school districts with severe elementary teacher shortages, and to a lesser extent, those with severe math, ELA, and social studies teacher shortages. However, school districts with severe shortages in other subject areas serve similar shares of students of color compared to the average district in the state.

Districts where charter schools account for larger shares of the total student enrollment in the area experience more severe shortages. This is particularly true for overall and elementary teacher shortages, and to a lesser extent for shortages of teachers in core subject areas. On average across the state, about 5% of the students who attend schools within a particular district's boundaries attend charter schools rather than their resident district. In districts with the most severe overall teacher shortages, 19% of students attend charter schools. Comparatively high rates of teacher turnover in charter schools, as we noted in Section Four, may contribute to this pattern. It is also possible that in areas with larger charter sectors, there is more competition between the different traditional public and charter schools for the same pool of teachers, leading to an inequitable distribution of teachers.

## SUMMARY

Overall, these results highlight both commonalities and discrepancies in the areas of the state that are likely experiencing the most severe shortages of teachers in general and teachers with specific specializations. Parts of the Upper Peninsula, northeastern Michigan, the Detroit Metro area, and along the border between Michigan and Indiana repeatedly stand out in these composite measures of teacher shortage, suggesting that there is a particularly acute need for teachers in these regions. We find that, in general, school districts in urban areas struggle more with finding enough teachers to staff their schools, while those in rural areas struggle to find the specific types of teachers they need. In many regions, we find large disparities in the extents of teacher shortages across close neighboring districts, especially for special education and science teachers, suggesting that competition between districts for the same pool of local teachers contributes to these shortages. While these analyses cannot determine the *cause* of Michigan's teacher shortages, these patterns can help policymakers target interventions and resources based on the types of shortages that are most prevalent in a given area.

# Section Seven: Key Takeaways

This report updates and builds on the analyses in our [first comprehensive report](#) on teacher shortages in Michigan, to provide ongoing context for policy makers and other stakeholders. This section highlights key findings from our analyses about teacher vacancies, retention rates, teacher preparation, and geographic variation in teacher shortages, as well as common themes in the findings across different sets of analyses. We also discuss the implications of our findings for future policy decisions.

While these analyses help to inform our understanding of Michigan's teacher shortage, the available state data still provide a limited picture, as there are no direct measures of statewide teaching vacancies or teacher shortages. Improving the data is a long-term effort, and as such, we will continue to gradually incorporate new information into future reports to gain more insight about teacher shortages throughout the state. For instance, this year's report includes newly available data about educators working in non-public schools and the schools where educators completed their own K-12 education, which can help us to understand where Michigan's teachers are coming from and where they're going after they earn their credentials.

## KEY FINDINGS

### More Michigan Teachers Left Their Jobs in 2022-23 Than in Past Years, But There Were Also More New Teachers Earning Credentials and Entering the Workforce

As we noted in [last year's report](#), the rates at which teachers entered into and exited from Michigan's public school teaching workforce, as well as rates of mobility within and between school districts, reached decade lows during the height of the COVID-19 pandemic in 2020-21 before increasing to new highs in 2021-22. Teacher attrition and between-district mobility continued to increase in 2022-23, reaching higher levels than at any other time in the past decade. While it is possible that some teachers who otherwise would have left their jobs or started new jobs in 2020-21 delayed doing so until the following year (after most school districts resumed in-person instruction), the sustained increases in 2022-23 suggest that this is not the only factor driving the high rates of attrition and mobility in recent years.

At the same time, the numbers of new teachers earning their initial credentials, completing teacher preparation programs, and entering the state's public school teaching workforce also reached new highs in 2022-23. More than three-quarters of the candidates who earned an initial teaching certificate in 2021-22 were teaching in a Michigan public school by the end of the next school year, compared to less than half of all newly certified teachers a decade earlier. As a result of these increases, Michigan experienced a net *gain* in public school teachers in 2022-23 despite record-high rates of attrition. New teachers who entered the workforce in 2022-23 were more likely than those who exited to teach full-time in a single school building, and less likely to be contracted through third-party providers to teach virtual courses to students from many districts at the same time.

## School Districts Throughout the State Are Experiencing Acute Shortages of Special Education and Science Teachers

Even though the teacher workforce is growing, new teachers with certain types of specialized training were scarce in some regions. Despite overall increases in teachers earning initial certificates each year, the number of newly certified science teachers has continued to decline unabated since 2012-13. The number of newly certified special education teachers experienced similar declines between 2012-13 and 2016-17 and has remained relatively stagnant since. While special education and science are not the only subject areas where initial certification rates have not yet rebounded, they consistently stand out in other measures of teacher shortages, suggesting that these fields may experience unique challenges in both recruiting teachers and matching specialized credentials with instructional needs.

