Supports Associated with Teacher Retention in Michigan

Appendix A. Methods

Appendix B. Detailed findings

Appendix C. The Michigan Department of Education's Teacher Survey on Teacher Supports

See https://go.usa.gov/xMxVU for the full report.

Appendix A. Methods

This appendix includes detailed information about the data used for this study and the methods used to complete the analyses.

Data sources

The Regional Educational Laboratory Midwest entered into a data-sharing agreement with the Michigan Department of Education that allowed the study team access to all the data necessary to conduct the study. The study team used data from the following sources:

- Teacher certification and demographic data from the Michigan Online Educator Certification System, including records of all certificates, except revoked certificates, issued between 1960 and 2019 (https://mdoe.state.mi.us/MOECS/Login.aspx).

- Public school employment records between 2013/14 and 2018/19, including teachers' school and district assignment, from the Michigan Registry of Educational Personnel.

- Survey data from the sample of certified teachers who began teaching within their traditional school district or public school academy between 2014/15 and 2016/17. Survey responses provided information on teachers' awareness of supports provided by their local education agency and perceptions of the quality of their agency's supports. The Michigan Department of Education administered the survey between September 18 and October 12, 2020.

- Publicly available data on enrollment in Michigan's local education agencies from 2013/14 through 2018/19 available from Michigan's Center for Educational Performance and Information website, disaggregated by subgroups (https://www.michigan.gov/cepi/).

The data sources used to address each research question are in table A1.

Table A1. Data used to answer research questions

Data element/characteristic	Years of data used in analysis	Source
Research question 1: What was the average annual retention rate for teachers who taught in Michigan public schools between 2013/14 and 2018/19? Did the rate vary by teacher or local education agency characteristics?		
Teacher characteristic		
Gender	1960–2019	Administrative data from Michigan Online Educator Certification System (https://mdoe.state.mi.us/MOECS/Login.aspx)
Race/ethnicity	1960–2019	
Age	1960–2019	
Employment status (dates of hire or termination)	2013/14–2018/19	Administrative data from Michigan's Registry of Education Personnel
Type of position	2013/14–2018/19	
Place of assignment	2013/14–2018/19	
Local education agency		
Student enrollment	2013/14–2018/19	Public-access data files available on Michigan's Center for Educational Performance and Information website (https://www.michigan.gov/cepi/)
Percentage of economically disadvantaged students	2013/14–2018/19	
Percentage of English learner students	2013/14–2018/19	
Percentage of racial/ethnic minority students	2013/14–2018/19	
Percentage of students requiring special education services	2013/14–2018/19	
Percentage of students proficient in English language arts and mathematics	2013/14–2018/19	
Type (public school academy or traditional district)	2013/14–2018/19	
Locale (urban, suburban, town, or rural)	2013/14–2018/19	
Economic prosperity region	2013/14–2018/19	
Research question 2: What teacher supports did Michigan public school teachers report were available from their local education agency? Was the availability of supports associated with local education agency characteristics?		
Teacher characteristic		
Awareness of different types of supports provided by the local education agency	Fall 2020	Michigan Department of Education's Survey of teachers in their third to fifth years of teaching in the same local education agency
Experience	Fall 2020	
Local education agency characteristic		
Percentage of economically disadvantaged students	2013/14–2018/19	Public-access data files available from Michigan's Center for Educational Performance and Information website (https://www.michigan.gov/cepi/)
Percentage of English learner students	2013/14–2018/19	
Percentage of racial/ethnic minority students	2013/14–2018/19	
Percentage of students requiring special education services	2013/14–2018/19	
Percentage of students proficient in English language arts and mathematics	2013/14–2018/19	
Type (public school academy or traditional district)	2013/14–2018/19	
Locale (urban, suburban, town, or rural)	2013/14–2018/19	
Economic prosperity region	2013/14–2018/19	

Data element/characteristic	Years of data used in analysis	Source
Research question 3: Were teachers' perceptions of the quality of their local education agency's support of teachers associated with the characteristics of those agencies?		
Teacher characteristic		
Perceptions of quality of implementation of teacher supports	Fall 2020	Michigan Department of Education's Survey of teachers in their third to fifth years of teaching in the same local education agency
Experience	Fall 2020	
Local education agency characteristic		
Total student enrollment	2013/14–2018/19	Public-access data files available on Michigan's Center for Educational Performance and Information website (https://www.michigan.gov/cepi/)
Percentage of economically disadvantaged students	2013/14–2018/19	
Percentage of English learner students	2013/14–2018/19	
Percentage of a racial/ethnic minority students	2013/14–2018/19	
Percentage of students requiring special education services	2013/14–2018/19	
Percentage of students proficient in English language arts and mathematics	2013/14–2018/19	
Type (public school academy or traditional district)	2013/14–2018/19	
Locale (urban, suburban, town, or rural)	2013/14–2018/19	
Economic prosperity region	2013/14–2018/19	
Research question 4: What teacher supports were associated with teacher retention in local education agencies? Were the supports associated with retention the same for public school academies as for traditional school districts? What teacher supports were associated with teacher retention in local education agencies that served higher percentages of economically disadvantaged students?		
Teacher characteristic		
Awareness of different types of teacher supports provided by the local education agency	Fall 2020	Michigan Department of Education's Survey of teachers in their third to fifth years of teaching in the same local education agency
Perceptions of quality of implementation of teacher supports	Fall 2020	
Experience	Fall 2020	
Gender	1960–2019	Administrative data from Michigan Online Educator Certification System (https://mdoe.state.mi.us/MOECS/Login.aspx)
Race/ethnicity	1960–2019	
Age	1960–2019	
Employment status (dates of hire or termination)	2013/14–2018/19	Administrative data from Michigan's Registry of Education Personnel
Type of position	2013/14–2018/19	
Place of assignment	2013/14–2018/19	
Local education agency characteristic		
Total student enrollment	2013/14–2018/19	Public-access data files available on Michigan's Center for Educational Performance and Information website (https://www.michigan.gov/cepi/)
Percentage of economically disadvantaged students	2013/14–2018/19	
Percentage of English learner students	2013/14–2018/19	
Percentage of racial/ethnic minority students	2013/14–2018/19	
Percentage of students requiring special education services	2013/14–2018/19	
Percentage of students proficient in English language arts and mathematics	2013/14–2018/19	
Type (public school academy or traditional district)	2013/14–2018/19	
Locale (urban, suburban, town, or rural)	2013/14–2018/19	
Economic prosperity region	2013/14–2018/19	

Source: Authors' compilation.

Data instruments

Instruments for research question 1. No data instruments were developed for research question 1.

Instruments for research questions 2, 3, and 4. The Michigan Department of Education designed a survey for teachers who were employed for three to five years by a local education agency in Michigan as of the end of the 2019/20 school year (see appendix C for the survey instrument). The survey contained five sections, with a total of 87 items. Section I Teaching Status included screening items, such as current teaching status and teaching experience. Eligible participants then completed the remaining four sections of the survey. Section II Induction and Mentoring included items assessing the teachers' awareness of teacher induction- and mentoring-related supports in their local education agency. Awareness items required a yes/no response. Other items were statements about teachers' perceptions of the quality of the induction- and mentoring-related supports offered by their local education agency. Teachers responded to these statements by selecting strongly disagree, disagree, agree, or strongly agree. Section III Compensation and Incentives included awareness and perception items on compensation and benefits offered by the local education agency. Section IV Evaluation and Professional Growth contained awareness and perception items on evaluation and professional growth supports offered by the local education agency. Some of these items requested information about evaluation and professional learning before and after the COVID-19 outbreak. Section V Education Environment contained items assessing teachers' perceptions of the quality of their work environment before and after the COVID-19 outbreak.
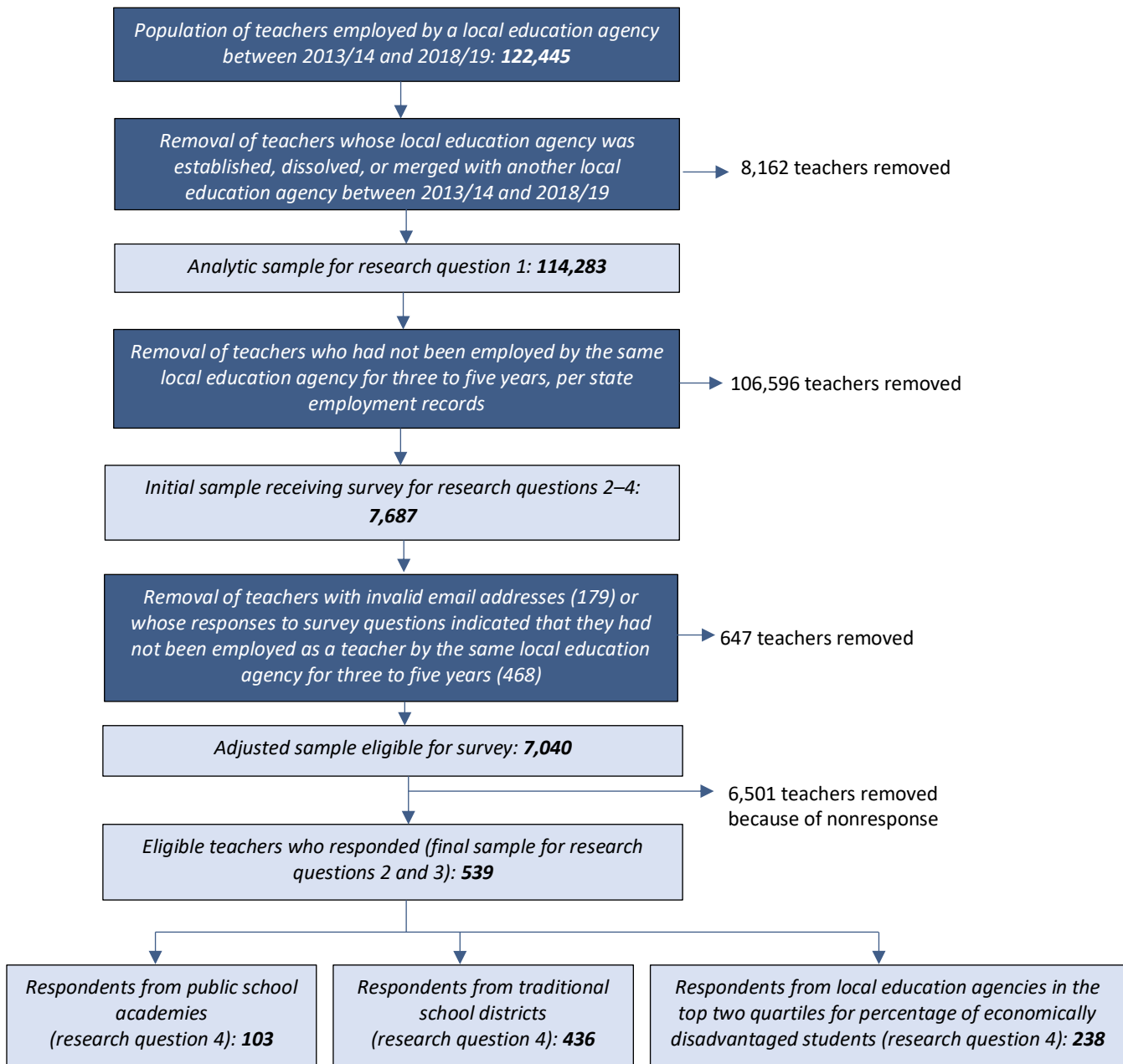
Sample description

The sample for research question 1 came from administrative data provided by the Michigan Department of Education. The sample for research questions 2 and 3 came from a survey administered in September and October 2020 by the Michigan Department of Education to teachers who had been employed by a local education agency in Michigan for three to five years as of the end of the 2019/20 school year and who had a valid email address. The sample for research question 4 came from administrative data provided by the Michigan Department of Education and the same survey sample used for research questions 2 and 3.

Sample for research question 1. The population of teachers for research question 1 included 122,45 teachers employed by a local education agency in Michigan between 2013/14 and 2018/19. The study team excluded 8,162 teachers who were employed in a local education agency that was established between 2013/14 and 2018/19 and those employed in agencies that were dissolved or merged with another agency during that period. The final sample size for research question 1 was 114,283 teachers (figure A1).

Sample for research questions 2 and 3. The sample for research questions 2 and 3 included respondents to a Michigan Department of Education survey administered in September and October 2020 to all 7,687 teachers who were in their third through fifth years of teaching, according to teacher certification records and school teacher employment records. The department received notice of invalid or rejected emails for 179 of these teachers, and 468 survey recipients were subsequently screened out because they reported not being employed for the requisite number of years in the same local education agency. Thus, the eligible population was adjusted to 7,040 teachers (the denominator of the response rate calculation). A total of 539 eligible teachers provided responses to the survey. The response rate, calculated using standards established by the American Association for Public Opinion Research (2016), was 12.2 percent.

Figure A1. Procedure applied to derive the analytic samples for research questions

Population of teachers employed by a local education agency between 2013/14 and 2018/19: **122,445**

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Removal of teachers whose local education agency was established, dissolved, or merged with another local education agency between 2013/14 and 2018/19	→ 8,162 teachers removed

↓

Analytic sample for research question 1: **114,283**

↓

Removal of teachers who had not been employed by the same local education agency for three to five years, per state employment records	→ 106,596 teachers removed

↓

Initial sample receiving survey for research questions 2–4: **7,687**

↓

Removal of teachers with invalid email addresses (179) or whose responses to survey questions indicated that they had not been employed as a teacher by the same local education agency for three to five years (468)	→ 647 teachers removed

↓

Adjusted sample eligible for survey: **7,040**

→ 6,501 teachers removed because of nonresponse

↓

Eligible teachers who responded (final sample for research questions 2 and 3): **539**

↓

Respondents from public school academies (research question 4): **103**	Respondents from traditional school districts (research question 4): **436**	Respondents from local education agencies in the top two quartiles for percentage of economically disadvantaged students (research question 4): **238**

Source: Authors' compilation.

Sample for research question 4. Teacher retention for all local education agencies was based on the 114,283 teachers who taught in a local education agency in Michigan between 2013/14 and 2018/19. Information on teacher supports came from survey responses from 539 teachers in 305 local education agencies. For the examination of supports associated with retention of teachers from public school academies, the retention figures come from the 14,268 teachers in 250 academies that were in operation during those years. Information on supports available to teachers in public school academies came from the 103 survey respondents who represented 72 of those academies. For the examination of supports associated with retention of teachers from traditional school districts, the retention figures came from the 100,015 teachers in 538 traditional school districts. Information on supports available to teachers in traditional school districts came from the 436 survey respondents who represented 233 of those districts. For the examination of supports associated with teacher retention in local education agencies serving high percentages of economically disadvantaged students, the study team identified

44,509 teachers who worked in 360 local education agencies that were in operation between 2013/14 and 2018/19 and that were in the upper two quartiles for percentage of economically disadvantaged students. Identification of supports available to teachers in those agencies came from survey responses from 238 Michigan teachers representing 136 agencies.

Process for identifying and correcting for nonresponse bias. The study team conducted two nonresponse analyses. First, the team determined the characteristics of teachers and the local education agencies they represented in the survey sample and compared those percentages with the percentages of the population of teachers (table A2). Second, the team conducted a series of logistic regressions using the dichotomous indicator of response status (1 = response, 0 = nonresponse) as the outcome variable and the explanatory variables reflecting characteristics of the teacher and the local education agency. Any differences larger than .05 standard deviation were mitigated through statistical adjustments that took advantage of relationships between auxiliary variables and the probability of response. The study team identified characteristics associated with unit nonresponse using a statistical algorithm called chi-square automatic interaction detection that calculates person-level nonresponse-adjusted weights (CHAID; Kass, 1980). The study team used those weights in all subsequent analyses.[1]

Table A2. Response rate calculations for the Michigan Department of Education's survey on teacher supports at the level of the local education agency, fall 2020

Type of calculation	Number/percent of teachers
Survey completion	**Number**
Complete	458
Partial	81
Incomplete	101
No working email address	179
Ineligible	468
Response rate	**Percent**
Minimum, complete surveys only	6.3
Complete and partially complete surveys	7.5
Adjusted for eligibility, complete surveys only	10.3
Adjusted for eligibility, complete and partially complete surveys	12.2

Note: Response rates were calculated using the American Association for Public Opinion Research (2016) standard definitions and guidelines. *Complete* is defined as a survey response in which the respondent completed at least 75 percent of the critical survey items. *Partially complete* is defined as a response in which the respondent completed between 25 percent and 74 percent of the critical survey items. *Incomplete* includes responses by respondents who completed fewer than 25 percent of the survey items. *Ineligible* includes responses by respondents who were out of the sample, including teachers who had more or less than three to five years of experience or who worked in local education agencies that opened or closed or were merged with other local education agencies during the timeframe of the study. The eligibility rate estimate used to calculate the response rate was 57.7 percent.
Source: Authors' analysis of data from the Michigan Department of Education's survey on teacher supports within local education agencies administered between September and October 2020.

Representativeness of the sample for research questions 2, 3, and 4. The final analytic sample for research questions 2, 3, and 4 included 539 teachers in their third to fifth years of teaching within their local education agency who responded to the survey (table A3). To assess the representativeness of the analytic sample, the study team compared the characteristics of the 539 survey respondents in the analytic sample with the 7,040 teachers who make up this population, according to the Michigan Department of Education's administrative data (see table A3). The differences that exceeded 5 percentage points were the percentage of teachers in the 25–34 age group (underrepresented in the survey sample by 5.1 percentage points) and teachers in the 45–60 age group

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[1] The chi-square automatic interaction detection analysis is identified in the National Center for Education Statistics Guideline 4-5-1B as an appropriate method to create adjustment weights to minimize bias arising from differences between responding and nonresponding units (see https://nces.ed.gov/statprog/2012/pdf/Chapter4.pdf).

(overrepresented in the survey sample by 5.2 percentage points). At the local education agency level rural agencies are underrepresented by 12.2 percentage points, suburban agencies are overrepresented by 7.7 percentage points, and public school academies are underrepresented by 6.7 percentage points. The survey data also overrepresented local education agencies in the Detroit metro economic prosperity region by 5.6 percentage points. After adjustment of the percentages using nonresponse weights, the only characteristic showing statistically significant differences between the sample and the population was locale (rural local education agencies remained underrepresented while agencies in suburban areas and towns were overrepresented). The study team used nonresponse weights in all subsequent analyses to partially correct for the lack of representativeness.

Table A3. Comparison between the characteristics of the population of public school teachers in Michigan with three to five years of experience teaching in their local education agency and the characteristics of teachers in the survey analytic sample

Characteristic	Population of Michigan teachers in years 3–5 of teaching in local education agencies		Survey sample of teachers in years 3–5		Difference between population and sample characteristics
	Frequency	Percent	Frequency	Percent	Percentage points
Teacher characteristic					
Gender					
Female	5,519	78.4	448	83.1	4.8**
Male	1,521	21.6	91	16.9	−4.8**
Age (as of March 2020)					
24 or younger	92	1.3	5	0.9	−0.3**
25–34	4,040	57.4	282	52.3	−5.1**
35–44	1,627	23.1	132	24.5	1.4**
45–60	1,161	16.5	117	21.7	5.2**
61 or older	120	1.7	3	0.6	−1.1**
Race/ethnicity					
American Indian/Alaska Native	34	0.5	5	0.9	0.5
Asian	84	1.2	3	0.6	−0.6
Black	280	4.0	16	3.0	−1.0
Hispanic/Latino (any race)	125	1.8	6	1.1	−0.7
Native Hawaiian/Pacific Islander	4	0.1	0	0.0	−0.1
White	6,430	91.3	502	93.1	1.8
Two or more races	83	1.2	7	1.3	0.1
Total numbers of teachers	7,040		539 (458 complete; 81 partial)		
Local education agency characteristic					
Retention rates					
Lowest quartile	184	25.0	55	18.0	−6.9**
Second quartile	183	25.0	81	26.6	1.6**
Third quartile	183	25.0	80	26.2	1.3**
Fourth quartile	183	25.0	89	29.2	4.2**
Type of local education agency					
Public school academy	222	30.3	72	23.6	−6.7**
Traditional school district	511	69.7	233	76.4	6.7**

| Characteristic | Population of Michigan teachers in years 3–5 of teaching in local education agencies | | Survey sample of teachers in years 3–5 | | Difference between population and sample characteristics |
	Frequency	Percent	Frequency	Percent	Percentage points
Locale					
City	125	17.1	55	18.0	0.9***
Suburban	203	27.7	108	35.4	7.7***
Town	92	12.6	53	17.4	4.8***
Rural	294	40.1	85	27.9	−12.2***
Not specified	19	2.6	4	1.3	−1.3
Economic prosperity region					
Upper Peninsula	59	8.0	12	3.9	−4.1
Northwest	43	5.9	13	4.3	−1.6
Northeast	25	3.4	10	3.3	−0.1
West	119	16.2	59	19.3	3.1
East Central	44	6.0	13	4.3	−1.7
East	78	10.6	18	5.9	−4.7
South Central	35	4.8	18	5.9	1.1
Southwest	73	10.0	35	11.5	1.5
Southeast	72	9.8	33	10.8	1.0
Detroit Metro	185	25.2	94	30.8	5.6
Total student enrollment					
Lowest quartile	184	25.1	33	10.8	−14.3***
Second quartile	183	25.0	67	22.0	−3.0***
Third quartile	183	25.0	74	24.3	−0.7***
Fourth quartile	183	25.0	131	43.0	18.0***
Percentage of economically disadvantaged students					
Lowest quartile	184	25.1	89	29.2	4.1
Second quartile	183	25.0	69	22.6	−2.3
Third quartile	183	25.0	78	25.6	0.6
Fourth quartile	183	25.0	69	22.6	−2.3
Percentage of racial/ethnic minority students					
Lowest quartile	184	25.1	58	19.0	−6.1**
Second quartile	183	25.0	75	24.6	−0.4**
Third quartile	183	25.0	97	31.8	6.8**
Fourth quartile	183	25.0	75	24.6	−0.4**
Percentage of students requiring special education services					
Lowest quartile	184	25.1	71	23.3	−1.8
Second quartile	183	25.0	77	25.2	0.3
Third quartile	183	25.0	89	29.2	4.2
Fourth quartile	183	25.0	68	22.3	−2.7

Characteristic	Population of Michigan teachers in years 3–5 of teaching in local education agencies		Survey sample of teachers in years 3–5		Difference between population and sample characteristics
	Frequency	Percent	Frequency	Percent	Percentage points
Percentage of students who are English language proficient					
Lowest quartile	184	25.1	45	14.8	−10.3***
Second quartile	183	25.0	59	19.3	−5.6***
Third quartile	183	25.0	98	32.1	7.2***
Fourth quartile	183	25.0	103	33.8	8.8***
Percentage of students who are proficient in English language arts					
Lowest quartile	184	25.1	56	18.4	−6.7**
Second quartile	183	25.0	77	25.2	0.2**
Third quartile	183	25.0	75	24.6	−0.4**
Fourth quartile	183	25.0	97	31.8	6.8**
Number of local education agencies	733		305		

Significant at $p < .01$; * significant at $p < .001$.