Among the limited supply of new science and special education teachers entering Michigan's public school teacher workforce, few went on to teach in the Upper Peninsula, the northern half of the Lower Peninsula, or in counties along the state's southern border. School districts in these same regions are among those experiencing the most acute science and special education teacher shortages in the state. However, challenges with staffing special education and science teachers are widespread throughout Michigan. There are school districts in every region where more than 25% of special education or science teachers are "under-credentialed" for the content area or student population they teach. Most of these are certified teachers who do not have the appropriate endorsements for their teaching assignments, while some are non-certified teachers working under temporary teaching credentials like substitute teaching permits.

## Urban Districts Struggle to Find Enough Certified Teachers to Staff Their Schools, While Rural Districts Struggle to Find Teachers With the Specializations They Need

School districts in urban areas faced some of the most acute overall teacher shortages in the state, while those in rural areas faced some of the most acute subject-specific teacher shortages. We found that districts in both urban and rural locales often relied on “under-credentialed” teachers to meet their staffing needs in the absence of fully certified and appropriately endorsed teachers, but that they utilized these teachers in different ways. Urban districts were more likely to employ non-certified teachers (e.g., long-term substitutes) during shortages, whereas rural districts more often relied on certified teachers for assignments outside of their endorsement area. These differences in staffing strategies may reflect differences in local economic conditions, proximity to teacher preparation programs, and the pool of potential teachers in urban and rural areas. For instance, some urban districts utilize “grow your own” programs by partnering with nearby teacher preparation providers to hire and train aspiring classroom teachers while they are working towards their credentials. Some small rural districts may have too few students enrolled to warrant a full-time teacher in every specialization area, and therefore utilize their existing teachers to cover a wider range of courses than their endorsements qualify them to teach.

## Close Neighboring School Districts Often Face Very Different Shortage Conditions

Most of the variation in the extent of teacher shortages is at the local level rather than across broad regions of the state. Often, school districts with some of the most severe and least severe teacher shortages in the state are side by side. This could indicate that school districts in these communities are competing to recruit from the same limited pool of available teachers. In these situations, districts that can offer more appealing financial incentives, working conditions, and other benefits to prospective teachers likely have an advantage in hiring the teachers they need, leaving even fewer available teachers for other nearby districts. On average, we find that the school districts facing the most severe teacher shortages tend to be in communities with large charter sectors. One reason for this is simply that charter schools are primarily concentrated in urban areas, which tend to experience more acute overall and elementary teacher shortages. However, we also find that subject-specific teacher shortages, which are more pervasive in rural areas, are associated with higher charter school enrollment. These patterns could suggest that competition between traditional public and charter schools in the same communities may contribute to local shortages in some areas.



## Michigan’s Teacher Shortages Disproportionately Affect Students of Color and Students From Low-Income Families

The school districts in Michigan with the most severe teacher shortages, on average, serve larger populations of students of color and larger populations of economically disadvantaged students than the average district in the state. While these patterns hold true for most types of teacher shortages, they are especially stark for overall teacher shortages (as opposed to subject-specific teacher shortages). This suggests that students of color and students who are economically disadvantaged are more likely to experience negative effects of teacher shortages in most or all of their courses, rather than just in one or two high-shortage areas. As a result, students who are economically disadvantaged may be more likely to experience effects of teacher shortages that can negatively affect their educational progress by, for instance, hindering their access to fully credentialed and specially trained teachers, placing them in larger class sizes, or limiting the course offerings available in their school. As a result of high stress and turnover in schools with severe shortages, students may have fewer opportunities to build strong mentor-mentee relationships with their teachers, which research has shown to benefit student achievement, attendance, and behavioral outcomes (Wedenojia et al., 2022).

## IMPLICATIONS

### Michigan is Making Progress Toward Strengthening the Supply of New Teachers Entering the Workforce

Following several years of declines, Michigan is finally beginning to see increases in the number of new educators completing programs, earning their initial certification, and beginning their first jobs as public school teachers. As a result of these improvements, Michigan’s teacher workforce has been growing larger despite increases in attrition in the wake of the COVID-19 pandemic. This also means that early career teachers make up a larger part of the state’s teacher workforce than in the past. Continuing to support and retain these new teachers will be critical as districts work to fill their remaining staffing needs and maintain as much stability as possible in their schools.

### Strategies for Addressing Local Teacher Shortages Should Align With the Unique Staffing Challenges and Needs of Local Schools and Communities

While staffing has been a major challenge for school districts throughout Michigan, the specific challenges vary substantially across local contexts. For example, some areas are experiencing shortages of all types of teachers while other shortages are specific to teachers with certain specializations. Some shortages affect all districts in a region, while others are more localized, underscoring disparities between neighboring

districts. Michigan has invested in a wide range of programs and initiatives that reflect the varied and intricate nature of staffing challenges districts face. To best leverage these resources to address local teacher shortages, school leaders and other stakeholders should center their efforts around strategies that are feasible given the economic conditions in the area and partner with preparation programs and other organizations that are most likely to recruit and retain the types of teachers the community needs in the schools that need them.