Note: The percentages are column percentages for each category. Percentages might not sum to 100 because of rounding.

Source: Authors' analysis of data provided by the Michigan Department of Education and public use data on local education agency enrollment from Michigan's Center for Educational Performance Information.

Analyses for addressing research question 1

Calculating teacher retention rates. To calculate teacher retention rates, the study team used teacher certificate data and school staffing data from each year between 2013/14 and 2018/19. The study team used school staffing data from each successive year to classify each teacher as a stayer (that is, retained in the local education agency), a mover (that is, retained in the teaching profession in the state but not retained in the local education agency), or a leaver (that is, not present in teacher data during the following year and presumed to have taken a teaching position in a private school, left the teaching profession, or left the state). The study team then calculated five annual retention rates for each local education agency (one for each two-year period) by dividing the number of stayers by the total number of teachers during the previous year.

Analysis for research question 1. The study team obtained data on teacher characteristics from teacher certificates and added them to the annual school staffing data. The study team also gathered data about the student populations served by each local education agency using school and local education agency enrollment files available from Michigan's Center for Educational Performance and Information's website. The study team classified school local education agencies by type for categorical variables (for example, locale, region of the state). For continuous characteristics, such as the percentage of economically disadvantaged students or the percentage of students proficient in English language arts, the study team classified local education agencies by quartiles. The final analyses for research question 1 involved calculating the descriptive statistics for teacher retention across all local education agencies in the state and then cross-tabulating the statistics by teacher characteristics and the characteristics of these agencies. Because these statistics represent the population of local education agencies in the state, traditional inferential statistics were inappropriate. The study team, in partnership with the Michigan Department of Education, considered differences in teacher retention between agencies with different characteristics to be meaningful if they were 5 percentage points or higher.

Analysis for addressing research question 2

The survey on teacher supports included two types of items: items asking respondents whether they were aware of various types of supports and items about their perceptions of the quality of supports (see appendix C). Teacher responses on their awareness of various types of supports (support items) were the focus of research question 2. Each support item required a yes or no response, with yes (coded 1) indicating that the support was present and no (coded 0) indicating that the support was not present. The codes were subsequently weighted at the respondent level to account for nonresponse bias.

Aggregation and summary of support items. Responses for support items were aggregated to the level of the local education agency by averaging the weighted codes across respondents in that agency. If the average was higher than 0.5, the study team classified the support as present (coded 1) in that agency; otherwise, the support was classified as absent (coded 0).

The analysis of support items involved calculating the frequency of local education agencies for which respondents answered yes (signifying that the support was provided to teachers) and then calculating the percentage of agencies that adopted the support by dividing that frequency by 305 (the number of agencies represented by the survey respondents). The support items were grouped into the following types: supports for new teachers, compensation and benefits, evaluation, and professional development. Although the percentages of agencies that adopted each support are presented by support type, the study team did not aggregate the codes for the supports according to these types. To determine whether the supports adopted by local education agencies varied by type, the study team calculated one-way analysis of variance, with percentages as dependent variables and agency characteristics (either category or quartile) as independent variables. Differences in the percentages for the categories of characteristics that were statistically significant at $p < .01$ are described in the main report, and the full list of averages across categories of agencies is in tables B2–B11 in appendix B.

Analysis for addressing research question 3

The items reflecting survey respondents' perceptions of the quality of supports (perception items) required respondents to indicate whether they strongly disagreed, disagreed, agreed, or strongly agreed with the statement in the item. The levels of agreement were coded 1–4, with higher numbered codes representing greater agreement. The response codes were weighted to reflect nonresponse.

Aggregation and summary of perception items. The study team also calculated the frequency and percentages of responses for the perception items (that is, the respondents who responded agree or strongly agree to the perception items). The percentages of respondents who agreed or strongly agreed to each statement are presented in the main report (with all percentages presented in table B12 in appendix B). The percentages of respondents within local education agencies who responded with agree or strongly agree to the specific perception items were calculated for each category of an agency characteristic.

The study team developed the perception items to reflect the perceived quality of implementation for the following types of supports: professional development, teacher collaboration, supportive school leadership, teacher involvement in school governance, quality of mentor program, quality and sufficiency of time and material resources, leadership and advancement opportunities, new teacher socialization, satisfaction with salary and compensation, and evaluation system. The study team developed perceived quality scores for each type of support for each respondent and local education agency using Rasch modeling techniques (table A4; Bond & Fox, 2007; Wright & Masters, 1982). The Rasch scores for each type of support have different scaling properties, making it inappropriate to use the Rasch scores to compare among the 10 types of supports. However, Rasch scores for the perceptions of quality for these support types were used to see whether differences in perceptions varied according to the characteristics of local education agencies. The study team calculated a one-way analysis of variance with the agencies' Rasch scores as dependent variables and their characteristics (either category or

quartile) as independent variables. Differences in average Rasch scores for categories or characteristics that were statistically significant at *p* < .01 are described in the main report. The full listing of averages across categories of local education agencies is in tables B13–B14.

Table A4. Rasch reliability estimates for the 10 types of teacher supports

Types of supports whose perceived quality was addressed in survey items	Number of items	Rasch reliability	Average (Rasch)
Professional development	6	0.83	0.51
Teacher collaboration	5	0.78	0.62
Supportive school leadership	5	0.86	0.66
Teacher involvement in school governance	3	0.79	0.66
Quality of mentor program	5	0.69	0.76
Quality and sufficiency of time and material resources	7	0.79	0.82
Leadership and advancement opportunities	4	0.76	0.85
New teacher socialization	4	0.79	1.16
Satisfaction with salary and compensation	6	0.77	1.56
Evaluation system	5	0.85	1.98

Note: Analysis based on survey responses from 539 teachers representing 305 local education agencies.
Source: Authors' analysis of data from the Michigan Department of Education's survey on teacher supports within local education agencies administered between September and October 2020.

Analysis for addressing research question 4

The analysis for research question 4 involved survey data from the 539 teachers and the retention information for teachers within survey respondents' local education agencies. The study team used three-level logistic regression models to isolate the associations between teacher retention and supports in local education agencies, while controlling for the clustering of teachers within local education agencies and the characteristics of teachers and agencies. The models also helped smooth instability in the data arising from small sample size (for example, if a small number of teachers leave a local education agency in a given year); structural changes occurring in local education agencies (for example, decreasing enrollment, changes in student demographic characteristics); and inconsistencies in the data from year to year.

The dependent variable at level 1 was the dichotomous indicator of the likelihood of a teacher being retained in the local education agency in the subsequent year. The study team used a log transformation to normalize the distribution of the data. The intercept was modeled as a random effect to take into account the clustering of teachers within time and local education agencies.

Level 1 in the models was the teacher level; level 2 was the time level, with teacher retention information for each school year; level 3 included characteristics of the local education agencies.

Level 1 model: Teachers

$$\log [P/(1-P)]_{ijk} = \beta_{0jk} + \sum_{p=1}^{p} \beta_{pjk}(\mathbf{X})_{ijk} + e_{ijk}$$

where log[*P/(1–P)*]$_{ijk}$ represented a log transformation of the dichotomous indicator for whether a teacher *i* in local education agency *k* remained in the local education agency the following year, and $\mathbf{X}$ represented a vector of teacher characteristics from personnel data including teacher gender, race/ethnicity, and age.

Level 2 model: Time

$$\beta_{0jk} = \lambda_{00k} + \sum_{r=1}^{r} \lambda \, (S)_{jk} + \lambda_2 t + v_{jk}$$

where β_{0jk} is the intercept from level 1, and t is an indicator variable representing time (coded 0–4 for each year). This variable will pick up the linear trend in retention across all five years.

Level 3 model: Local education agency

$$\lambda_{00k} = \pi_{000} + \pi_{1k} \, R_k + \sum \pi D_k + \pi_3 t + e_k$$

where R represented the awareness of teachers of a support for each local education agency k, and **D** is a vector of agency-level covariates such as average enrollment, the percentage of racial/ethnic minority students, and the percentage of economically disadvantaged students (see all covariates in table A1). The model also included t, an indicator variable representing time (coded 0–4 for each year). This variable reflects the linear trend in retention across all five years.

The estimate of primary interest from the model is π_{1k} at the local education agency level, which represents the association between respondents' awareness of a support within their agency and teacher retention. For these models the coefficient was estimated in the logged odds ratio (logit) metric, where odds were defined as the probability of a teacher staying in the local education agency divided by the probability of leaving. The study team ran separate models for each support item and the perceived quality of each type of support.

To determine whether the supports associated with teacher retention were different for traditional school districts and public school academies, the study team performed separate analyses for each type of agency. To examine associations between characteristics of teachers, local education agencies, and student populations for agencies serving large percentages of economically disadvantaged students, the study team ran the same multilevel logistic regression models but only with data for agencies in the highest two quartiles for the percentage of economically disadvantaged students.

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Appendix B. Detailed findings

This appendix includes detailed findings for the analyses included in the main report.

Average teacher retention rates for local education agencies in Michigan by characteristics of teachers and local education agencies, 2013/14–2018/19 school years

To address research question 1, the study team calculated the average teacher retention rate at the teacher level across the 2013/14 through 2018/19 school years. The team also calculated teacher retention rates by teacher characteristics, the characteristics of local education agencies, and the characteristics of the student populations served by local education agencies (table B1).

Table B1. Average percentage of teachers retained in local education agencies from the previous year, by teacher and local education agency characteristics, 2013/14–2018/19

| Characteristic	Mean	Minimum	Maximum	Median	25th percentile of teacher retention	75th percentile of teacher retention	Number of local education agencies	Number of teachers
State	84.6	33.3	100.0	88.6	79.4	92.0	788	114,283
Teacher characteristic								
Gender								
Female	84.7	33.3	100.0	88.7	79.8	92.0	788	86,277
Male	83.9	0.0	100.0	88.3	79.5	92.5	772	27,739
Race/ethnicity								
American Indian/ Alaska Native[a]	79.0	0.0	100.0	100.0	66.7	100.0	254	312
Asian[b]	73.9	0.0	100.0	87.5	50.0	100.0	362	910
Black or African American[b]	73.8	0.0	100.0	80.0	63.3	90.9	397	5,978
Hispanic/Latino[a]	78.0	0.0	100.0	90.0	66.7	100.0	479	1,390
Native Hawaiian/ Pacific Islander[b]	70.0	0.0	100.0	80.0	50.0	100.0	101	111
Two or more races[a]	77.9	0.0	100.0	90.0	66.7	100.0	401	916
White[c]	85.0	38.0	100.0	88.9	80.0	92.3	786	100,136
Missing[d]	61.9	0.0	100.0	69.1	50.0	84.3	687	4,530
Age								
24 or younger[a]	85.9	0.0	100.0	100.0	100.0	100.0	490	735
25–34[a]	82.0	0.0	100.0	84.6	76.3	90.3	774	20,148
35–44[a]	85.3	0.0	100.0	89.5	79.5	93.9	782	31,622
45–60[a]	87.4	16.7	100.0	92.6	83.4	95.3	783	43,421
61 or older[b]	73.8	0.0	100.0	77.5	69.4	83.5	763	14,737
Missing[b]	63.4	0.0	100.0	70.0	50.0	87.5	672	3,620
Local education agency characteristic								
School type								
Public school academies[a]	74.2	33.3	98.7	74.8	67.9	81.6	250	14,268
Traditional school districts[b]	89.5	50.0	100.0	90.5	87.6	92.6	538	100,015

Characteristic	Mean	Minimum	Maximum	Median	25th percentile of teacher retention	75th percentile of teacher retention	Number of local education agencies	Number of teachers
Locale								
Urban[a]	75.9	47.9	95.3	75.0	67.9	86.6	151	28,901
Suburban[b]	88.5	42.5	100.0	90.3	86.4	92.7	404	24,239
Town[b]	85.7	33.3	97.5	89.4	79.4	92.9	253	45,842
Rural[b]	89.4	59.0	100.0	90.7	88.1	92.7	129	13,401
Region								
1. Upper Peninsula[a]	87.4	70.0	100.0	88.8	84.1	91.4	67	3,410
2. Northwest[a]	87.1	59.0	98.7	89.0	82.8	92.1	46	3,540
3. Northeast[a]	87.2	70.0	96.2	88.6	84.1	91.5	26	1,971
4. West[a]	87.4	58.1	96.0	90.2	85.5	92.5	125	19,136
5. East Central[a]	85.7	50.0	95.3	89.9	82.6	92.0	48	5,766
6. East[a]	87.7	57.4	100.0	90.4	85.0	92.8	85	9,510
7. South Central[a]	85.1	62.4	96.3	88.8	76.6	92.5	37	5,230
8. Southwest[a]	85.2	59.2	100.0	88.2	81.7	91.5	76	9,683
9. Southeast[a]	86.8	44.3	97.0	88.9	83.6	92.3	74	10,689
10. Detroit metro[b]	78.4	33.3	97.5	79.1	69.5	89.6	202	45,348
Total student enrollment								
Lowest quartile[a]	77.8	44.3	100.0	78.4	70.0	87.2	124	2,288
Second quartile[a]	80.2	33.3	97.0	81.9	73.8	88.6	201	10,194
Third quartile[b]	86.4	47.9	96.0	89.5	85.1	91.5	229	20,169
Fourth quartile[b]	90.3	60.9	97.5	91.6	88.9	93.3	234	81,632
Characteristic of the student populations served by local education agencies								
Percentage of economically disadvantaged students								
Lowest quartile[a]	89.7	56.6	100.0	92.0	88.6	93.6	214	46,094
Second quartile[a]	89.4	66.6	100.0	90.5	88.0	92.3	213	23,673
Third quartile[a]	84.2	50.0	100.0	86.8	80.0	89.8	186	23,736
Fourth quartile[b]	73.2	33.3	93.2	74.1	67.5	81.1	174	20,773
Percentage of students of racial/ethnic minorities								
Lowest quartile[a]	89.0	57.8	100.0	90.2	87.5	92.5	207	19,652
Second quartile[a]	88.4	50.0	100.0	91.0	87.1	93.2	214	30,410
Third quartile[a]	85.6	44.3	97.0	88.3	82.2	91.9	189	38,440
Fourth quartile[b]	74.0	33.3	94.6	74.3	67.9	82.0	177	25,772
Percentage of students who are English learners								
Lowest quartile[a]	82.6	33.3	100.0	87.4	75.5	90.8	188	8,501
Second quartile	84.7	47.2	97.0	88.7	79.6	91.7	173	16,398
Third quartile [b]	87.3	51.9	97.5	90.0	85.2	92.5	213	35,123
Fourth quartile	83.9	44.3	100.0	86.9	78.2	91.7	213	54,253

Characteristic	Mean	Minimum	Maximum	Median	25th percentile of teacher retention	75th percentile of teacher retention	Number of local education agencies	Number of teachers
Percentage of students receiving special education services								
Lowest quartile	83.0	44.3	100.0	88.4	75.8	92.5	181	21,618
Second quartile	85.2	33.3	98.7	89.1	81.5	92.5	226	38,472
Third quartile	85.8	47.9	100.0	88.8	82.4	91.7	221	33,346
Fourth quartile	84.2	50.0	100.0	86.9	79.7	90.3	159	20,838
Percentage of students proficient in English language arts								
Lowest quartile[a]	74.1	33.3	95.4	75.0	66.6	83.1	158	22,041
Second quartile[b]	85.6	60.5	95.3	88.0	81.6	90.6	188	21,998
Third quartile[b]	89.3	71.6	98.7	90.6	87.6	92.4	185	25,238
Fourth quartile[b]	89.8	62.2	96.3	92.2	89.2	93.4	188	43,685

Note: For each characteristic, categories or quartiles with different superscripts (a and b) have mean differences that are 5 percentage points or greater. Retention rates are based on all 114,283 teachers employed by the 788 local education agencies in Michigan between 2013/14 and 2018/19. Local education agencies are defined as public school academies (charter schools) or traditional school districts. Teachers employed by Michigan's intermediate school districts (agencies that provide supporting functions, mostly at the county level) and regional education agencies were not included in these retention rates. Local education agencies that opened or closed during the six-year span are not represented.

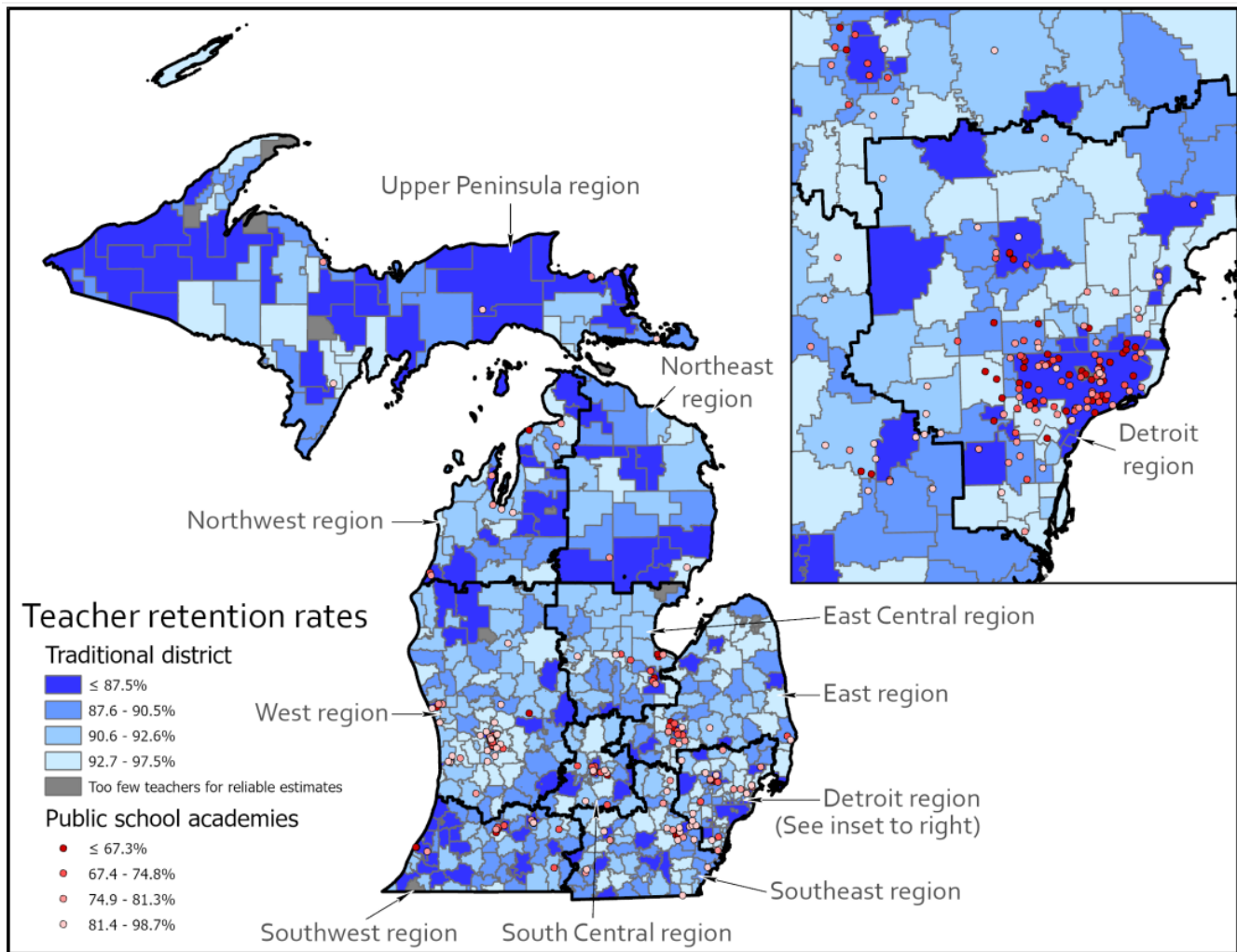Source: Authors' analysis of data provided by the Michigan Department of Education.

Figure B1. Retention rates for local education agencies ranged from 33 percent to 100 percent, but 75 percent of local education agencies had retention rates higher than 80 percent, 2013/14–2018/19
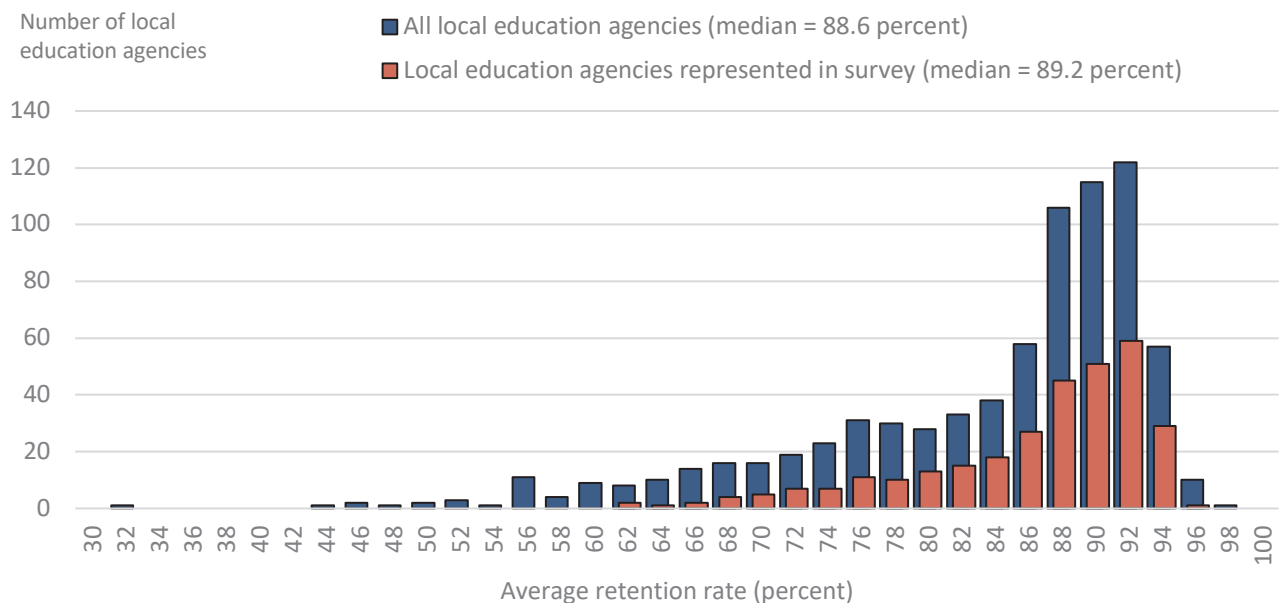
Note: Bars represent the number of local education agencies within a 2 percentage point span for retention rate. Blue bars represent 788 of Michigan's 893 local education agencies and 114,283 of the state's 408,591 public school teachers. Agencies that employed fewer than five teachers or served fewer than 100 students in any one year were excluded (because retention rates are less stable with fewer teachers employed), as were agencies that opened or closed during the six-year span. Orange bars represent the numbers of local education agencies for which survey data were obtained that had retention rates within a 2 percentage point span. Local education agencies are defined as public school academies (charter schools) or traditional school districts. Teachers employed by Michigan's intermediate school districts (agencies that provide supporting functions, mostly at the county level) and regional education agencies were not included in these retention rates.

Source: Authors' analysis of data provided by the Michigan Department of Education.

Figure B2. Teacher retention rates varied across Michigan economic prosperity regions and local education agencies, with retention lowest in the local education agencies in the Detroit metro region, 2013/14–2018/19

Note: Michigan's economic prosperity regions are distinguished by black lines. Traditional school districts that employed fewer than five teachers or served fewer than 100 students are shaded in gray because the loss of individual teachers affects retention rates in these smaller school districts much more than in larger school districts. Public school academies (charter schools) that employed fewer than five teachers or served fewer than 100 students were not included in the map.

Source: Authors' analysis of data provided by the Michigan Department of Education.

Teachers' awareness of supports in their local education agency

To address research question 2, the study team calculated the frequency and percentage of survey respondents who indicated that a support was present in their local education agency or absent from their agency (table B2). Differences in the presence of teacher supports for different types of local education agencies are in subsequent tables (tables B3–B11).

Table B2. Percentage of survey respondents who indicated that specific supports were present in their local education agency, fall 2020

Support type	Support is present		Support is not present	
	Frequency	Percentage	Frequency	Percentage
Supports for new teachers				
A mentoring program for teachers new to the local education agency	261	85.6	44	14.4
Regular supportive communication with your principal, other administrators, or department chair	249	81.7	56	18.3
Seminars, classes, or professional development sessions for beginning teachers	234	76.7	71	23.3
An orientation to the school	209	68.6	96	31.4
Common planning time with teachers in your subject area and/or grade level	195	64.0	110	36.0
Professional learning community teams with added supports for new teachers	157	51.6	148	48.4
Instructional rounds with peers	126	41.4	179	58.6
Extra classroom assistance (such as teacher aides)	120	39.3	185	60.7
Reduced teaching schedule/additional preparation time periods or release time	52	17.1	253	82.9
Compensation and benefits				
Annual salary increases	251	82.2	54	17.8
Tuition reimbursement or financial assistance for additional endorsements or professional learning	127	41.7	178	58.3
Performance-based compensation such as bonuses or salary increases for teachers who have effective evaluation ratings	95	31.2	210	68.8
Childcare benefits such as subsidies, on-site childcare, or childcare assistance	25	8.1	280	91.9
Financial incentives for teachers in high-need subjects or at high-need schools	19	6.2	286	93.8
Teacher housing or mortgage assistance programs	7	2.2	298	97.8
Evaluation				
Evaluation based in part on formal observations	298	97.8	7	2.2
Evaluation includes opportunities for teachers to set goals	294	96.5	11	3.5
Evaluation based in part on student growth data	294	96.5	11	3.5
Evaluation provides opportunities to receive feedback	289	94.7	16	5.3
Evaluation based in part on informal classroom walk-throughs	278	91.2	27	8.8
Evaluation based on clearly defined performance standards	277	90.9	28	9.1
Evaluation system requires collaboration with supervisor on goals	267	87.4	38	12.6
Evaluation based on multiple data sources	249	81.5	56	18.5

Support type	Support is present		Support is not present	
	Frequency	Percentage	Frequency	Percentage
Professional development				
Agency-organized workshops, conferences, or training sessions	272	89.2	31	10.8
Release time from teaching to attend professional development	215	74.7	73	25.3
Online courses, resources, or platforms for knowledge sharing	206	71.5	82	28.5
Reimbursement for conferences, workshops, or courses	198	68.8	90	31.3
Time for observational visits to other classrooms in my school	185	64.0	104	36.0
Stipends for professional development activities that take place outside regular work hours	128	44.4	160	55.6
Observational visits to other schools or local education agencies	110	38.1	179	61.9

Note: Frequencies and percentages are based on survey responses from 539 Michigan teachers representing 305 local education agencies. Teachers' responses of "Don't know" and "Not aware" were classified as "Support not present." This table provides percentages of teachers aware of supports aggregated to the local education agency level. Teacher responses were adjusted using nonresponse weights. Similar analysis using raw data produced different percentages for awareness but similar ordering of items within a category.
Source: Authors' analysis of data from the Michigan Department of Education's survey on teacher supports within local education agencies administered in September and October 2020.

Table B3. Percentage of survey respondents who indicated that supports were present in their local education agencies agency, by type of agency, fall 2020

Support type	Public school academies (n = 103 teachers)	Traditional districts (n = 436 teachers)	Statistical significance of difference
Supports for new teachers			
A mentoring program for teachers new to the local education agency	78.9	87.3	
Regular supportive communication with your principal, other administrators, or department chair	86.1	81.6	
Seminars, classes, or professional development sessions for beginning teachers	72.2	77.2	
An orientation to the school	69.4	67.1	
Common planning time with teachers in your subject area and/or grade level	73.6	62.7	
Professional learning community teams with added supports for new teachers	54.2	51.1	
Instructional rounds with peers	44.4	42.0	
Extra classroom assistance (such as teacher aides)	40.8	38.6	
Reduced teaching schedule/additional preparation time periods or release time	23.6	15.4	
Compensation and benefits			
Annual salary increases	68.1	85.5	***
Tuition reimbursement or financial assistance for additional endorsements or professional learning	62.5	33.8	***
Performance-based compensation such as bonuses or salary increases for teachers who have effective evaluation ratings	44.4	27.0	**
Childcare benefits such as subsidies, on-site childcare, or childcare assistance	8.3	8.3	
Financial incentives for teachers in high-need subjects or at high-need schools	9.7	5.7	
Teacher housing or mortgage assistance programs	2.8	1.3	
Evaluation			
Evaluation based in part on formal observations	95.8	98.7	
Evaluation includes opportunities for teachers to set goals	93.0	97.8	*
Evaluation based in part on student growth data	97.2	97.8	

Support type	Public school academies (n = 103 teachers)	Traditional districts (n = 436 teachers)	Statistical significance of difference
Evaluation provides opportunities to receive feedback	94.4	94.7	
Evaluation based in part on informal classroom walk-throughs	97.2	91.2	
Evaluation based on performance standards or definitions of high-quality teacher practice	91.5	90.4	
Evaluation system requires collaboration with supervisor on goal setting	88.6	86.8	
Evaluation based on multiple data sources	84.5	81.1	
Professional development			
Agency-organized workshops, conferences, or training sessions	90.0	87.9	
Release time from teaching to attend professional development	68.3	77.1	
Online courses, resources, or platforms for knowledge sharing	80.0	68.4	
Reimbursement for conferences, workshops, or courses	65.0	66.8	
Time for observational visits to other classrooms in my school	68.3	63.3	
Stipends for professional development activities that take place outside regular work hours	26.7	47.8	**
Observational visits to other schools or local education agencies	30.0	38.6	

* Significant at *p* < .05; ** significant at *p* < .01; *** significant at *p* < .001.

Note: Percentages are based on survey responses from 539 Michigan teachers, aggregated within local education agencies (305 local education agencies represented). Local education agencies are defined as public school academies (charter schools) or traditional school districts. Teachers who work for independent school districts or regional education agencies—most of which play a supportive role—were not included.

Source: Authors' analysis of data from the Michigan Department of Education's survey on teacher supports within local education agencies administered in September and October 2020.

Table B4. Percentage of survey respondents who indicated that supports were present in their local education agency, by locale, fall 2020

Support type	City	Suburb	Town	Rural	Statistical significance of difference
Supports for new teachers					
A mentoring program for teachers new to the local education agency	75.5	82.9	86.2	96.2	*
Regular supportive communication with your principal, other administrators, or department chair	81.1	84.1	83.6	80.8	
Seminars, classes, or professional development sessions for beginning teachers	67.9	67.1	83.6	80.8	*
An orientation to the school	69.8	54.9	75.5	69.2	*
Common planning time with teachers in your subject area and/or grade level	73.6	48.8	73.6	63.5	**
Professional learning community teams with added supports for new teachers	50.9	40.2	60.9	51.0	*
Instructional rounds with peers	49.1	31.7	44.5	48.0	
Extra classroom assistance (such as teacher aides)	35.8	37.8	43.1	36.5	
Reduced teaching schedule/additional preparation time periods or release time	26.4	13.4	19.1	9.6	
Compensation and benefits					
Annual salary increases	81.1	82.7	82.7	76.9	
Tuition reimbursement or financial assistance for additional endorsements or professional learning	45.3	40.2	40.0	38.5	

Support type	City	Suburb	Town	Rural	Statistical significance of difference
Performance-based compensation such as bonuses or salary increases for teachers who have effective evaluation ratings	48.1	28.0	24.5	33.3	*
Childcare benefits such as subsidies, on-site childcare	7.5	6.1	11.8	5.8	
Financial incentives for teachers in high-need subjects or at high-need schools	13.2	1.2	9.1	3.8	*
Teacher housing or mortgage assistance programs	3.8	1.2	1.8	0.0	
Evaluation					
Evaluation based in part on formal observations	96.2	100.0	99.1	94.2	
Evaluation included opportunities for teachers to set goals	90.6	97.6	99.1	96.1	*
Evaluation based in part on student growth data	98.1	95.1	99.1	98.1	
Evaluation provides opportunities to receive feedback	94.3	95.1	97.2	90.2	
Evaluation based in part on informal classroom walk-throughs	94.3	95.1	93.6	86.5	
Evaluation based on performance standards or definitions of high-quality teacher practice	92.5	86.6	93.6	88.5	
Evaluation system requires collaboration with supervisor on goal setting	84.9	80.5	92.6	88.5	
Evaluation based on multiple data sources	84.9	73.2	88.1	78.8	
Professional development					
Local education agency organized workshops, conferences, or training sessions	86.7	88.9	92.7	80.0	
Release time from teaching to attend professional development	57.8	75.0	84.2	72.0	**
Online courses, resources, or platforms for knowledge sharing	80.0	65.3	72.9	68.0	
Reimbursement for conferences, workshops, or courses	64.4	62.5	67.4	72.0	
Time for observational visits to other classrooms in my school	62.2	60.3	67.7	68.0	
Stipends for professional development activities that take place outside regular work hours	35.6	37.5	47.4	50.0	
Observational visits to other schools or local education agencies	35.6	38.4	36.5	38.0	

* Significant at $p < .05$; ** significant at $p < .01$.

Note: Percentages are based on survey responses from 539 Michigan teachers, aggregated within local education agencies (305 local education agencies represented). Local education agencies are defined as public school academies (charter schools) or traditional school districts. Teachers who work for independent school districts or regional education agencies—most of which play a supportive role—were not included.

Source: Authors' analysis of data from the Michigan Department of Education's survey on teacher supports within local education agencies administered between September and October 2020.

Table B5. Percentage of survey respondents who indicated that supports were present in their local education agency, by economic prosperity region, fall 2020

Support type	Upper Peninsula	Northwest	Northeast	West	East Central	East	South Central	Southwest	Southeast	Detroit metro	Statistical significance of differences
Supports for new teachers											
A mentoring program for teachers new to the local education agency	83.3	76.9	90.0	84.5	76.9	88.9	94.4	88.2	90.6	82.4	
Regular supportive communication with your principal, other administrators, or department chair	83.3	84.6	80.0	89.7	69.2	77.8	88.9	82.4	90.6	77.2	
Seminars, classes, or professional development sessions for beginning teachers	50.0	69.2	80.0	77.6	84.6	77.8	83.3	79.4	75.0	75.0	
An orientation to the school	58.3	46.2	50.0	74.1	61.5	44.4	50.0	82.4	71.9	71.7	*
Common planning time with teachers in your subject area and/or grade level	41.7	38.5	50.0	55.2	76.9	72.2	83.3	55.9	71.9	75.0	*
Professional learning community teams with added supports for new teachers	18.2	23.1	30.0	53.4	38.5	66.7	50.0	67.6	56.3	53.3	*
Instructional rounds with peers	27.3	23.1	40.0	45.6	61.5	38.9	55.6	41.2	34.4	44.6	
Extra classroom assistance (such as teacher aides)	41.7	46.2	70.0	36.2	46.2	35.3	44.4	44.1	43.8	31.5	
Reduced teaching schedule/additional preparation time periods or release time	0.0	15.4	40.0	12.1	23.1	22.2	22.2	14.7	21.9	17.4	
Compensation and benefits											
Annual salary increases	75.0	69.2	80.0	84.2	76.9	66.7	83.3	91.2	78.1	82.6	
Tuition reimbursement or financial assistance for additional endorsements or professional learning	16.7	61.5	30.0	60.3	23.1	11.1	22.2	50.0	43.8	37.0	***
Performance-based compensation such as bonuses or salary increases	33.3	38.5	0.0	33.3	30.8	16.7	33.3	60.6	31.3	23.9	**

Support type	Upper Peninsula	Northwest	Northeast	West	East Central	East	South Central	Southwest	Southeast	Detroit metro	Statistical significance of differences
for teachers who have effective evaluation ratings											
Childcare benefits such as subsidies, on-site childcare, or childcare assistance	8.3	7.7	10.0	5.2	7.7	11.1	5.6	11.8	12.5	7.6	
Financial incentives for teachers in high-need subjects or at high-need schools	0.0	7.7	0.0	3.4	0.0	0.0	5.6	8.8	3.1	13.0	
Teacher housing or mortgage assistance programs	0.0	0.0	0.0	1.7	0.0	0.0	0.0	2.9	3.1	2.2	
Evaluation											
Evaluation based in part on formal observations	100.0	100.0	100.0	94.8	92.3	100.0	100.0	100.0	100.0	97.8	
Evaluation includes opportunities for teachers to set goals	100.0	92.3	100.0	96.6	100.0	100.0	94.4	97.1	93.8	96.7	
Evaluation based in part on student growth data	100.0	92.3	90.0	96.5	100.0	100.0	100.0	100.0	90.6	100.0	
Evaluation provides opportunities to receive feedback	90.9	92.3	90.0	93.1	100.0	94.4	88.9	100.0	90.6	96.7	
Evaluation based in part on informal classroom walk-throughs	91.7	92.3	100.0	84.5	100.0	83.3	94.4	97.1	93.8	95.6	
Evaluation based on performance standards or definitions of high-quality teacher practice	91.7	92.3	80.0	87.9	100.0	94.4	88.9	97.1	84.4	91.2	
Evaluation system requires collaboration with supervisor on goal setting	75.0	84.6	80.0	89.7	76.9	88.9	83.3	97.1	83.9	87.9	
Evaluation based on multiple data sources	83.3	61.5	70.0	74.1	92.3	94.4	77.8	97.1	71.9	85.7	*

Support type	Upper Peninsula	Northwest	Northeast	West	East Central	East	South Central	Southwest	Southeast	Detroit metro	Statistical significance of differences
Professional development											
Local education agency organized workshops, conferences, or training sessions	90.0	92.3	88.9	78.4	91.7	93.8	88.2	83.9	93.3	92.2	
Release time from teaching to attend professional development	80.0	84.6	66.7	74.5	75.0	87.5	75.0	74.2	83.3	68.8	
Online courses, resources, or platforms for knowledge sharing	70.0	69.2	66.7	64.7	75.0	68.8	82.4	54.8	76.7	77.9	
Reimbursement for conferences, workshops, or courses	50.0	76.9	66.7	70.6	50.0	75.0	56.3	67.7	76.7	62.3	
Time for observational visits to other classrooms in my school	50.0	84.6	44.4	64.7	66.7	43.8	82.4	59.4	66.7	66.2	
Stipends for professional development activities that take place outside regular work hours	50.0	38.5	77.8	43.1	50.0	50.0	18.8	61.3	36.7	36.4	*
Observational visits to other schools or local education agencies	30.0	53.8	22.2	41.2	41.7	25.0	52.9	40.6	33.3	31.2	

* Significant at $p <. 05$; ** significant at $p < .01$; *** significant at $p <.001$.

Note: Percentages are based on survey responses from 539 Michigan teachers, aggregated within local education agencies (305 agencies represented). Local education agencies are defined as public school academies (charter schools) or traditional school districts. Teachers who work for independent school districts or regional education agencies—most of which play a supportive role—were not included.

Source: Authors' analysis of data from the Michigan Department of Education's survey on teacher supports within local education agencies administered in September and October 2020.

Table B6. Percentage of survey respondents who indicated that supports were present in their local education agency, by quartiles of average student enrollment in their agency, fall 2020

Support type	Lowest quartile (smallest agencies)	Second quartile	Third quartile	Fourth quartile (largest agencies)	Statistical significance of differences
Supports for new teachers					
A mentoring program for teachers new to the local education agency	18.2	83.0	86.3	90.3	***
Regular supportive communication with your principal, other administrators, or department chair	90.9	84.9	79.0	83.2	
Seminars, classes, or professional development sessions for beginning teachers	36.4	77.4	64.2	84.5	***
An orientation to the school	27.3	52.8	66.7	76.1	***
Common planning time with teachers in your subject area and/or grade level	9.1	56.6	64.2	72.3	***
Professional learning community teams with added supports for new teachers	18.2	47.2	43.8	60.0	**
Instructional rounds with peers	9.1	37.7	35.0	50.6	**
Extra classroom assistance (such as teacher aides)	45.5	40.4	29.6	43.2	
Reduced teaching schedule/additional preparation time periods or release time	18.2	20.8	12.3	18.7	
Compensation and benefits					
Annual salary increases	54.5	69.8	78.8	88.4	**
Tuition reimbursement or financial assistance for additional endorsements or professional learning	18.2	47.2	45.7	37.4	
Performance-based compensation such as bonuses or salary increases for teachers who have effective evaluation ratings	18.2	28.3	40.7	28.1	
Childcare benefits such as subsidies, on-site childcare, or childcare assistance	9.1	5.7	6.2	10.3	
Financial incentives for teachers in high-need subjects or at high-need schools	9.1	1.9	6.2	8.4	
Teacher housing or mortgage assistance programs	0.0	0.0	2.5	1.9	
Evaluation					
Evaluation based in part on formal observations	100.0	96.2	97.5	98.7	
Evaluation includes opportunities for teachers to set goals	81.8	96.2	96.3	98.1	*
Evaluation based in part on student growth data	81.8	96.2	98.8	98.7	**
Evaluation provides opportunities to receive feedback	81.8	94.2	92.6	96.8	
Evaluation based in part on informal classroom walk-throughs	90.9	96.2	90.1	92.9	
Evaluation based on performance standards or definitions of high-quality teacher practice	90.9	88.5	91.4	91.0	
Evaluation system requires collaboration with supervisor on goal setting	70.0	82.7	88.9	89.0	
Evaluation based on multiple data sources	54.5	84.6	75.3	86.5	*

Support type	Lowest quartile (smallest agencies)	Second quartile	Third quartile	Fourth quartile (largest agencies)	Statistical significance of differences
Professional development					
Local education agency organized workshops, conferences, or training sessions	70.0	92.9	85.3	89.9	
Release time from teaching to attend professional development	90.0	69.0	68.0	79.7	
Online courses, resources, or platforms for knowledge sharing	50.0	78.6	61.3	75.5	*
Reimbursement for conferences, workshops, or courses	60.0	64.3	58.7	71.7	
Time for observational visits to other classrooms in my school	40.0	60.5	60.0	69.8	
Stipends for professional development activities that take place outside regular work hours	30.0	31.0	37.3	50.7	
Observational visits to other schools or local education agencies	30.0	37.2	29.3	41.0	

* Significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$.