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# Endnotes

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<sup>1</sup> Temporary teacher employment authorization is a certificate issued to out of state teacher candidates who already meet most requirements for a Michigan certificate; recently renamed “temporary teaching certificate.” As of May 2021, MDE began issuing one teaching certificate for general endorsements and for Career and Technical Education (CTE) endorsements.

<sup>2</sup> This date range is a change from previous years’ reports. Our count previously captured certificates issued between September 1<sup>st</sup> of the fall calendar year and August 31<sup>st</sup> of the spring calendar year. We have made this change for both greater internal consistency within the report and for greater alignment with the definitions MDE uses in other educator workforce reports.

<sup>3</sup> Following expansions to student access to virtual learning options in 2017 (2017 PA 143), CEPI established a building code and a district code for Michigan Virtual University in advance of the fall 2017 reporting period. Prior to 2017-18, there are no entity codes or indicators in the REP data that would allow us to identify MVU teachers.

<sup>4</sup> Some reporting practices that may contribute to this pattern include districts using non-teacher assignment codes for individuals who are not certified teachers but are acting as teachers of record, districts choosing assignment codes that align with a teacher’s endorsement areas rather than the content of the courses they teach, and districts reporting some individuals as “teachers of record” in the TSDL who were not actually acting in that role (e.g., a facilitator for a virtual course who was not the same person who was responsible for providing instruction for that course or a substitute teacher who only covered the course for a short time).

<sup>5</sup> (Barnes et al., 2007) reported \$5,000 to \$15,00 in 2007. We report these values in 2023 dollars using the US government CPI data published on Nov. 14 to adjust for inflation.

<sup>6</sup> Our last report showed a decrease in initial certificates in 2021-22. After receiving updated data for this year, we found that a large number of teachers earned initial certificates in the summer of 2021-22, which was early enough for them to be eligible for 2022-23 teaching jobs but often too late to be included in the data snapshot we received for the 2021-22 school year. To ensure that we do not under-count new certificates from recently completed school years in future analyses, we changed the cut-off dates that determine the school year when a certificate was issued. Previously, the data point for each school year represented certificates issued between September 1<sup>st</sup> of that year and August 31<sup>st</sup> of the following year. We now use July 1<sup>st</sup> to June 30<sup>th</sup> as cut-off dates.

<sup>7</sup> Completer counts are available through 2020-21 from the US Department of Education in the most recently available Title II report. In order to extend our analyses by an additional year, we include preliminary completer counts for the 2021-22 school year, which are available from MDE here: <https://www.michigan.gov/mde/news-and-information/press-releases/2023/06/27/michigan-is-making-progress-in-responding-to-the-teacher-shortage>

<sup>8</sup> We were able to match 98% of first-year teachers to student ID numbers using the crosswalk that CEPI developed to link records from their student and educator data systems. However, we were only able to identify high school records for 76% of these students. The other 24% may have only had records in Michigan’s postsecondary student data system and not in the K-12

student data system if, for instance, they completed their K-12 education in a private school or in a different state, were homeschooled, or graduated from high school before the current student data system was established. It is also possible that some of these teachers truly do have records in the K-12 student data system, but that their records could not be linked across the systems (e.g., if they changed their name in between when they last attended school and when they first appeared in the state educator data system). Because we rely on students' high school records as an indicator of where their "hometowns" are, we cannot identify the hometowns of the 24% of first-year teachers who did not have high school records available.

<sup>9</sup> The exact indicators in each composite teacher shortage measure differ slightly between the overall and various subject-specific measures. This is because, before creating the composite measures, we complete an iterative Cronbach's alpha analysis to ensure that all of the indicators we include in each measure capture information about the same underlying construct. Thus, we exclude indicators that do not align sufficiently with the other indicators in the composite measure. We found that shares of teaching FTEs and courses with teachers of record who are certified but assigned out-of-field only align with other shortage indicators in some subject areas, but not for overall shortages or shortages in certain subject areas. Please see the notes below each figure in this section for a full list of the indicators we included in the composite measure, as well as its internal consistency reliability coefficient.

<sup>10</sup> The grey portions of each map indicate that the district(s) in those areas did not have data available for one or more of the indicators that we included in the composite measure, preventing us from estimating the extent of the shortage in that area. These grey areas are much more prevalent in the subject area maps than in the overall map, as some districts either did not report any teachers with assignments in certain subject areas and some relied entirely on multi-site teachers who we cannot include in school- and district-level attrition calculations.