Note: Percentages are based on survey responses from 539 Michigan teachers, aggregated within local education agencies (305 agencies represented). Local education agencies are defined as public school academies (charter schools) or traditional school districts. Teachers who work for independent school districts or regional education agencies—most of which play a supportive role—were not included.

Source: Authors' analysis of data from the Michigan Department of Education's survey on teacher supports within local education agencies administered in September and October 2020.

Table B7. Percentage of survey respondents who indicated that supports were present in their local education agency, by quartiles of average percentage of economically disadvantaged students, fall 2020

Support type	Lowest quartile	Second quartile	Third quartile	Fourth quartile	Statistical significance of differences
Supports for new teachers					
A mentoring program for teachers new to the local education agency	91.4	94.4	79.3	71.7	***
Regular supportive communication with your principal, other administrators, or department chair	91.4	87.3	80.5	64.8	***
Seminars, classes, or professional development sessions for beginning teachers	83.9	76.1	76.8	61.1	*
An orientation to the school	80.6	71.8	57.3	55.6	**
Common planning time with teachers in your subject area and/or grade level	80.6	57.7	57.3	61.1	***
Professional learning community teams with added supports for new teachers	53.8	53.5	53.1	44.4	
Instructional rounds with peers	47.8	43.7	43.2	31.5	
Extra classroom assistance (such as teacher aides)	43.0	33.8	41.5	35.8	
Reduced teaching schedule/additional preparation time periods or release time	19.4	9.9	17.1	24.1	
Compensation and benefits					
Annual salary increases	86.0	82.9	81.7	70.4	
Tuition reimbursement or financial assistance for additional endorsements or professional learning	40.9	36.6	36.6	51.9	
Performance-based compensation such as bonuses or salary increases for teachers who have effective evaluation ratings	32.6	23.9	29.6	40.7	
Childcare benefits such as subsidies, on-site childcare, or childcare assistance	15.1	5.6	6.1	3.7	*
Financial incentives for teachers in high-need subjects or at high-need schools	5.4	4.2	7.3	11.1	
Teacher housing or mortgage assistance programs	2.2	0.0	1.2	3.7	
Evaluation					
Evaluation based in part on formal observations	100.0	97.1	97.6	96.3	
Evaluation includes opportunities for teachers to set goals	96.8	97.1	98.8	92.6	
Evaluation based in part on student growth data	98.9	97.1	95.1	100.0	
Evaluation provides opportunities to receive feedback	95.7	94.2	92.7	96.3	
Evaluation based in part on informal classroom walk-throughs	94.6	90.0	91.5	94.4	
Evaluation based on performance standards or definitions of high-quality teacher practice	92.5	85.7	91.5	92.6	
Evaluation system requires collaboration with supervisor on goal setting	87.0	87.1	90.2	83.3	
Evaluation based on multiple data sources	83.9	74.3	84.1	85.2	

Support type	Lowest quartile	Second quartile	Third quartile	Fourth quartile	Statistical significance of differences
Professional development					
Local education agency organized workshops, conferences, or training sessions	88.8	88.1	90.4	84.8	
Release time from teaching to attend professional development	81.0	76.1	76.7	60.9	
Online courses, resources, or platforms for knowledge sharing	78.8	67.2	65.8	71.7	
Reimbursement for conferences, workshops, or courses	75.9	65.7	61.6	58.7	
Time for observational visits to other classrooms in my school	70.0	65.7	62.2	56.5	
Stipends for professional development activities that take place outside regular work hours	45.6	41.8	42.5	41.3	
Observational visits to other schools or local education agencies	41.3	32.8	45.9	19.6	*

* Significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$.

Note: Percentages are based on survey responses from 539 Michigan teachers, aggregated within local education agencies (305 agencies represented). Local education agencies are defined as public school academies (charter schools) or traditional school districts. Teachers who work for independent school districts or regional education agencies—most of which play a supportive role—were not included.

Source: Authors' analysis of data from the Michigan Department of Education's survey on teacher supports within local education agencies administered in September and October 2020.

Table B8. Percentage of survey respondents who indicated that supports were present in their local education agency, by quartiles of average percentage of racial/ethnic minority students, fall 2020

Support type	Lowest quartile	Second quartile	Third quartile	Fourth quartile	Statistical significance of differences
Supports for new teachers					
A mentoring program for teachers new to the local education agency	83.3	93.7	84.5	77.8	
Regular supportive communication with your principal, other administrators, or department chair	83.3	83.8	86.6	74.6	
Seminars, classes, or professional development sessions for beginning teachers	75.0	73.8	83.5	68.3	
An orientation to the school	61.7	66.3	74.2	65.1	
Common planning time with teachers in your subject area and/or grade level	63.3	55.0	70.1	73.0	
Professional learning community teams with added supports for new teachers	35.6	56.3	56.7	54.0	*
Instructional rounds with peers	36.2	43.8	42.3	47.6	
Extra classroom assistance (such as teacher aides)	41.7	38.8	39.2	37.1	
Reduced teaching schedule/additional preparation time periods or release time	15.0	18.8	13.4	23.8	
Compensation and benefits					
Annual salary increases	79.7	80.0	85.6	77.8	
Tuition reimbursement or financial assistance for additional endorsements or professional learning	40.0	33.8	38.1	54.0	
Performance-based compensation such as bonuses or salary increases for teachers who have effective evaluation ratings	22.0	28.8	32.3	41.3	
Childcare benefits such as subsidies, on-site childcare, or childcare assistance	10.0	8.8	10.3	3.2	
Financial incentives for teachers in high-need subjects or at high-need schools	3.3	1.3	9.3	12.7	*
Teacher housing or mortgage assistance programs	0.0	0.0	2.1	4.8	
Evaluation					
Evaluation based in part on formal observations	100.0	98.8	96.9	96.8	
Evaluation includes opportunities for teachers to set goals	96.6	97.5	96.9	95.2	
Evaluation based in part on student growth data	98.3	95.0	97.9	100.0	
Evaluation provides opportunities to receive feedback	93.3	96.2	92.7	96.8	
Evaluation based in part on informal classroom walk-throughs	93.3	88.8	92.7	96.8	
Evaluation based on performance standards or definitions of high-quality teacher practice	90.0	86.3	92.7	93.7	
Evaluation system requires collaboration with supervisor on goal setting	80.0	87.5	90.5	88.9	
Evaluation based on multiple data sources	78.3	73.8	87.5	87.3	

Support type	Lowest quartile	Second quartile	Third quartile	Fourth quartile	Statistical significance of differences
Professional development					
Local education agency organized workshops, conferences, or training sessions	87.3	91.9	84.5	90.6	
Release time from teaching to attend professional development	72.7	85.1	75.9	62.3	*
Online courses, resources, or platforms for knowledge sharing	65.5	67.6	72.6	79.2	
Reimbursement for conferences, workshops, or courses	67.3	64.9	73.5	56.6	
Time for observational visits to other classrooms in my school	58.2	70.7	66.7	58.5	
Stipends for professional development activities that take place outside regular work hours	47.3	43.2	44.6	35.8	
Observational visits to other schools or local education agencies	41.8	32.0	41.7	30.2	

* Significant at $p < .05$.

Note: Percentages are based on survey responses from 539 Michigan teachers, aggregated within local education agencies (305 agencies represented). Local education agencies are defined as public school academies (charter schools) or traditional school districts. Teachers who work for independent school districts or regional education agencies—most of which play a supportive role—were not included.

Source: Authors' analysis of data from the Michigan Department of Education's survey on teacher supports within local education agencies administered in September and October 2020.

Table B9. Percentage of survey respondents who indicated that supports were present in their local education agency, by quartiles of average percentage of English learner students, fall 2020

Support type	Lowest quartile	Second quartile	Third quartile	Fourth quartile	Statistical significance of differences
Supports for new teachers					
A mentoring program for teachers new to the local education agency	60.5	93.0	91.2	85.3	***
Regular supportive communication with your principal, other administrators, or department chair	76.3	88.4	80.4	84.6	
Seminars, classes, or professional development sessions for beginning teachers	60.5	72.1	81.4	77.8	
An orientation to the school	44.7	67.4	71.6	71.8	*
Common planning time with teachers in your subject area and/or grade level	47.4	69.8	67.6	67.5	
Professional learning community teams with added supports for new teachers	24.3	48.8	57.8	56.4	**
Instructional rounds with peers	27.0	55.8	41.6	43.6	
Extra classroom assistance (such as teacher aides)	42.1	40.5	36.3	40.2	
Reduced teaching schedule/additional preparation time periods or release time	21.1	16.3	21.6	12.8	
Compensation and benefits					
Annual salary increases	76.3	83.7	79.2	83.8	
Tuition reimbursement or financial assistance for additional endorsements or professional learning	26.3	44.2	41.2	43.6	
Performance-based compensation such as bonuses or salary increases for teachers who have effective evaluation ratings	26.3	27.9	27.7	37.1	
Childcare benefits such as subsidies, on-site childcare, or childcare assistance	5.3	9.3	8.8	8.5	
Financial incentives for teachers in high-need subjects or at high-need schools	2.6	0.0	5.9	11.1	*
Teacher housing or mortgage assistance programs	0.0	0.0	0.0	4.3	*
Evaluation					
Evaluation based in part on formal observations	100.0	97.7	97.1	98.3	
Evaluation includes opportunities for teachers to set goals	94.7	100.0	97.1	95.7	
Evaluation based in part on student growth data	94.7	100.0	96.1	99.1	
Evaluation provides opportunities to receive feedback	94.6	95.3	94.1	94.8	
Evaluation based in part on informal classroom walk-throughs	94.7	93.0	92.2	92.2	
Evaluation based on performance standards or definitions of high-quality teacher practice	86.8	93.0	87.3	94.0	
Evaluation system requires collaboration with supervisor on goal setting	81.6	81.4	87.1	91.4	
Evaluation based on multiple data sources	81.6	83.7	75.5	87.1	

Support type	Lowest quartile	Second quartile	Third quartile	Fourth quartile	Statistical significance of differences
Professional development					
Local education agency organized workshops, conferences, or training sessions	90.6	92.5	90.2	84.3	
Release time from teaching to attend professional development	71.9	72.5	82.6	70.3	
Online courses, resources, or platforms for knowledge sharing	65.6	75.0	66.3	75.5	
Reimbursement for conferences, workshops, or courses	62.5	60.0	68.5	68.3	
Time for observational visits to other classrooms in my school	45.5	70.0	63.0	69.6	
Stipends for professional development activities that take place outside regular work hours	40.6	40.0	48.9	39.6	
Observational visits to other schools or local education agencies	39.4	35.0	35.9	37.3	

* Significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$.

Note: Percentages are based on survey responses from 539 Michigan teachers, aggregated within local education agencies (305 agencies represented). Local education agencies are defined as public school academies (charter schools) or traditional school districts. Teachers who work for independent school districts or regional education agencies—most of which play a supportive role—were not included.

Source: Authors' analysis of data from the Michigan Department of Education's survey on teacher supports within local education agencies administered in September and October 2020.

Table B10. Percentage of survey respondents who indicated that supports were present in their local education agency, by quartiles of average percentage of students proficient in English language arts, fall 2020

Support type	Lowest quartile	Second quartile	Third quartile	Fourth quartile	Statistical significance of differences
Supports for new teachers					
A mentoring program for teachers new to the local education agency	70.9	81.6	97.2	89.2	***
Regular supportive communication with your principal, other administrators, or department chair	69.1	80.5	79.2	94.6	**
Seminars, classes, or professional development sessions for beginning teachers	65.5	70.1	79.2	84.9	*
An orientation to the school	56.4	64.9	63.9	80.6	**
Common planning time with teachers in your subject area and/or grade level	63.4	54.5	66.7	75.3	*
Professional learning community teams with added supports for new teachers	49.1	46.8	56.3	54.8	
Instructional rounds with peers	36.4	41.6	43.7	47.8	
Extra classroom assistance (such as teacher aides)	38.9	36.4	34.7	45.2	
Reduced teaching schedule/additional preparation time periods or release time	21.8	14.3	13.9	19.4	
Compensation and benefits					
Annual salary increases	65.5	81.8	85.9	86.0	*
Tuition reimbursement or financial assistance for additional endorsements or professional learning	40.0	39.0	41.7	41.9	
Performance-based compensation such as bonuses or salary increases for teachers who have effective evaluation ratings	29.1	31.2	35.2	29.3	
Childcare benefits such as subsidies, on-site childcare, or childcare assistance	7.3	5.2	4.2	15.1	*
Financial incentives for teachers in high-need subjects or at high-need schools	12.7	6.5	4.2	5.4	
Teacher housing or mortgage assistance programs	3.6	1.3	1.4	1.1	
Evaluation					
Evaluation based in part on formal observations	96.4	97.4	98.6	100.0	
Evaluation includes opportunities for teachers to set goals	92.7	100.0	95.7	98.9	*
Evaluation based in part on student growth data	100.0	96.1	97.2	98.9	
Evaluation provides opportunities to receive feedback	94.5	94.8	94.3	96.8	
Evaluation based in part on informal classroom walk-throughs	98.2	89.6	88.7	96.8	*
Evaluation based on performance standards or definitions of high-quality teacher practice	92.7	90.9	90.1	90.3	
Evaluation system requires collaboration with supervisor on goal setting	83.6	90.9	88.7	87.0	
Evaluation based on multiple data sources	81.8	85.7	78.9	82.8	

Support type	Lowest quartile	Second quartile	Third quartile	Fourth quartile	Statistical significance of differences
Professional development					
Local education agency organized workshops, conferences, or training sessions	89.8	83.8	90.9	90.0	
Release time from teaching to attend professional development	65.3	79.4	72.7	79.7	
Online courses, resources, or platforms for knowledge sharing	71.4	58.8	72.7	79.7	*
Reimbursement for conferences, workshops, or courses	59.2	66.2	62.1	74.7	
Time for observational visits to other classrooms in my school	57.1	58.0	69.7	72.5	
Stipends for professional development activities that take place outside regular work hours	49.0	33.8	50.0	41.8	
Observational visits to other schools or local education agencies	24.5	40.6	33.3	45.0	

* Significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$.

Note: Percentages are based on survey responses from 539 Michigan teachers, aggregated within local education agencies (305 agencies represented). Local education agencies are defined as public school academies (charter schools) or traditional school districts. Teachers who work for independent school districts or regional education agencies—most of which play a supportive role—were not included.

Source: Authors' analysis of data from the Michigan Department of Education's survey on teacher supports within local education agencies administered in September and October 2020.

Table B11. Percentage of survey respondents who indicated that supports were present in their local education agency, by quartiles of average percentage of students requiring special education services, fall 2020

Support type	Lowest quartile	Second quartile	Third quartile	Fourth quartile	Statistical significance of differences
Supports for new teachers					
A mentoring program for teachers new to the local education agency	80.0	90.7	84.9	81.6	
Regular supportive communication with your principal, other administrators, or department chair	80.3	82.5	87.1	77.6	
Seminars, classes, or professional development sessions for beginning teachers	72.1	84.5	71.0	73.5	
An orientation to the school	70.5	70.1	65.6	63.3	
Common planning time with teachers in your subject area and/or grade level	72.1	67.0	63.4	57.1	
Professional learning community teams with added supports for new teachers	52.5	51.5	51.6	52.1	
Instructional rounds with peers	50.0	35.1	44.1	45.8	
Extra classroom assistance (such as teacher aides)	36.7	39.2	36.6	46.9	
Reduced teaching schedule/additional preparation time periods or release time	14.8	18.6	15.1	22.4	
Compensation and benefits					
Annual salary increases	86.9	85.6	78.3	71.4	
Tuition reimbursement or financial assistance for additional endorsements or professional learning	52.5	42.3	38.7	26.5	*
Performance-based compensation such as bonuses or salary increases for teachers who have effective evaluation ratings	49.2	24.0	31.5	22.4	**
Childcare benefits such as subsidies, on-site childcare, or childcare assistance	11.5	6.2	8.6	8.2	
Financial incentives for teachers in high-need subjects or at high-need schools	8.2	4.1	5.4	12.2	
Teacher housing or mortgage assistance programs	3.3	0.0	1.1	4.1	
Evaluation					
Evaluation based in part on formal observations	96.7	100.0	96.8	98.0	
Evaluation includes opportunities for teachers to set goals	93.3	96.9	96.7	100.0	
Evaluation based in part on student growth data	98.3	97.9	95.7	100.0	
Evaluation provides opportunities to receive feedback	96.7	93.8	93.5	95.9	
Evaluation based in part on informal classroom walk-throughs	93.3	92.8	89.2	98.0	
Evaluation based on performance standards or definitions of high-quality teacher practice	91.7	89.7	91.4	89.8	
Evaluation system requires collaboration with supervisor on goal setting	88.3	89.7	84.8	85.7	
Evaluation based on multiple data sources	85.0	82.5	75.3	89.8	

Support type	Lowest quartile	Second quartile	Third quartile	Fourth quartile	Statistical significance of differences
Professional development					
Local education agency organized workshops, conferences, or training sessions	85.7	89.8	91.8	81.8	
Release time from teaching to attend professional development	68.8	69.3	83.5	77.3	
Online courses, resources, or platforms for knowledge sharing	71.4	69.3	75.3	65.9	
Reimbursement for conferences, workshops, or courses	68.8	61.4	72.9	61.4	
Time for observational visits to other classrooms in my school	66.0	68.2	61.2	61.4	
Stipends for professional development activities that take place outside regular work hours	39.6	36.4	52.9	40.9	
Observational visits to other schools or local education agencies	36.0	35.2	37.6	38.6	

* Significant at $p < .05$; ** significant at $p < .01$.
Note: Percentages are based on survey responses from 539 Michigan teachers, aggregated within local education agencies (305 agencies represented). Local education agencies are defined as public school academies (charter schools) or traditional school districts. Teachers who work for independent school districts or regional education agencies—most of which play a supportive role—were not included.
Source: Authors' analysis of data from the Michigan Department of Education's survey on teacher supports within local education agencies administered in September and October 2020.

Associations between characteristics of local education agencies and respondents' perceptions of quality of support types

To address research question 3, the study team calculated the frequency and percentage of survey respondents who entered each of the five response options (tables B12–B16). The team also coded teachers' survey responses to each item on a 4-point scale (strongly disagree = 1, disagree = 2, agree = 3, strongly agree = 4). These response codes were multiplied by the nonresponse weight and then aggregated into a single score for each of the 10 support types using Rasch scores. These aggregated values were used in the analyses for research question 4.

Table B12. Percentages of survey respondents who reported on their perceptions of the quality of local education agency supports, fall 2020

Support type and quality of support	Strongly agree	Agree	Disagree	Strongly disagree	Missing/ no support
Professional development					
Professional development is closely connected to my school's improvement plan	10.1	52.4	17.6	4.3	15.5
Professional development includes opportunities to work with teachers in my school	10.6	45.8	21.6	6.5	15.5
Professional development is sustained and coherently focused	7.3	43.4	28.6	6.0	14.6
Professional development includes enough time to think about, try, evaluate new ideas	6.3	38.3	32.6	8.0	14.8
Professional development is differentiated to meet the needs of each teacher	4.5	25.6	34.6	20.3	15.0
Professional development includes opportunities to work with teachers from other schools	4.7	24.3	33.9	22.1	15.0

Support type and quality of support	Strongly agree	Agree	Disagree	Strongly disagree	Missing/ no support
Teacher collaboration					
Teachers are highly focused on improving student learning	33.3	42.4	6.2	2.2	16.0
In the school, teachers take steps to solve problems	16.0	49.9	14.3	4.0	15.8
There is an atmosphere of trust and mutual respect within the school	18.0	43.6	17.6	5.2	15.6
Teachers have time available to collaborate with their colleagues	11.8	45.4	19.1	8.2	15.5
Teachers are provided opportunities to learn from one another	12.3	43.6	22.8	5.3	16.0
Supportive school leadership					
Manageable class size	6.3	24.5	30.0	21.8	17.5
Leader behavior is supportive and encouraging	20.5	41.4	12.1	5.7	20.3
Teachers are comfortable expressing concerns to leadership	18.0	35.9	17.5	8.2	20.5
Teachers' concerns are addressed by leader	11.5	38.6	22.3	7.0	20.6
Leader(s) regularly participates in professional development planning with teachers	10.0	36.9	21.1	11.3	20.6
Leader(s) regularly participates in planning with teachers.	6.5	22.0	32.9	18.1	20.5
Teachers' involvement in school governance					
Teachers enabled to make decisions about instruction	16.8	44.3	13.5	7.3	18.1
Teachers considered experts by administration	16.5	41.4	15.3	8.7	18.1
Teachers involved in decisionmaking	8.5	37.9	24.0	11.5	18.1
Quality of mentor program					
Mentor in the same school	47.6	21.1	3.5	7.2	20.6
Timely feedback from mentor	30.8	32.1	11.1	5.7	20.3
Mentor who was well trained to support new teachers	28.0	29.3	15.0	7.2	20.6
Mentor who taught the same grade level(s) and subjects	24.5	26.0	20.3	8.3	21.0
Sufficient time for me to collaborate with my mentor	13.0	27.0	27.5	12.0	20.6
Quality and sufficiency of time and resources					
Access to instructional technology such as computers, email	16.3	46.9	13.8	5.0	18.0
Access to instructional materials such as textbooks	9.2	47.3	17.0	8.7	18.0
Time/training to utilize instructional technology	6.3	35.4	28.1	11.6	18.5
Access to professional support personnel	9.2	31.8	26.6	14.1	18.3
Time to complete curriculum	4.5	35.1	28.8	13.8	17.8
Noninstructional time for meetings, planning, etc.	3.7	24.6	33.4	20.5	17.8
Leadership and advancement opportunities					
Opportunities to become department chair	5.3	47.8	24.8	8.7	13.5
Pathways to become teacher leader	6.7	42.8	29.6	7.2	13.8
Opportunities for advancement	2.2	40.6	34.3	9.7	13.3
Career pathways available to become school leaders or principals	3.3	37.4	36.1	9.7	13.5

Support type and quality of support	Strongly agree	Agree	Disagree	Strongly disagree	Missing/ no support
New teacher socialization					
Information from school administrators to better connect with students	11.3	49.9	30.6	7.5	0.7
Support as a beginning teacher that accommodated needs	7.5	44.8	35.6	11.6	0.5
Comprehensive orientation to the school	8.7	33.1	13.1	4.0	41.1
Opportunities to meet often with other beginning teachers	8.8	31.6	43.1	16.0	0.5
Satisfaction with salary and compensation					
Satisfied with health benefits	11.3	59.1	19.1	9.7	0.8
Clear communication from local education agency about teacher salaries	9.5	45.3	31.1	12.6	1.5
Salary comparable to salaries at other nearby local education agencies	4.0	45.1	33.4	15.6	1.8
Satisfaction with earning prospects	3.7	22.6	45.6	27.3	0.8
Satisfaction with current retirement benefits	3.8	43.1	33.9	18.0	1.2
Satisfaction with current teaching salary	4.3	23.1	41.9	29.6	1.0
Evaluation system					
Evaluation process/standards were clearly communicated	16.0	61.9	13.8	4.8	3.5
Evaluation system is intended to promote teacher growth and development	11.3	52.7	23.1	9.5	3.3
Evaluation process helps identify specific things for improving instruction	9.5	53.9	25.8	7.7	3.2
Evaluation process improves communication with leadership	9.3	42.3	34.9	10.0	3.5
Evaluation process guides my professional development activities	7.3	37.9	40.6	10.8	3.3

Note: Percentages are based on survey responses from 539 Michigan teachers, aggregated within local education agencies (305 agencies represented). Local education agencies are defined as public school academies (charter schools) or traditional school districts. Teachers who work for independent school districts or regional education agencies—most of which play a supportive role—were not included.
Source: Authors' analysis of data from the Michigan Department of Education's survey on teacher supports within local education agencies administered in September and October 2020.

Table B13. Quartile of teacher perceptions of the quality of local education agency supports, by local education agency characteristics, fall 2020

Local education agency characteristic and support type	Lowest quartile	Second quartile	Third quartile	Highest quartile	Statistical significance of differences
Total student enrollment					
Professional development	2.67	5.69	0.55	−1.82	*
Teacher collaboration	−1.50	6.58	−2.39	−1.00	**
Supportive school leadership	1.18	6.15	1.20	−2.39	*
Teacher involvement in school governance	0.86	4.07	−0.12	−1.43	
Quality of mentor program	−12.82	3.52	−0.18	0.94	
Quality and sufficiency of time and material resources	4.21	3.90	−1.74	−0.85	
Leadership and advancement opportunities	−19.39	−0.40	−0.73	0.73	**
New teacher socialization	−4.02	4.90	0.81	0.09	
Satisfaction with salary and compensation	−15.36	−0.41	−1.66	2.62	**
Evaluation system	−6.23	4.78	3.47	−0.61	*

Local education agency characteristic and support type	Lowest quartile	Second quartile	Third quartile	Highest quartile	Statistical significance of differences
Percentage of economically disadvantaged students					
Professional development	1.90	−1.08	0.86	−1.30	
Teacher collaboration	2.73	0.97	−2.11	−2.98	
Supportive school leadership	1.31	1.10	−0.55	−2.03	
Teacher involvement in school governance	1.52	2.58	−0.35	−6.20	*
Quality of mentor program	2.03	4.68	−1.74	−3.60	*
Quality and sufficiency of time and material resources	2.77	−1.94	0.71	−3.64	
Leadership and advancement opportunities	−0.51	1.60	−3.06	−0.36	
New teacher socialization	2.59	−0.14	1.49	−1.05	
Satisfaction with salary and compensation	0.95	3.41	−1.69	−2.05	
Evaluation system	0.04	1.09	3.36	0.10	
Percentage of English learner students					
Professional development	1.78	4.22	0.24	−1.64	
Teacher collaboration	2.34	2.06	−1.05	−0.68	
Supportive school leadership	2.87	4.11	−0.77	−1.37	
Teacher involvement in school governance	1.59	3.90	−0.70	−1.54	
Quality of mentor program	0.77	7.09	1.04	−1.69	
Quality and sufficiency of time and material resources	2.27	4.30	−0.23	−2.35	
Leadership and advancement opportunities	−8.21	3.85	−0.94	0.17	*
New teacher socialization	2.84	1.85	0.85	0.18	
Satisfaction with salary and compensation	1.43	1.97	0.73	−1.13	
Evaluation system	0.83	5.84	−0.30	0.90	
Percentage of students requiring special education services					
Professional development	0.98	−1.88	2.82	−0.98	
Teacher collaboration	0.37	−1.06	1.04	−0.49	
Supportive school leadership	−1.82	1.64	0.83	−1.47	
Teacher involvement in school governance	−3.12	0.71	2.38	−2.67	
Quality of mentor program	−2.42	−1.49	6.14	−0.71	**
Quality and sufficiency of time and material resources	0.12	0.03	1.48	−3.43	
Leadership and advancement opportunities	−1.00	−1.10	0.37	−1.37	*
New teacher socialization	0.57	0.02	2.82	−0.06	
Satisfaction with salary and compensation	1.42	−0.72	0.62	0.15	
Evaluation system	−0.80	1.52	1.60	2.23	

* Significant at $p < .05$; ** significant at $p < .01$.

Note: The Rasch scores in this table can be compared within rows but not across rows. Rasch scores are based on perceptions of supports on survey responses from 539 Michigan teachers, aggregated within local education agencies (305 agencies represented). Local education agencies are defined as public school academies (charter schools) or traditional school districts. Teachers who work for independent school districts or regional education agencies—most of which play a supportive role—were not included.

Source: Authors' analysis of data from the Michigan Department of Education's survey on teacher supports within local education agencies administered in September and October 2020.

Table B14. Teacher perceptions of the quality of local education agency supports, by agency locale, fall 2020

Support type	City	Suburb	Town	Rural	Statistical significance of differences
Professional development	−2.81	2.17	0.55	0.51	
Teacher collaboration	−2.99	1.70	0.77	−1.13	
Supportive school leadership	−1.89	2.70	−0.62	−0.14	
Teacher involvement in school governance	−4.31	3.25	−1.43	2.10	*
Quality of mentor program	−2.69	2.02	0.49	1.97	
Quality and sufficiency of time and material resources	−4.31	2.45	−0.65	1.63	
Leadership and advancement opportunities	−0.09	−1.42	0.24	−1.54	
New teacher socialization	−3.31	2.62	−0.02	4.65	*
Satisfaction with salary and compensation	−2.56	0.48	0.51	2.89	
Evaluation system	−0.75	2.29	2.16	−0.15	

*Significant at p <. 05; ** significant at p < .01.

Note: The Rasch scores in this table can be compared within rows but not across rows. Rasch scores are based on perceptions of supports on survey responses from 539 Michigan teachers, aggregated within local education agencies (305 agencies represented). Local education agencies are defined as public school academies (charter schools) or traditional school districts. Teachers who work for independent school districts or regional education agencies—most of which play a supportive role—were not included.

Source: Authors' analysis of data from the Michigan Department of Education's survey on teacher supports within local education agencies administered in September and October 2020.

Table B15. Teacher perceptions of the quality of local education agency supports, by type of agency, fall 2020

Support type	Public school academy	Traditional school district	Statistical significance of differences
Professional development	3.81	−0.81	*
Teacher collaboration	4.02	−1.30	*
Supportive school leadership	3.63	−0.86	*
Teacher involvement in school governance	0.12	−0.10	
Quality of mentor program	0.85	0.80	
Quality and sufficiency of time and material resources	2.27	−0.76	
Leadership and advancement opportunities	−0.55	−0.68	
New teacher socialization	2.30	0.57	
Satisfaction with salary and compensation	−6.29	2.34	***
Evaluation system	2.50	0.79	

*Significant at p <. 05; ** significant at p < .001.

Note: Rasch scores are based on perceptions of supports on survey responses from 539 Michigan teachers, aggregated within local education agencies (305 agencies represented). The Rasch scores in this table can be compared within rows but not across rows. Local education agencies are defined as public school academies (charter schools) or traditional school districts. Teachers who work for independent school districts or regional education agencies—most of which play a supportive role—were not included.

Source: Authors' analysis of data from the Michigan Department of Education's survey on teacher supports within local education agencies administered in September and October 2020.

Table B16. Teacher perceptions of the quality of local education agency supports, by economic prosperity region, fall 2020

Support type	Upper Peninsula	Northwest	Northeast	West	East Central	East	South Central	Southwest	Southeast	Detroit metro	Statistical significance of differences
Professional development	−0.73	1.75	3.73	2.51	0.82	1.34	1.23	−3.43	6.35	−2.79	
Teacher collaboration	−5.06	0.47	0.70	5.51	−5.38	1.75	5.99	−3.20	2.17	−3.34	*
Supportive school leadership	0.99	5.40	1.23	4.07	−2.05	−3.89	3.11	−3.39	1.61	−1.78	
Teacher involvement in school governance	1.23	5.73	4.45	2.71	−1.19	1.01	3.70	−4.76	4.59	−4.12	*
Quality of mentor program	−5.46	−1.04	2.24	−0.80	17.75	1.51	9.00	−2.99	4.66	−1.24	*
Quality and sufficiency of time and material resources	3.34	5.70	5.08	2.36	−3.80	1.19	4.15	−3.22	0.65	−3.11	
Leadership and advancement opportunities	−9.09	−1.50	1.17	3.41	0.27	−8.71	2.02	−3.69	−0.90	−0.10	
New teacher socialization	−0.04	−0.98	6.15	1.04	5.56	5.00	4.14	1.88	0.38	−1.36	
Satisfaction with salary and compensation	2.71	−4.77	5.71	5.75	8.15	−2.99	0.36	1.43	−2.57	−3.31	*
Evaluation system	−0.27	6.00	1.97	1.92	2.49	3.73	−4.58	5.27	0.94	−0.78	

* Significant at $p < .05$.

Note: Numbers in cells represent average Rasch scores of perception items, based on survey responses from 539 Michigan teachers, aggregated within local education agencies (305 agencies represented). The Rasch scores in this table can be compared within rows but not across rows. Local education agencies are defined as public school academies (charter schools) or traditional school districts.

Source: Authors' analysis of data from the Michigan Department of Education's survey on teacher supports within local education agencies administered in September and October 2020.

Supports associated with teacher retention

To address research question 4, the study team developed multilevel logistic regression models to estimate the association between each teacher support and the probability of teachers staying in their position, after characteristics of teachers and local education agencies were adjusted for. The team created one set of models for local education agencies generally, which include both public school academies and traditional school districts (tables B17–B20); a second set of models for public school academies (tables B21–B24); and a third set of models for traditional school districts (tables B25–B28).

Similar regression models were developed to estimate the association between survey respondents' perceptions of the quality of each support and the probability of teachers staying in their positions, after characteristics of teachers and local education agencies were adjusted for. The study team created one set of models for local education agencies generally, which include both public school academies and traditional school districts (table B29); a second set of models for public school academies (table B30); and a third set of models for traditional school districts (table B31).

Table B17. Results from multilevel logistic regression models predicting whether teachers continue teaching in their local education agency, with survey respondents' indication of the presence of supports for new teachers as the key predictors, fall 2020

Characteristic	Reduced teaching schedule/ additional preparation time periods or release time	Common planning time with teachers in your subject area and/or grade level	Seminars, classes, or professional development sessions for beginning teachers	Extra classroom assistance	Regular supportive communication with your principal, other administrators, or department chair	An orientation to the school	A mentoring program for teachers new to the local education agency	Instructional rounds with peers	Professional learning community teams with added supports for new teachers
Presence of support	1.06 (0.07)	1.08 (0.06)	1.00 (0.06)	1.00 (0.05)	1.18** (0.07)	1.20*** (0.06)	1.25** (0.09)	1.01 (0.05)	1.00 (0.05)
Teacher characteristic									
Ages 25–34[a]	0.40* (0.18)	0.40* (0.18)	0.40* (0.18)	0.40* (0.18)	0.40* (0.18)	0.40* (0.18)	0.40* (0.19)	0.40* (0.19)	0.40* (0.18)
Ages 35–44[a]	0.60 (0.28)	0.60 (0.28)	0.60 (0.28)	0.60 (0.28)	0.60 (0.28)	0.60 (0.28)	0.60 (0.28)	0.60 (0.28)	0.60 (0.28)
Ages 45–60[a]	0.78 (0.36)	0.78 (0.36)	0.78 (0.36)	0.78 (0.36)	0.78 (0.36)	0.78 (0.36)	0.78 (0.36)	0.78 (0.36)	0.78 (0.36)
Ages 61 and over[a]	0.17*** (0.08)	0.17*** (0.08)	0.17*** (0.08)	0.17*** (0.08)	0.17*** (0.08)	0.17*** (0.08)	0.17*** (0.08)	0.17*** (0.08)	0.17*** (0.08)
Not in a racial/ethnic minority group[b]	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)
Male[c]	0.94*** (0.02)	0.94*** (0.02)	0.93*** (0.02)	0.93*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.93*** (0.02)	0.94*** (0.02)	0.94*** (0.02)
Local education agency characteristic									
Traditional school district[d]	2.73*** (0.17)	2.73*** (0.17)	2.72*** (0.17)	2.71*** (0.17)	2.74*** (0.16)	2.73*** (0.16)	2.67*** (0.16)	2.72*** (0.16)	2.72*** (0.16)
East Central[e]	1.03 (0.13)	1.03 (0.13)	1.04 (0.13)	1.04 (0.13)	1.05 (0.13)	1.06 (0.13)	1.05 (0.13)	1.03 (0.13)	1.03 (0.13)
East[e]	1.06 (0.12)	1.07 (0.12)	1.07 (0.12)	1.09 (0.12)	1.07 (0.12)	1.12 (0.12)	1.05 (0.12)	1.07 (0.12)	1.07 (0.12)

Characteristic	Supports for new teachers								
	Reduced teaching schedule/ additional preparation time periods or release time	Common planning time with teachers in your subject area and/or grade level	Seminars, classes, or professional development sessions for beginning teachers	Extra classroom assistance	Regular supportive communication with your principal, other administrators, or department chair	An orientation to the school	A mentoring program for teachers new to the local education agency	Instructional rounds with peers	Professional learning community teams with added supports for new teachers
Northeast[e]	0.87 (0.13)	0.90 (0.13)	0.88 (0.13)	0.88 (0.13)	0.88 (0.13)	0.92 (0.13)	0.87 (0.13)	0.88 (0.13)	0.88 (0.13)
Northwest[e]	0.79 (0.10)	0.81 (0.11)	0.79 (0.10)	0.79 (0.10)	0.78 (0.10)	0.83 (0.11)	0.80 (0.10)	0.79 (0.10)	0.79 (0.10)
South Central[e]	0.95 (0.10)	0.95 (0.10)	0.95 (0.10)	0.95 (0.10)	0.93 (0.10)	1.00 (0.11)	0.93 (0.10)	0.95 (0.10)	0.95 (0.10)
Southeast[e]	1.05 (0.09)	1.05 (0.09)	1.05 (0.09)	1.05 (0.09)	1.03 (0.09)	1.05 (0.09)	1.03 (0.09)	1.05 (0.09)	1.05 (0.09)
Southwest[e]	0.86 (0.07)	0.87 (0.07)	0.86 (0.07)	0.86 (0.07)	0.85 (0.07)	0.84* (0.07)	0.85 (0.07)	0.86 (0.07)	0.86 (0.07)
Upper Peninsula[e]	0.81 (0.11)	0.82 (0.11)	0.80 (0.11)	0.80 (0.11)	0.79 (0.11)	0.82 (0.11)	0.80 (0.11)	0.77 (0.11)	0.76 (0.11)
West[e]	1.14 (0.08)	1.15* (0.08)	1.13 (0.08)	1.13 (0.08)	1.11 (0.08)	1.12 (0.08)	1.13 (0.08)	1.14 (0.08)	1.13 (0.08)
2014/15[f]	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)
2015/16[f]	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)
2016/17[f]	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.86*** (0.03)
2017/18[f]	0.80*** (0.03)	0.80*** (0.03)	0.80*** (0.03)	0.80*** (0.03)	0.80*** (0.03)	0.80*** (0.03)	0.80*** (0.03)	0.81*** (0.03)	0.80*** (0.03)
Percentage of English learner students	1.14 (0.30)	1.15 (0.31)	1.15 (0.31)	1.15 (0.31)	1.18 (0.31)	1.25 (0.33)	1.14 (0.30)	1.14 (0.31)	1.15 (0.31)

Characteristic	Supports for new teachers								
	Reduced teaching schedule/ additional preparation time periods or release time	Common planning time with teachers in your subject area and/or grade level	Seminars, classes, or professional development sessions for beginning teachers	Extra classroom assistance	Regular supportive communication with your principal, other administrators, or department chair	An orientation to the school	A mentoring program for teachers new to the local education agency	Instructional rounds with peers	Professional learning community teams with added supports for new teachers
Variance									
Local education agency	0.13 (0.01)	0.13 (0.01)	0.13 (0.01)	0.13 (0.01)	0.12 (0.01)	0.12 (0.01)	0.12 (0.01)	0.13 (0.01)	0.13 (0.01)
Year	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)
Constant	8.29*** (3.91)	7.90*** (3.74)	8.41*** (3.98)	8.40*** (3.97)	7.34*** (3.48)	7.32*** (3.46)	7.02*** (3.33)	8.33*** (3.93)	8.40*** (3.97)

* Significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$.

Note: Teacher retention is based on 114,283 public school teachers between 2013/14 and 2018/19; supports available to teachers were based on survey responses from 539 Michigan teachers from 305 local education agencies. Local education agencies are defined as public school academies (charter schools) or traditional school districts. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of continuing to teach in their local education agency or whether certain types of agencies have higher odds of retaining teachers. For example, the odds that teachers in local education agencies that provide regular supportive communication with their principal, other administrators, and department chairs would remain teaching in their agencies are 1.18 times the odds of agencies without this support. Values less than 1 indicate that the reference group had higher odds of teachers staying in their agencies.
a. Reference group is teachers who were age 24 or younger.
b. Reference group is teachers who were in a racial/ethnic minority group.
c. Reference group is teachers who were female.
d. Reference group is teachers who were in a public school academy.
e. Reference group is teachers who taught in the Detroit metro region.
f. Reference group is school year 2013/14.
Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Table B18. Results from multilevel logistic regression models predicting whether teachers continue teaching in their local education agency, with survey respondents' indication of the presence of compensation and benefits-related supports as the key predictors, fall 2020

Characteristic	Compensation and benefits-related supports					
	Annual salary increases	Performance-based compensation such as bonuses or salary increases	Financial incentives for teachers in high-need subjects or at high-need schools	Teacher housing or mortgage assistance programs	Childcare benefits such as subsidies, on-site childcare, or childcare assistance	Tuition reimbursement or financial assistance for additional endorsements or professional learning
Presence of support	1.13 (0.07)	1.01 (0.06)	0.85 (0.08)	0.69* (0.13)	1.04 (0.09)	1.02 (0.05)
Teacher characteristic						
Ages 25–34[a]	0.40* (0.18)	0.40* (0.18)	0.40* (0.18)	0.40* (0.18)	0.40* (0.18)	0.40* (0.18)
Ages 35–44[a]	0.60 (0.28)	0.60 (0.28)	0.60 (0.28)	0.60 (0.28)	0.60 (0.28)	0.60 (0.28)
Ages 45–60[a]	0.78 (0.36)	0.78 (0.36)	0.78 (0.36)	0.78 (0.36)	0.78 (0.36)	0.78 (0.36)
Ages 61 and over[a]	0.17*** (0.08)	0.17*** (0.08)	0.17*** (0.08)	0.17*** (0.08)	0.17*** (0.08)	0.17*** (0.08)
Not in a racial/ethnic minority group[b]	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)
Male[c]	0.93*** (0.02)	0.94*** (0.02)	0.93*** (0.02)	0.93*** (0.02)	0.93*** (0.02)	0.93*** (0.02)
Local education agency characteristic						
Traditional school district[d]	2.66*** (0.16)	2.73*** (0.17)	2.71*** (0.16)	2.71*** (0.16)	2.72*** (0.16)	2.73*** (0.17)
East Central[e]	1.04 (0.13)	1.03 (0.13)	1.02 (0.13)	1.03 (0.13)	1.04 (0.13)	1.04 (0.13)
East[e]	1.09 (0.12)	1.07 (0.12)	1.05 (0.12)	1.06 (0.12)	1.07 (0.12)	1.07 (0.12)
Northeast[e]	0.89 (0.13)	0.88 (0.13)	0.87 (0.13)	0.88 (0.13)	0.88 (0.13)	0.88 (0.13)
Northwest[e]	0.81 (0.11)	0.79 (0.10)	0.79 (0.10)	0.79 (0.10)	0.79 (0.10)	0.79 (0.10)

Characteristic	Compensation and benefits-related supports					
	Annual salary increases	Performance-based compensation such as bonuses or salary increases	Financial incentives for teachers in high-need subjects or at high-need schools	Teacher housing or mortgage assistance programs	Childcare benefits such as subsidies, on-site childcare, or childcare assistance	Tuition reimbursement or financial assistance for additional endorsements or professional learning
South Central[e]	0.95 (0.10)	0.95 (0.10)	0.95 (0.10)	0.95 (0.10)	0.95 (0.10)	0.95 (0.10)
Southeast[e]	1.05 (0.09)	1.05 (0.09)	1.04 (0.09)	1.06 (0.09)	1.05 (0.09)	1.05 (0.09)
Southwest[e]	0.86 (0.07)	0.86 (0.07)	0.86 (0.07)	0.87 (0.07)	0.86 (0.07)	0.86 (0.07)
Upper Peninsula[e]	0.81 (0.11)	0.80 (0.11)	0.79 (0.11)	0.80 (0.11)	0.80 (0.11)	0.80 (0.11)
West[e]	1.13 (0.08)	1.13 (0.08)	1.11 (0.08)	1.13 (0.08)	1.13 (0.08)	1.13 (0.08)
2014/15[f]	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)
2015/16[f]	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)
2016/17[f]	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)
2017/18[f]	0.80*** (0.03)	0.80*** (0.03)	0.80*** (0.03)	0.80*** (0.03)	0.80*** (0.03)	0.80*** (0.03)
Percentage of English learner students	1.12 (0.30)	1.15 (0.31)	1.20 (0.32)	1.22 (0.33)	1.16 (0.31)	1.15 (0.31)
Variance						
Local education agency	0.13 (0.01)	0.13 (0.01)	0.13 (0.01)	0.12 (0.01)	0.13 (0.01)	0.13 (0.01)
Year	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)
Constant	7.72*** (3.66)	8.36*** (3.95)	8.58*** (4.05)	8.45*** (3.98)	8.35*** (3.94)	8.31*** (3.93)

* Significant at *p* < .05; ** significant at *p* < .01; *** significant at *p* < .001.

Note: Teacher retention is based on 114,283 public school teachers between 2013/14 and 2018/19; supports available to teachers was based on survey responses from 539 Michigan teachers from 305 local education agencies. Local education agencies are defined as public school academies (charter schools) or traditional school districts. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of continuing to teach in their local education agency or whether certain types of agencies have higher odds of retaining their teachers. For example, the odds that teachers employed by local education agencies that provide annual salary increases are 1.13 times the odds of teachers employed in local education agencies that do not offer annual salary increases. Values less than 1 indicate that the reference group had higher odds of teachers staying in their local education agencies.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who were in a public school academy.

e. Reference group is teachers who taught in the Detroit metro region.

f. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Table B19. Results from multilevel logistic regression models predicting whether teachers continue teaching in their local education agency, with survey respondents' indication of the presence of evaluation-related supports as key predictors, fall 2020

Characteristic	Evaluation-related supports							
	Evaluation includes opportunities for teachers to set goals	Evaluation includes opportunities to collaborate with your supervisor on goal setting	Evaluation includes multiple data sources	Evaluation includes student growth data	Evaluation includes formal observations	Evaluation includes informal classroom walk-throughs	Evaluation based on performance standards or definitions of high-quality teacher practice	Evaluation includes opportunities to receive feedback
Presence of support	1.54** (0.21)	1.12 (0.08)	1.04 (0.07)	1.12 (0.20)	1.16 (0.21)	1.11 (0.10)	0.93 (0.08)	1.09 (0.12)
Teacher characteristic								
Ages 25–34[a]	0.40* (0.18)	0.40* (0.18)	0.40* (0.18)	0.40* (0.18)	0.40* (0.18)	0.40* (0.18)	0.40* (0.18)	0.40* (0.18)
Ages 35–44[a]	0.60 (0.28)	0.60 (0.28)	0.60 (0.28)	0.60 (0.28)	0.60 (0.28)	0.60 (0.28)	0.60 (0.28)	0.60 (0.28)
Ages 45–60[a]	0.78 (0.36)	0.78 (0.36)	0.78 (0.36)	0.78 (0.36)	0.78 (0.36)	0.78 (0.36)	0.78 (0.36)	0.78 (0.36)
Ages 61 and over[a]	0.17*** (0.08)	0.17*** (0.08)	0.17*** (0.08)	0.17*** (0.08)	0.17*** (0.08)	0.17*** (0.08)	0.17*** (0.08)	0.17*** (0.08)
Not in a racial/ethnic minority group[b]	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)
Male[c]	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.93*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.93*** (0.02)	0.94*** (0.02)
Local education agency characteristic								
Traditional school district[d]	2.66*** (0.16)	2.75*** (0.17)	2.72*** (0.16)	2.72*** (0.16)	2.66*** (0.16)	2.75*** (0.17)	2.72*** (0.16)	2.72*** (0.16)
East Central[e]	1.02 (0.13)	1.05 (0.13)	1.03 (0.13)	1.04 (0.13)	1.02 (0.13)	1.05 (0.13)	1.03 (0.13)	1.04 (0.13)
East[e]	1.05 (0.12)	1.07 (0.12)	1.06 (0.12)	1.07 (0.12)	1.05 (0.12)	1.07 (0.12)	1.06 (0.12)	1.07 (0.12)
Northeast[e]	0.87 (0.13)	0.89 (0.13)	0.89 (0.13)	0.89 (0.13)	0.87 (0.13)	0.89 (0.13)	0.89 (0.13)	0.89 (0.13)

	Evaluation-related supports							
Characteristic	Evaluation includes opportunities for teachers to set goals	Evaluation includes opportunities to collaborate with your supervisor on goal setting	Evaluation includes multiple data sources	Evaluation includes student growth data	Evaluation includes formal observations	Evaluation includes informal classroom walk-throughs	Evaluation based on performance standards or definitions of high-quality teacher practice	Evaluation includes opportunities to receive feedback
Northwest[e]	0.80 (0.10)	0.79 (0.10)	0.80 (0.11)	0.80 (0.10)	0.80 (0.10)	0.79 (0.10)	0.80 (0.11)	0.80 (0.10)
South Central[e]	0.96 (0.10)	0.96 (0.10)	0.96 (0.10)	0.95 (0.10)	0.96 (0.10)	0.96 (0.10)	0.96 (0.10)	0.95 (0.10)
Southeast[e]	1.06 (0.09)	1.04 (0.09)	1.05 (0.09)	1.06 (0.09)	1.06 (0.09)	1.04 (0.09)	1.05 (0.09)	1.06 (0.09)
Southwest[e]	0.87 (0.07)	0.85 (0.07)	0.86 (0.07)	0.86 (0.07)	0.87 (0.07)	0.85 (0.07)	0.86 (0.07)	0.86 (0.07)
Upper Peninsula[e]	0.79 (0.11)	0.81 (0.11)	0.80 (0.11)	0.80 (0.11)	0.79 (0.11)	0.81 (0.11)	0.80 (0.11)	0.80 (0.11)
West[e]	1.13 (0.08)	1.13 (0.08)	1.14 (0.08)	1.14 (0.08)	1.13 (0.08)	1.13 (0.08)	1.14 (0.08)	1.14 (0.08)
2014/15[f]	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)
2015/16[f]	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)
2016/17[f]	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)
2017/18[f]	0.80*** (0.03)	0.80*** (0.03)	0.80*** (0.03)	0.80*** (0.03)	0.80*** (0.03)	0.80*** (0.03)	0.80*** (0.03)	0.80*** (0.03)
Percentage of English learner students	1.14 (0.30)	1.16 (0.31)	1.15 (0.31)	1.15 (0.31)	1.14 (0.30)	1.16 (0.31)	1.15 (0.31)	1.15 (0.31)

Characteristic	Evaluation-related supports							
	Evaluation includes opportunities for teachers to set goals	Evaluation includes opportunities to collaborate with your supervisor on goal setting	Evaluation includes multiple data sources	Evaluation includes student growth data	Evaluation includes formal observations	Evaluation includes informal classroom walk-throughs	Evaluation based on performance standards or definitions of high-quality teacher practice	Evaluation includes opportunities to receive feedback
Variance								
Local education agency	0.12 (0.01)	0.13 (0.01)	0.13 (0.01)	0.13 (0.01)	0.12 (0.01)	0.13 (0.01)	0.13 (0.01)	0.13 (0.01)
Year	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)
Constant	5.60*** (2.74)	7.55*** (3.59)	8.10*** (3.85)	7.51*** (3.78)	5.60*** (2.74)	7.55*** (3.59)	8.10*** (3.85)	7.51*** (3.78)

* Significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$.

Note: Teacher retention is based on 114,283 public school teachers between 2013/14 and 2018/19; supports available to teachers was based on survey responses from 539 Michigan teachers from 305 local education agencies. Local education agencies are defined as public school academies (charter schools) or traditional school districts. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of staying in their positions or whether certain types of local education agencies have higher odds of retaining their teachers. For example, the odds that teachers in local education agencies with an evaluation system that allows teachers opportunities to set goals in their evaluations would continue teaching in their agencies are 1.54 times the odds of agencies without this support. Values less than 1 indicate that the reference group had higher odds of teachers staying in their agencies.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who were in a public school academy.

e. Reference group is teachers who taught in the Detroit metro region.

f. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Table B20. Results from multilevel logistic regression models predicting whether teachers continue teaching in their local education agency, with survey respondents' indication of the presence of professional development–related supports as the key predictors, fall 2020

	Professional development–related supports						
Characteristic	Time for observational visits to other classrooms in my school	Observational visits to other schools or local education agencies	Local education agency organized workshops, conferences, or training sessions	Online courses, resources, or platforms for knowledge sharing	Reimbursement for conferences, workshops, or courses	Stipends for professional development activities that occur outside regular work hours	Release time from teaching to attend professional development
Presence of support	1.09 (0.06)	1.08 (0.05)	1.12 (0.09)	1.09 (0.06)	1.10 (0.06)	0.96 (0.05)	1.11 (0.06)
Teacher characteristic							
Ages 25–34[a]	0.44 (0.21)	0.44 (0.21)	0.44 (0.21)	0.44 (0.21)	0.44 (0.21)	0.44 (0.21)	0.44 (0.21)
Ages 35–44[a]	0.67 (0.31)	0.67 (0.31)	0.67 (0.31)	0.67 (0.31)	0.67 (0.31)	0.67 (0.31)	0.67 (0.31)
Ages 45–60[a]	0.87 (0.40)	0.87 (0.40)	0.87 (0.41)	0.87 (0.40)	0.87 (0.40)	0.87 (0.40)	0.86 (0.40)
Ages 61 and over[a]	0.19*** (0.09)	0.19*** (0.09)	0.19*** (0.09)	0.19*** (0.09)	0.19*** (0.09)	0.19*** (0.09)	0.19*** (0.09)
Not in a racial/ethnic minority group[b]	1.17*** (0.03)	1.17*** (0.03)	1.17*** (0.03)	1.17*** (0.03)	1.17*** (0.03)	1.17*** (0.03)	1.17*** (0.03)
Male[c]	0.93*** (0.02)	0.93*** (0.02)	0.93*** (0.02)	0.93*** (0.02)	0.93*** (0.02)	0.93*** (0.02)	0.93*** (0.02)
Local education agency characteristic							
Traditional school district[d]	2.79*** (0.18)	2.77*** (0.17)	2.80*** (0.18)	2.81*** (0.18)	2.77*** (0.17)	2.82*** (0.18)	2.76*** (0.17)
East Central[e]	1.00 (0.13)	1.00 (0.13)	1.01 (0.13)	1.00 (0.13)	1.02 (0.13)	1.01 (0.13)	1.00 (0.13)
East[e]	1.05 (0.12)	1.03 (0.11)	1.03 (0.11)	1.04 (0.12)	1.02 (0.11)	1.04 (0.12)	1.01 (0.11)
Northeast[e]	0.86 (0.13)	0.86 (0.13)	0.86 (0.13)	0.86 (0.13)	0.85 (0.13)	0.86 (0.13)	0.86 (0.13)

Characteristic	Professional development–related supports						
	Time for observational visits to other classrooms in my school	Observational visits to other schools or local education agencies	Local education agency organized workshops, conferences, or training sessions	Online courses, resources, or platforms for knowledge sharing	Reimbursement for conferences, workshops, or courses	Stipends for professional development activities that occur outside regular work hours	Release time from teaching to attend professional development
Northwest[e]	0.75* (0.10)	0.76* (0.10)	0.77* (0.10)	0.77* (0.10)	0.76* (0.10)	0.77* (0.10)	0.76* (0.10)
South Central[e]	0.91 (0.10)	0.91 (0.10)	0.93 (0.10)	0.92 (0.10)	0.93 (0.10)	0.92 (0.10)	0.92 (0.10)
Southeast[e]	1.02 (0.09)	1.02 (0.09)	1.02 (0.09)	1.02 (0.09)	1.01 (0.09)	1.02 (0.09)	1.01 (0.09)
Southwest[e]	0.84* (0.07)	0.83* (0.07)	0.83* (0.07)	0.84* (0.07)	0.82* (0.07)	0.83* (0.07)	0.82* (0.07)
Upper Peninsula[e]	0.89 (0.13)	0.88 (0.13)	0.89 (0.13)	0.89 (0.13)	0.90 (0.13)	0.89 (0.13)	0.88 (0.13)
West[e]	1.09 (0.08)	1.08 (0.08)	1.10 (0.08)	1.10 (0.08)	1.08 (0.08)	1.09 (0.08)	1.09 (0.08)
2014/15[f]	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)
2015/16[f]	0.91** (0.03)	0.91** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)	0.90** (0.03)
2016/17[f]	0.87*** (0.03)	0.87*** (0.03)	0.86*** (0.03)	0.86*** (0.03)	0.86*** (0.03)	0.86*** (0.03)	0.86*** (0.03)
2017/18[f]	0.81*** (0.03)	0.81*** (0.03)	0.80*** (0.03)	0.81*** (0.03)	0.81*** (0.03)	0.81*** (0.03)	0.81*** (0.03)
Percentage of English learner students	1.00 (0.27)	1.02 (0.28)	1.07 (0.29)	1.02 (0.28)	1.03 (0.28)	1.05 (0.29)	1.03 (0.28)

Characteristic	Professional development–related supports						
	Time for observational visits to other classrooms in my school	Observational visits to other schools or local education agencies	Local education agency organized workshops, conferences, or training sessions	Online courses, resources, or platforms for knowledge sharing	Reimbursement for conferences, workshops, or courses	Stipends for professional development activities that occur outside regular work hours	Release time from teaching to attend professional development
Variance							
Local education agency	0.12 (0.01)	0.12 (0.01)	0.12 (0.01)	0.12 (0.01)	0.12 (0.01)	0.12 (0.01)	0.12 (0.01)
Year	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)
Constant	7.21*** (3.42)	7.50*** (3.55)	6.89*** (3.31)	7.10*** (3.38)	7.25*** (3.44)	7.71*** (3.65)	7.16*** (3.4)

* Significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$.

Note: Teacher retention is based on 114,283 public school teachers between 2013/14 and 2018/19; supports available to teachers was based on survey responses from 539 Michigan teachers from 305 local education agencies. Local education agencies are defined as public school academies (charter schools) or traditional school districts. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of staying in their positions or whether certain types of local education agencies have higher odds of retaining their teachers. For example, the odds that teachers employed by local education agencies that reimburse teachers for conference, workshop, or course fees retain their positions are 1.10 times the odds of teachers employed by local education agencies that do not reimburse teachers for such fees. Values less than 1 indicate that the reference group had higher odds of teachers staying in their local education agencies.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who were in a public school academy.

e. Reference group is teachers who taught in the Detroit Metro region.

f. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Table B21. Results from multilevel logistic regression models predicting whether teachers continue teaching in their public school academy, with survey respondents' indication of the presence supports for new teachers as the key predictors, fall 2020

Characteristic	Supports for new teachers								
	Reduced teaching schedule or additional preparation time periods or release time	Common planning time with teachers in your subject area and/or grade level	Seminars, classes, or professional development sessions for beginning teachers	Extra classroom assistance	Regular supportive communication with your principal, other administrators, or department chair	An orientation to the school	A mentoring program for teachers new to the public school academy	Instructional rounds with peers	Professional learning community teams with added supports for new teachers
Presence of support	1.13 (0.18)	1.05 (0.16)	0.97 (0.15)	0.98 (0.14)	1.23 (0.23)	1.27 (0.19)	1.40* (0.22)	1.20 (0.15)	1.03 (0.14)
Teacher characteristic									
Ages 25–34[a]	0.40 (0.43)	0.40 (0.43)	0.40 (0.43)	0.40 (0.42)	0.40 (0.43)	0.40 (0.42)	0.40 (0.43)	0.40 (0.43)	0.40 (0.43)
Ages 35–44[a]	0.44 (0.47)	0.44 (0.46)	0.44 (0.46)	0.43 (0.46)	0.44 (0.46)	0.43 (0.46)	0.44 (0.47)	0.44 (0.47)	0.44 (0.46)
Ages 45–60[a]	0.45 (0.47)	0.45 (0.47)	0.44 (0.47)	0.44 (0.47)	0.45 (0.47)	0.44 (0.47)	0.45 (0.48)	0.45 (0.48)	0.45 (0.47)
Ages 61 and over[a]	0.33 (0.35)	0.33 (0.35)	0.33 (0.35)	0.33 (0.36)	0.33 (0.36)	0.33 (0.35)	0.34 (0.36)	0.33 (0.36)	0.33 (0.35)
Not in a racial/ethnic minority group[b]	1.14* (0.08)	1.14* (0.08)	1.14* (0.08)	1.16* (0.08)	1.14 (0.08)	1.14* (0.08)	1.14 (0.08)	1.14 (0.08)	1.14* (0.08)
Male[c]	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)
Public school academy characteristic									
East Central[d]	1.12 (0.44)	1.16 (0.45)	1.17 (0.46)	1.19 (0.49)	1.24 (0.48)	1.39 (0.55)	1.27 (0.48)	1.16 (0.45)	1.17 (0.46)
East[d]	1.16 (0.30)	1.20 (0.31)	1.20 (0.31)	1.30 (0.37)	1.14 (0.29)	1.28 (0.33)	1.09 (0.27)	1.21 (0.31)	1.19 (0.31)
Northeast[d]	1.27 (0.70)	1.23 (0.68)	1.26 (0.70)	1.26 (0.72)	1.19 (0.65)	1.16 (0.63)	1.14 (0.61)	1.34 (0.74)	1.23 (0.68)

Characteristic	Supports for new teachers								
	Reduced teaching schedule or additional preparation time periods or release time	Common planning time with teachers in your subject area and/or grade level	Seminars, classes, or professional development sessions for beginning teachers	Extra classroom assistance	Regular supportive communication with your principal, other administrators, or department chair	An orientation to the school	A mentoring program for teachers new to the public school academy	Instructional rounds with peers	Professional learning community teams with added supports for new teachers
Northwest[d]	1.38 (0.54)	1.56 (0.58)	1.55 (0.58)	1.54 (0.58)	1.47 (0.54)	1.43 (0.52)	1.41 (0.51)	1.52 (0.55)	1.54 (0.57)
South Central[d]	1.16 (0.33)	1.16 (0.33)	1.18 (0.33)	1.18 (0.34)	1.18 (0.33)	1.16 (0.32)	1.08 (0.30)	1.16 (0.32)	1.16 (0.33)
Southeast[d]	1.18 (0.25)	1.19 (0.25)	1.19 (0.26)	1.18 (0.27)	1.12 (0.24)	1.11 (0.23)	1.17 (0.24)	1.17 (0.24)	1.17 (0.25)
Southwest[d]	0.65 (0.21)	0.67 (0.21)	0.67 (0.22)	0.66 (0.22)	0.68 (0.21)	0.61 (0.19)	0.67 (0.21)	0.67 (0.21)	0.65 (0.21)
Upper Peninsula[d]	1.36 (0.83)	1.39 (0.87)	1.32 (0.82)	1.33 (0.82)	1.28 (0.78)	1.25 (0.76)	1.23 (0.73)	1.45 (0.88)	1.36 (0.84)
West[d]	1.09 (0.19)	1.12 (0.19)	1.13 (0.19)	1.12 (0.19)	1.07 (0.19)	1.10 (0.18)	1.14 (0.19)	1.12 (0.19)	1.12 (0.19)
2014/15[e]	0.76** (0.07)	0.76** (0.07)	0.76** (0.07)	0.77** (0.07)	0.77** (0.07)	0.76** (0.07)	0.77** (0.07)	0.77** (0.07)	0.76** (0.07)
2015/16[e]	0.81* (0.08)	0.81* (0.08)	0.81* (0.08)	0.81* (0.08)	0.81* (0.08)	0.80* (0.08)	0.81* (0.08)	0.81* (0.08)	0.81* (0.08)
2016/17[e]	0.88 (0.09)	0.88 (0.09)	0.88 (0.09)	0.88 (0.09)	0.88 (0.09)	0.88 (0.09)	0.88 (0.09)	0.88 (0.09)	0.88 (0.09)
2017/18[e]	1.00 (0.10)	1.00 (0.10)	1.00 (0.10)	1.01 (0.10)	1.00 (0.10)	1.00 (0.10)	1.01 (0.10)	1.00 (0.10)	1.00 (0.10)
Percentage of English learner students	1.34 (0.62)	1.32 (0.62)	1.33 (0.63)	1.34 (0.64)	1.33 (0.62)	1.48 (0.69)	1.13 (0.52)	1.27 (0.59)	1.35 (0.63)

Characteristic	Supports for new teachers								
	Reduced teaching schedule or additional preparation time periods or release time	Common planning time with teachers in your subject area and/or grade level	Seminars, classes, or professional development sessions for beginning teachers	Extra classroom assistance	Regular supportive communication with your principal, other administrators, or department chair	An orientation to the school	A mentoring program for teachers new to the public school academy	Instructional rounds with peers	Professional learning community teams with added supports for new teachers
Variance									
Public school academy	0.20 (0.05)	0.20 (0.05)	0.20 (0.05)	0.21 (0.05)	0.20 (0.05)	0.20 (0.05)	0.19 (0.04)	0.20 (0.05)	0.20 (0.05)
Year	0.11 (0.02)	0.11 (0.02)	0.11 (0.02)	0.11 (0.02)	0.11 (0.02)	0.11 (0.02)	0.11 (0.02)	0.11 (0.02)	0.11 (0.02)
Constant	9.57* (10.26)	9.39* (10.12)	9.92* (10.67)	9.69* (10.39)	8.35* (9.03)	8.34* (8.97)	7.61 (8.20)	9.02* (9.68)	9.64* (10.35)

* Significant at $p < .05$; ** significant at $p < .01$.

Note: Teacher retention is based on 14,268 teachers in 250 public school academies between 2013/14 and 2018/19. Types of supports available to teachers were based on survey responses from 103 Michigan teachers from 72 academies. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of staying in their positions or whether certain types of public school academies have higher odds of retaining their teachers. For example, the odds that teachers in public school academies with a mentoring program for teachers new to the academy would continue teaching in their academies are 1.40 times the odds of teachers in academies without this support. Values less than 1 indicate that the reference group had higher odds of teachers staying in their academies.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who taught in the Detroit metro region.

e. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Table B22. Results from multilevel logistic regression models predicting whether teachers continue teaching in their public school academy, with survey respondents' indication of the presence of compensation and benefits-related supports as the key predictors, fall 2020

Characteristic	Compensation and benefits-related supports					
	Annual salary increases	Performance-based compensation such as bonuses or salary increases	Financial incentives for teachers in high-need subjects or at high-need schools	Teacher housing or mortgage assistance programs	Childcare benefits, such as subsidies, on-site childcare, or childcare assistance	Tuition reimbursement or financial assistance for additional endorsements or professional learning
Presence of support	1.06 (0.15)	0.98 (0.13)	0.87 (0.19)	1.15 (0.44)	0.95 (0.25)	1.18 (0.16)
Teacher characteristic						
Ages 25–34[a]	0.40 (0.43)	0.40 (0.43)	0.40 (0.42)	0.40 (0.43)	0.40 (0.43)	0.40 (0.43)
Ages 35–44[a]	0.44 (0.46)	0.44 (0.46)	0.43 (0.46)	0.44 (0.46)	0.44 (0.46)	0.44 (0.47)
Ages 45–60[a]	0.45 (0.47)	0.44 (0.47)	0.44 (0.47)	0.45 (0.47)	0.44 (0.47)	0.45 (0.48)
Ages 61 and over[a]	0.33 (0.35)	0.33 (0.35)	0.33 (0.35)	0.33 (0.35)	0.33 (0.35)	0.33 (0.36)
Not in a racial/ethnic minority group[b]	1.14* (0.08)	1.14* (0.08)	1.14* (0.08)	1.14* (0.08)	1.14* (0.08)	1.14* (0.08)
Male[c]	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)
Public school academy characteristic						
East Central[d]	1.19 (0.47)	1.18 (0.46)	1.16 (0.45)	1.18 (0.46)	1.17 (0.46)	1.20 (0.46)
East[d]	1.23 (0.32)	1.19 (0.31)	1.19 (0.30)	1.21 (0.31)	1.21 (0.32)	1.24 (0.32)
Northeast[d]	1.30 (0.73)	1.23 (0.69)	1.23 (0.68)	1.25 (0.69)	1.31 (0.80)	1.17 (0.64)
Northwest[d]	1.56 (0.58)	1.54 (0.57)	1.63 (0.62)	1.54 (0.57)	1.58 (0.62)	1.57 (0.58)
South Central[d]	1.19 (0.34)	1.17 (0.33)	1.16 (0.33)	1.18 (0.33)	1.17 (0.33)	1.19 (0.33)

Characteristic	Compensation and benefits-related supports					
	Annual salary increases	Performance-based compensation such as bonuses or salary increases	Financial incentives for teachers in high-need subjects or at high-need schools	Teacher housing or mortgage assistance programs	Childcare benefits, such as subsidies, on-site childcare, or childcare assistance	Tuition reimbursement or financial assistance for additional endorsements or professional learning
Southeast[d]	1.18 (0.25)	1.18 (0.25)	1.18 (0.25)	1.16 (0.25)	1.19 (0.27)	1.18 (0.24)
Southwest[d]	0.67 (0.21)	0.67 (0.21)	0.68 (0.22)	0.66 (0.21)	0.66 (0.21)	0.62 (0.20)
Upper Peninsula[d]	1.33 (0.81)	1.33 (0.82)	1.33 (0.81)	1.35 (0.82)	1.34 (0.82)	1.49 (0.92)
West[d]	1.13 (0.20)	1.12 (0.19)	1.12 (0.19)	1.13 (0.19)	1.12 (0.19)	1.10 (0.19)
2014/15[e]	0.76** (0.07)	0.76** (0.07)	0.76** (0.07)	0.76** (0.07)	0.76** (0.07)	0.76** (0.07)
2015/16[e]	0.81* (0.08)	0.81* (0.08)	0.81* (0.08)	0.81* (0.08)	0.81* (0.08)	0.81* (0.08)
2016/17[e]	0.88 (0.09)	0.88 (0.09)	0.88 (0.09)	0.88 (0.09)	0.88 (0.09)	0.88 (0.09)
2017/18[e]	1.00 (0.10)	1.00 (0.10)	1.00 (0.10)	1.00 (0.10)	1.00 (0.10)	1.00 (0.10)
Percentage of English learner students	1.33 (0.62)	1.35 (0.63)	1.40 (0.66)	1.33 (0.62)	1.33 (0.63)	1.31 (0.61)
Variance						
Public school academy	0.20 (0.05)	0.20 (0.05)	0.20 (0.05)	0.20 (0.05)	0.20 (0.05)	0.20 (0.05)
Year	0.11 (0.02)	0.11 (0.02)	0.11 (0.02)	0.11 (0.02)	0.11 (0.02)	0.11 (0.02)
Constant	9.33* (10.06)	9.87* (10.59)	9.89* (10.60)	9.71* (10.41)	9.77* (10.47)	8.73* (9.39)

* Significant at *p* < .05; ** significant at *p* < .01.

Note: Teacher retention is based on 14,268 teachers in 250 public school academies between 2013/14 and 2018/19. Types of supports available to teachers was based on survey responses from 103 Michigan teachers from 72 academies. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of continuing to teach in their public school academies or whether certain types of academies have higher odds of retaining their teachers. For example, the odds that teachers employed by public school academies that provide annual salary increases are 1.06 times the odds of teachers employed by public school academies that do not offer annual salary increases. Values less than 1 indicate that the reference group had higher odds of continuing to teach or retaining teachers in their academies.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who taught in the Detroit Metro region.

e. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Table B23. Results from multilevel logistic regression models predicting whether teachers continue teaching in their public school academy, with survey respondents' indication of the presence of evaluation-related supports as the key predictors, fall 2020

Characteristic	Evaluation-related supports							
	Evaluation includes opportunities for teachers to set goals	Evaluation includes opportunities to collaborate with your supervisor on goal setting	Evaluation includes multiple data sources	Evaluation includes student growth data	Evaluation includes formal observations	Evaluation includes Informal classroom walk-throughs	Evaluation based on performance standards or definitions of high-quality teacher practice	Evaluation includes opportunities to receive feedback
Presence of support	2.37*** (0.54)	1.28 (0.25)	1.32 (0.22)	0.91 (0.38)	0.99 (0.34)	1.88 (0.73)	1.06 (0.25)	0.99 (0.29)
Teacher characteristic								
Ages 25–34[a]	0.41 (0.43)	0.40 (0.43)	0.40 (0.43)	0.40 (0.43)	0.40 (0.43)	0.40 (0.43)	0.40 (0.43)	0.40 (0.43)
Ages 35–44[a]	0.44 (0.47)	0.44 (0.47)	0.44 (0.46)	0.44 (0.46)	0.44 (0.46)	0.44 (0.46)	0.44 (0.46)	0.44 (0.46)
Ages 45–60[a]	0.45 (0.48)	0.44 (0.47)	0.44 (0.47)	0.44 (0.47)	0.44 (0.47)	0.44 (0.47)	0.44 (0.47)	0.44 (0.47)
Ages 61 and over[a]	0.34 (0.36)	0.33 (0.35)	0.33 (0.35)	0.33 (0.35)	0.33 (0.35)	0.33 (0.35)	0.33 (0.35)	0.33 (0.35)
Not in a racial/ethnic minority group[b]	1.14 (0.08)	1.14 (0.08)	1.14* (0.08)	1.14* (0.08)	1.14* (0.08)	1.14* (0.08)	1.14* (0.08)	1.14* (0.08)
Male[c]	0.89* (0.05)	0.90 (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)
Public school academy characteristic								
East Central[d]	1.11 (0.39)	1.13 (0.43)	1.29 (0.50)	1.17 (0.46)	1.17 (0.49)	1.17 (0.45)	1.17 (0.45)	1.17 (0.46)
East[d]	1.12 (0.26)	1.21 (0.30)	1.15 (0.29)	1.20 (0.31)	1.20 (0.31)	1.37 (0.36)	1.21 (0.31)	1.20 (0.31)
Northeast[d]	1.18 (0.60)	1.20 (0.65)	1.19 (0.65)	1.25 (0.69)	1.25 (0.69)	1.24 (0.68)	1.24 (0.69)	1.25 (0.69)
Northwest[d]	1.46 (0.49)	1.49 (0.54)	1.47 (0.54)	1.54 (0.57)	1.54 (0.57)	1.54 (0.56)	1.53 (0.57)	1.54 (0.57)

Characteristic	Evaluation-related supports							
	Evaluation includes opportunities for teachers to set goals	Evaluation includes opportunities to collaborate with your supervisor on goal setting	Evaluation includes multiple data sources	Evaluation includes student growth data	Evaluation includes formal observations	Evaluation includes Informal classroom walk-throughs	Evaluation based on performance standards or definitions of high-quality teacher practice	Evaluation includes opportunities to receive feedback
South Central[d]	1.37 (0.36)	1.20 (0.33)	1.20 (0.33)	1.17 (0.33)	1.17 (0.33)	1.17 (0.32)	1.18 (0.34)	1.17 (0.34)
Southeast[d]	1.23 (0.24)	1.02 (0.22)	1.18 (0.24)	1.17 (0.25)	1.18 (0.25)	1.17 (0.24)	1.18 (0.25)	1.17 (0.25)
Southwest[d]	0.63 (0.18)	0.64 (0.20)	0.63 (0.20)	0.66 (0.21)	0.66 (0.21)	0.66 (0.21)	0.66 (0.21)	0.66 (0.21)
Upper Peninsula[d]	1.27 (0.73)	1.29 (0.78)	1.28 (0.78)	1.34 (0.82)	1.34 (0.82)	1.34 (0.81)	1.34 (0.82)	1.34 (0.82)
West[d]	1.12 (0.17)	1.09 (0.18)	1.11 (0.18)	1.11 (0.19)	1.12 (0.19)	1.17 (0.20)	1.12 (0.19)	1.12 (0.19)
2014/15[e]	0.77** (0.07)	0.75** (0.07)	0.76** (0.07)	0.76** (0.07)	0.76** (0.07)	0.76** (0.07)	0.76** (0.07)	0.76** (0.07)
2015/16[e]	0.81* (0.08)	0.80* (0.08)	0.80* (0.08)	0.81* (0.08)	0.81* (0.08)	0.81* (0.08)	0.81* (0.08)	0.81* (0.08)
2016/17[e]	0.88 (0.09)	0.87 (0.09)	0.88 (0.09)	0.88 (0.09)	0.88 (0.09)	0.88 (0.09)	0.88 (0.09)	0.88 (0.09)
2017/18[e]	1.00 (0.10)	0.99 (0.10)	1.00 (0.10)	1.00 (0.10)	1.00 (0.10)	1.00 (0.10)	1.00 (0.10)	1.00 (0.10)
Percentage of English learner students	1.34 (0.58)	1.41 (0.65)	1.46 (0.68)	1.35 (0.63)	1.34 (0.63)	1.31 (0.61)	1.32 (0.62)	1.33 (0.64)
Variance								
Public school academy	0.16 (0.04)	0.19 (0.05)	0.20 (0.05)	0.21 (0.05)	0.20 (0.05)	0.20 (0.05)	0.20 (0.05)	0.20 (0.05)
Year	0.11 (0.02)	0.11 (0.02)	0.11 (0.02)	0.11 (0.02)	0.11 (0.02)	0.11 (0.02)	0.11 (0.02)	0.11 (0.02)
Constant	4.30 (4.69)	7.95 (8.62)	7.75 (8.37)	10.66* (12.26)	9.82* (10.99)	5.17 (5.90)	9.28* (10.15)	9.90* (10.99)

* Significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$.

Note: Teacher retention is based on 14,268 teachers in 250 public school academies between 2013/14 and 2018/19. Types of supports available to teachers was based on survey responses from 103 Michigan teachers from 72 academies. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of continuing to teach in their public school academies or whether certain types of academies have higher odds of retaining their teachers. For example, the odds that teachers in public school academies that provide teachers opportunities to set goals in their evaluations would continue to teach in their public school academies are 2.37 times the odds of teachers in academies without this support. Values less than 1 indicate that the reference group had higher odds of continuing to teach or retaining teachers in their academies.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who taught in the Detroit metro region.

e. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Table B24. Results from multilevel logistic regression models predicting whether teachers continue teaching in their public school academies, with survey respondents' indication of the presence of professional development–related supports as the key predictors, fall 2020

Characteristic	Professional development–related supports						
	Time for observational visits to other classrooms in my school	Observational visits to other schools or public school academies	Academy-organized workshops, conferences, or training sessions	Online courses, resources, or platforms for knowledge sharing	Reimbursement for conferences, workshops, or courses	Stipends for professional development activities that occur outside regular work hours	Release time from teaching to attend professional development
Presence of support	1.10 (0.16)	1.11 (0.18)	2.13*** (0.48)	1.23 (0.21)	1.31 (0.20)	0.90 (0.17)	1.38* (0.21)
Teacher characteristic							
Ages 25–34[a]	0.53 (0.58)	0.53 (0.58)	0.54 (0.59)	0.53 (0.58)	0.53 (0.58)	0.53 (0.57)	0.53 (0.57)
Ages 35–44[a]	0.57 (0.63)	0.57 (0.62)	0.59 (0.64)	0.58 (0.63)	0.57 (0.62)	0.57 (0.62)	0.57 (0.62)
Ages 45–60[a]	0.60 (0.66)	0.60 (0.66)	0.62 (0.67)	0.60 (0.66)	0.60 (0.66)	0.60 (0.65)	0.60 (0.65)
Ages 61 and over[a]	0.44 (0.48)	0.44 (0.48)	0.44 (0.49)	0.44 (0.48)	0.43 (0.47)	0.43 (0.47)	0.43 (0.47)
Not in a racial/ethnic minority group[b]	1.15 (0.08)	1.15 (0.08)	1.15 (0.08)	1.15 (0.08)	1.14 (0.08)	1.15 (0.08)	1.14 (0.08)
Male[c]	0.85** (0.05)	0.85** (0.05)	0.85** (0.05)	0.85** (0.05)	0.85** (0.05)	0.85** (0.05)	0.85** (0.05)
Public school academy characteristic							
East Central[d]	1.42 (0.76)	1.35 (0.74)	1.48 (0.73)	1.40 (0.74)	1.67 (0.88)	1.46 (0.78)	1.74 (0.92)
East[d]	1.17 (0.30)	1.17 (0.30)	1.16 (0.27)	1.20 (0.30)	1.07 (0.27)	1.23 (0.34)	1.07 (0.27)
Northeast[d]	1.18 (0.65)	1.12 (0.63)	1.23 (0.62)	1.16 (0.63)	1.06 (0.57)	1.34 (0.77)	1.05 (0.56)
Northwest[d]	1.44 (0.53)	1.37 (0.53)	1.51 (0.51)	1.43 (0.52)	1.30 (0.47)	1.56 (0.59)	1.29 (0.46)

	Professional development–related supports						
Characteristic	Time for observational visits to other classrooms in my school	Observational visits to other schools or public school academies	Academy-organized workshops, conferences, or training sessions	Online courses, resources, or platforms for knowledge sharing	Reimbursement for conferences, workshops, or courses	Stipends for professional development activities that occur outside regular work hours	Release time from teaching to attend professional development
South Central[d]	1.17 (0.33)	1.14 (0.32)	1.39 (0.37)	1.10 (0.31)	1.14 (0.31)	1.14 (0.32)	1.17 (0.32)
Southeast[d]	1.17 (0.26)	1.14 (0.26)	1.31 (0.27)	1.19 (0.26)	1.02 (0.24)	1.22 (0.29)	1.02 (0.23)
Southwest[d]	0.66 (0.21)	0.64 (0.20)	0.81 (0.24)	0.62 (0.19)	0.56 (0.18)	0.68 (0.23)	0.63 (0.19)
Upper Peninsula[d]	1.26 (0.77)	1.33 (0.81)	1.32 (0.75)	1.25 (0.75)	1.13 (0.68)	1.44 (0.91)	1.13 (0.67)
West[d]	0.94 (0.17)	0.94 (0.17)	1.15 (0.20)	0.96 (0.17)	0.92 (0.16)	0.96 (0.18)	0.90 (0.16)
2014/15[e]	0.77* (0.08)	0.77* (0.08)	0.77* (0.08)	0.77* (0.08)	0.77* (0.08)	0.77* (0.08)	0.77* (0.08)
2015/16[e]	0.80* (0.08)	0.80* (0.08)	0.80* (0.08)	0.80* (0.08)	0.80* (0.08)	0.80* (0.08)	0.80* (0.08)
2016/17[e]	0.93 (0.10)	0.93 (0.10)	0.93 (0.10)	0.93 (0.10)	0.93 (0.10)	0.93 (0.10)	0.93 (0.10)
2017/18[e]	1.03 (0.11)	1.03 (0.11)	1.03 (0.11)	1.03 (0.11)	1.03 (0.11)	1.03 (0.11)	1.03 (0.11)
Percentage of English learner students	1.25 (0.63)	1.27 (0.64)	1.35 (0.63)	1.17 (0.58)	1.27 (0.62)	1.26 (0.63)	1.15 (0.56)
Variance							
Public school academy	0.19 (0.05)	0.20 (0.05)	0.16 (0.04)	0.19 (0.05)	0.18 (0.05)	0.20 (0.05)	0.18 (0.05)
Year	0.11 (0.03)	0.11 (0.03)	0.11 (0.03)	0.11 (0.03)	0.11 (0.03)	0.11 (0.03)	0.11 (0.03)
Constant	6.99 (7.70)	7.31 (8.03)	3.40 (3.81)	6.32 (6.99)	6.59 (7.24)	7.53 (8.26)	6.35 (6.98)

* Significant at *p* < .05; ** significant at *p* < .01; *** significant at p < .001.

Note: Teacher retention is based on 14,268 teachers in 250 public school academies between 2013/14 and 2018/19. Types of supports available to teachers was based on survey responses from 103 Michigan teachers from 72 academies. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of continuing to teach in their public school academies or whether certain types of academies have higher odds of retaining their teachers. For example, the odds that teachers in public school academies that provide organized workshops, conferences, or training sessions would continue teaching at their academies are 2.13 times the odds of teachers in academies without this support. Values less than 1 indicate that the reference group had higher odds of continuing to teach or retaining teachers in their academies.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who taught in the Detroit Metro region.

e. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Table B25. Results from multilevel logistic regression models predicting whether teachers continue teaching in their traditional school district, with survey respondents' indication of the presence of supports for new teachers as the key predictors, fall 2020

Characteristic	Supports for new teachers								
	Reduced teaching schedule or additional preparation time periods or release time	Common planning time with teachers in your subject area and/or grade level	Seminars, classes, or professional development sessions for beginning teachers	Extra classroom assistance	Regular supportive communication with your principal, other administrators, or department chair	An orientation to the school	A mentoring program for teachers new to the district	Instructional rounds with peers	Professional learning community teams with added supports for new teachers
Presence of support	1.01 (0.07)	1.09 (0.06)	1.00 (0.06)	1.00 (0.05)	1.18* (0.08)	1.17** (0.07)	1.17* (0.09)	0.97 (0.05)	0.98 (0.05)
Teacher characteristic									
Ages 25–34[a]	0.41 (0.21)	0.41 (0.21)	0.41 (0.21)	0.41 (0.21)	0.41 (0.21)	0.41 (0.21)	0.41 (0.21)	0.41 (0.21)	0.41 (0.21)
Ages 35–44[a]	0.66 (0.34)	0.66 (0.34)	0.66 (0.34)	0.66 (0.34)	0.66 (0.34)	0.66 (0.34)	0.66 (0.34)	0.66 (0.34)	0.66 (0.34)
Ages 45–60[a]	0.85 (0.44)	0.85 (0.44)	0.85 (0.44)	0.85 (0.44)	0.85 (0.44)	0.85 (0.44)	0.85 (0.44)	0.85 (0.44)	0.85 (0.44)
Ages 61 and over[a]	0.18*** (0.09)	0.18*** (0.09)	0.18*** (0.09)	0.18*** (0.09)	0.18*** (0.09)	0.18*** (0.09)	0.18*** (0.09)	0.18*** (0.09)	0.18*** (0.09)
Not in a racial/ethnic minority group[b]	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.17*** (0.03)	1.18*** (0.03)
Male[c]	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)
Traditional school district characteristic									
East Central[d]	0.99 (0.12)	0.99 (0.12)	0.99 (0.12)	0.99 (0.12)	1.00 (0.12)	0.99 (0.12)	0.99 (0.12)	0.99 (0.13)	0.98 (0.12)
East[d]	1.03 (0.12)	1.04 (0.12)	1.03 (0.12)	1.03 (0.12)	1.05 (0.12)	1.08 (0.13)	1.03 (0.12)	1.03 (0.12)	1.03 (0.12)
Northeast[d]	0.82 (0.12)	0.84 (0.12)	0.82 (0.12)	0.82 (0.12)	0.83 (0.12)	0.86 (0.12)	0.82 (0.12)	0.82 (0.12)	0.81 (0.12)
Northwest[d]	0.69** (0.09)	0.71* (0.10)	0.69** (0.09)	0.69** (0.09)	0.69** (0.09)	0.73* (0.10)	0.70** (0.09)	0.68** (0.09)	0.68** (0.09)

Characteristic	Supports for new teachers								
	Reduced teaching schedule or additional preparation time periods or release time	Common planning time with teachers in your subject area and/or grade level	Seminars, classes, or professional development sessions for beginning teachers	Extra classroom assistance	Regular supportive communication with your principal, other administrators, or department chair	An orientation to the school	A mentoring program for teachers new to the district	Instructional rounds with peers	Professional learning community teams with added supports for new teachers
South Central[d]	0.89 (0.10)	0.89 (0.10)	0.89 (0.10)	0.89 (0.10)	0.87 (0.10)	0.94 (0.11)	0.89 (0.10)	0.90 (0.10)	0.89 (0.10)
Southeast[d]	1.00 (0.09)	1.00 (0.09)	1.00 (0.09)	1.00 (0.09)	0.99 (0.09)	1.02 (0.09)	0.99 (0.09)	1.00 (0.09)	1.00 (0.09)
Southwest[d]	0.87 (0.07)	0.88 (0.07)	0.87 (0.07)	0.87 (0.07)	0.86 (0.07)	0.86 (0.07)	0.86 (0.07)	0.87 (0.07)	0.87 (0.07)
Upper Peninsula[d]	0.76* (0.10)	0.77 (0.10)	0.76* (0.10)	0.76* (0.10)	0.76* (0.10)	0.78 (0.10)	0.76* (0.10)	0.72* (0.10)	0.72* (0.10)
West[d]	1.13 (0.08)	1.15 (0.08)	1.13 (0.08)	1.13 (0.08)	1.11 (0.08)	1.12 (0.08)	1.12 (0.08)	1.14 (0.08)	1.12 (0.08)
2014/15[e]	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)
2015/16[e]	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)
2016/17[e]	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)
2017/18[e]	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)
Percentage of English learner students	0.96 (0.33)	0.97 (0.33)	0.96 (0.33)	0.96 (0.33)	1.02 (0.34)	1.04 (0.35)	1.01 (0.34)	0.96 (0.33)	0.96 (0.32)

	Supports for new teachers								
Characteristic	Reduced teaching schedule or additional preparation time periods or release time	Common planning time with teachers in your subject area and/or grade level	Seminars, classes, or professional development sessions for beginning teachers	Extra classroom assistance	Regular supportive communication with your principal, other administrators, or department chair	An orientation to the school	A mentoring program for teachers new to the district	Instructional rounds with peers	Professional learning community teams with added supports for new teachers
Variance									
Traditional school district	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)
Year	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.07 (0.01)	0.08 (0.01)
Constant	21.92*** (11.40)	20.65*** (10.77)	21.91*** (11.45)	21.93*** (11.41)	19.25*** (10.06)	19.50*** (10.18)	19.09*** (10.02)	22.21*** (11.56)	22.24*** (11.59)

* Significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$.

Note: Teacher retention is based on 100,015 teachers in 538 traditional school districts between 2013/14 and 2018/19. Types of supports available to teachers was based on survey responses from 436 Michigan teachers from 233 traditional school districts. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of continuing to teach in their traditional school district or whether certain types of districts have higher odds of retaining their teachers. For example, the odds that teachers in traditional school districts that provide a mentoring program for new teachers would continue teaching in their districts are 1.17 times the odds of teachers in districts without this support. Values less than 1 indicate that the reference group had higher odds of continuing to teach or retaining teachers in their districts.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who taught in the Detroit metro region.

e. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Table B26. Results from multilevel logistic regression models predicting whether teachers continue teaching in their traditional school district, with survey respondents' indication of the presence of compensation and benefits-related supports as the key predictors, fall 2020

Characteristic	Compensation and benefits-related supports					
	Annual salary increases	Performance-based compensation such as bonuses or salary increases	Financial incentives for teachers in high-need subjects or at high-need schools	Teacher housing or mortgage assistance programs	Childcare benefits such as subsidies, on-site childcare, or childcare assistance	Tuition reimbursement or financial assistance for additional endorsements or professional learning
Presence of support	1.17* (0.09)	1.04 (0.06)	0.81* (0.08)	0.51*** (0.10)	1.00 (0.09)	0.99 (0.06)
Teacher characteristic						
Ages 25–34[a]	0.41 (0.21)	0.41 (0.21)	0.41 (0.21)	0.41 (0.21)	0.41 (0.21)	0.41 (0.21)
Ages 35–44[a]	0.66 (0.34)	0.66 (0.34)	0.66 (0.34)	0.66 (0.34)	0.66 (0.34)	0.66 (0.34)
Ages 45–60[a]	0.85 (0.44)	0.85 (0.44)	0.85 (0.44)	0.85 (0.44)	0.85 (0.44)	0.85 (0.44)
Ages 61 and over[a]	0.18*** (0.09)	0.18*** (0.09)	0.18*** (0.09)	0.18*** (0.09)	0.18*** (0.09)	0.18*** (0.09)
Not in a racial/ethnic minority group[b]	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.17*** (0.03)	1.18*** (0.03)	1.18*** (0.03)
Male[c]	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)
Traditional school district characteristic						
East Central[d]	0.98 (0.12)	0.98 (0.12)	0.96 (0.12)	0.98 (0.12)	0.99 (0.12)	0.99 (0.12)
East[d]	1.04 (0.13)	1.03 (0.12)	1.00 (0.12)	1.03 (0.12)	1.03 (0.13)	1.03 (0.13)
Northeast[d]	0.81 (0.12)	0.82 (0.12)	0.80 (0.11)	0.82 (0.12)	0.82 (0.12)	0.82 (0.12)
Northwest[d]	0.70** (0.10)	0.68** (0.09)	0.67** (0.09)	0.69** (0.09)	0.69** (0.09)	0.69** (0.10)
South Central[d]	0.88 (0.10)	0.89 (0.10)	0.88 (0.10)	0.89 (0.10)	0.89 (0.10)	0.89 (0.10)

Characteristic	Compensation and benefits-related supports					
	Annual salary increases	Performance-based compensation such as bonuses or salary increases	Financial incentives for teachers in high-need subjects or at high-need schools	Teacher housing or mortgage assistance programs	Childcare benefits such as subsidies, on-site childcare, or childcare assistance	Tuition reimbursement or financial assistance for additional endorsements or professional learning
Southeast[d]	1.01 (0.09)	1.00 (0.09)	0.98 (0.09)	1.00 (0.09)	1.00 (0.09)	1.01 (0.09)
Southwest[d]	0.86 (0.07)	0.85 (0.07)	0.86 (0.07)	0.88 (0.07)	0.87 (0.07)	0.87 (0.07)
Upper Peninsula[d]	0.77* (0.10)	0.75* (0.10)	0.74* (0.10)	0.76* (0.10)	0.76* (0.10)	0.76* (0.10)
West[d]	1.11 (0.08)	1.12 (0.08)	1.10 (0.08)	1.13 (0.08)	1.13 (0.08)	1.13 (0.09)
2014/15[e]	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)
2015/16[e]	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)
2016/17[e]	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)
2017/18[e]	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)
Percentage of English learner students	0.91 (0.31)	0.93 (0.32)	1.02 (0.34)	1.14 (0.38)	0.97 (0.33)	0.97 (0.33)
Variance						
Traditional school district	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)
Year	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)
Constant	19.31*** (10.10)	21.90*** (11.39)	22.61*** (11.76)	22.04*** (11.46)	21.94*** (11.41)	21.99*** (11.44)

* Significant at *p* < .05; ** significant at *p* < .01; *** significant at *p* < .001.

Note: Teacher retention is based on 100,015 teachers in 538 traditional school districts between 2013/14 and 2018/19. Types of supports available to teachers was based on survey responses from 436 Michigan teachers from 233 traditional school districts. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of continuing to teach in their traditional school district or whether certain types of districts have higher odds of retaining their teachers. For example, the odds that teachers in traditional school districts that provide annual salary increases continue teaching in their districts are 1.17 times the odds of teachers in districts without annual salary increases. Values less than 1 indicate that the reference group had higher odds of teachers staying in their districts.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who taught in the Detroit metro region.

e. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Table B27. Results from multilevel logistic regression models predicting whether teachers continue teaching in their traditional school district, with survey respondents' indication of the presence of evaluation-related supports as the key predictors, fall 2020

Characteristic	Evaluation-related supports							
	Evaluation includes opportunities for teachers to set goals	Evaluation includes opportunities to collaborate with your supervisor on goal setting	Evaluation includes multiple data sources	Evaluation includes student growth data	Evaluation includes formal observations	Evaluation includes informal classroom walk-throughs	Evaluation based on performance standards or definitions of high-quality teacher practice	Evaluation includes opportunities to receive feedback
Presence of support	1.15 (0.21)	1.09 (0.09)	0.98 (0.07)	1.15 (0.22)	1.42 (0.31)	1.07 (0.10)	0.91 (0.08)	1.13 (0.14)
Teacher characteristic								
Ages 25–34[a]	0.41 (0.21)	0.41 (0.21)	0.41 (0.21)	0.41 (0.21)	0.41 (0.21)	0.41 (0.21)	0.41 (0.21)	0.41 (0.21)
Ages 35–44[a]	0.66 (0.34)	0.66 (0.34)	0.66 (0.34)	0.66 (0.34)	0.66 (0.34)	0.66 (0.34)	0.66 (0.34)	0.66 (0.34)
Ages 45–60[a]	0.85 (0.44)	0.85 (0.44)	0.85 (0.44)	0.85 (0.44)	0.85 (0.44)	0.85 (0.44)	0.85 (0.44)	0.85 (0.44)
Ages 61 and over[a]	0.18*** (0.09)	0.18*** (0.09)	0.18*** (0.09)	0.18*** (0.09)	0.18*** (0.09)	0.18*** (0.09)	0.18*** (0.09)	0.18*** (0.09)
Not in a racial/ethnic minority group[b]	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)	1.18*** (0.03)
Male[c]	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)
Traditional school district characteristic								
East Central[d]	0.98 (0.12)	1.00 (0.13)	0.99 (0.13)	0.99 (0.12)	0.98 (0.12)	0.98 (0.12)	1.00 (0.13)	0.98 (0.12)
East[d]	1.03 (0.12)	1.03 (0.12)	1.04 (0.13)	1.03 (0.12)	1.03 (0.12)	1.04 (0.13)	1.04 (0.13)	1.04 (0.13)
Northeast[d]	0.82 (0.12)	0.83 (0.12)	0.82 (0.12)	0.84 (0.12)	0.82 (0.12)	0.82 (0.12)	0.81 (0.12)	0.83 (0.12)
Northwest[d]	0.69** (0.09)	0.69** (0.09)	0.69** (0.09)	0.70** (0.09)	0.69** (0.09)	0.69** (0.09)	0.69** (0.09)	0.69** (0.09)

	Evaluation-related supports							
Characteristic	Evaluation includes opportunities for teachers to set goals	Evaluation includes opportunities to collaborate with your supervisor on goal setting	Evaluation includes multiple data sources	Evaluation includes student growth data	Evaluation includes formal observations	Evaluation includes informal classroom walk-throughs	Evaluation based on performance standards or definitions of high-quality teacher practice	Evaluation includes opportunities to receive feedback
South Central[d]	0.89 (0.10)	0.90 (0.10)	0.89 (0.10)	0.89 (0.10)	0.89 (0.10)	0.89 (0.10)	0.90 (0.10)	0.90 (0.10)
Southeast[d]	1.01 (0.09)	1.01 (0.09)	1.00 (0.09)	1.01 (0.09)	1.00 (0.09)	1.00 (0.09)	1.00 (0.09)	1.01 (0.09)
Southwest[d]	0.87 (0.07)	0.86 (0.07)	0.87 (0.07)	0.87 (0.07)	0.86 (0.07)	0.87 (0.07)	0.87 (0.07)	0.87 (0.07)
Upper Peninsula[d]	0.76* (0.10)	0.77 (0.10)	0.76* (0.10)	0.76* (0.10)	0.76* (0.10)	0.76* (0.10)	0.76* (0.10)	0.76* (0.10)
West[d]	1.13 (0.08)	1.13 (0.08)	1.12 (0.08)	1.13 (0.08)	1.14 (0.08)	1.14 (0.08)	1.12 (0.08)	1.13 (0.08)
2014/15[e]	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)
2015/16[e]	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)
2016/17[e]	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)	0.85*** (0.03)
2017/18[e]	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)
Percentage of English learner students	0.96 (0.32)	0.96 (0.33)	0.98 (0.33)	0.96 (0.32)	0.97 (0.33)	0.98 (0.33)	1.00 (0.34)	0.96 (0.32)
Variance								
Traditional school district	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)
Year	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)
Constant	19.12*** (10.50)	20.33*** (10.67)	22.38*** (11.71)	19.10*** (10.57)	15.60*** (8.79)	20.60*** (10.85)	23.87*** (12.55)	19.43*** (10.35)

* Significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$.

Note: Teacher retention is based on 100,015 teachers in 538 traditional school districts between 2013/14 and 2018/19. Types of supports available to teachers was based on survey responses from 436 Michigan teachers from 233 traditional school districts. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of staying in their positions or whether certain types of traditional school districts have higher odds of retaining their teachers. For example, the odds that teachers employed by traditional school districts that include formal observations in their evaluation systems retain their positions are 1.42 times the odds of teachers employed in school districts that do not include formal observations within their evaluation systems. Values less than 1 indicate that the reference group had higher odds of teachers staying in their districts.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who taught in the Detroit metro region.

e. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Table B28. Results from multilevel logistic regression models predicting whether teachers continue teaching in their traditional school district, with survey respondents' indication of the presence of professional development–related supports as the key predictors, fall 2020

| Characteristic | Professional development–related supports | | | | | | |
	Time for observational visits to other classrooms in my school	Observational visits to other schools or districts	District organized workshops, conferences, or training sessions	Online courses, resources, or platform for knowledge sharing	Reimbursement for conferences, workshops, or courses	Stipends for professional development activities that occur outside work hours	Release time from teaching to attend professional development
Presence of support	1.10 (0.06)	1.05 (0.05)	0.99 (0.08)	1.07 (0.06)	1.05 (0.06)	0.95 (0.05)	1.06 (0.06)
Teacher characteristic							
Ages 25–34[a]	0.43 (0.22)	0.43 (0.22)	0.43 (0.22)	0.43 (0.22)	0.43 (0.22)	0.43 (0.22)	0.43 (0.22)
Ages 35–44[a]	0.69 (0.36)	0.69 (0.36)	0.69 (0.36)	0.69 (0.36)	0.69 (0.36)	0.69 (0.36)	0.69 (0.36)
Ages 45–60[a]	0.89 (0.46)	0.89 (0.46)	0.89 (0.46)	0.89 (0.46)	0.89 (0.46)	0.89 (0.46)	0.89 (0.46)
Ages 61 and over[a]	0.19** (0.10)	0.19** (0.10)	0.19** (0.10)	0.19** (0.10)	0.19** (0.10)	0.19** (0.10)	0.19** (0.10)
Not in a racial/ethnic minority group[b]	1.17*** (0.03)	1.17*** (0.03)	1.17*** (0.03)	1.17*** (0.03)	1.17*** (0.03)	1.17*** (0.03)	1.17*** (0.03)
Male[c]	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)	0.94*** (0.02)
Traditional school district characteristic							
East Central[d]	0.96 (0.12)	0.96 (0.12)	0.96 (0.12)	0.96 (0.12)	0.96 (0.12)	0.96 (0.12)	0.95 (0.12)
East[d]	1.02 (0.12)	1.00 (0.12)	1.00 (0.12)	1.00 (0.12)	1.00 (0.12)	1.00 (0.12)	0.99 (0.12)
Northeast[d]	0.81 (0.12)	0.80 (0.12)	0.79 (0.12)	0.81 (0.12)	0.80 (0.12)	0.81 (0.12)	0.80 (0.12)
Northwest[d]	0.66** (0.09)	0.67** (0.09)	0.67** (0.09)	0.68** (0.09)	0.67** (0.09)	0.67** (0.09)	0.67** (0.09)

Characteristic	Professional development–related supports						
	Time for observational visits to other classrooms in my school	Observational visits to other schools or districts	District organized workshops, conferences, or training sessions	Online courses, resources, or platform for knowledge sharing	Reimbursement for conferences, workshops, or courses	Stipends for professional development activities that occur outside work hours	Release time from teaching to attend professional development
South Central[d]	0.85 (0.09)	0.86 (0.09)	0.87 (0.10)	0.87 (0.10)	0.87 (0.10)	0.86 (0.10)	0.86 (0.10)
Southeast[d]	0.97 (0.09)	0.98 (0.09)	0.98 (0.09)	0.98 (0.09)	0.97 (0.09)	0.97 (0.09)	0.97 (0.09)
Southwest[d]	0.85* (0.07)	0.84* (0.07)	0.83* (0.07)	0.85 (0.07)	0.84* (0.07)	0.84* (0.07)	0.84* (0.07)
Upper Peninsula[d]	0.86 (0.12)	0.85 (0.12)	0.85 (0.12)	0.85 (0.12)	0.86 (0.12)	0.85 (0.12)	0.85 (0.12)
West[d]	1.12 (0.08)	1.11 (0.08)	1.12 (0.08)	1.13 (0.08)	1.11 (0.08)	1.12 (0.08)	1.12 (0.08)
2014/15[e]	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)	0.93 (0.04)
2015/16[e]	0.93 (0.04)	0.93 (0.04)	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)	0.92* (0.04)
2016/17[e]	0.86*** (0.03)	0.86*** (0.03)	0.86*** (0.03)	0.86*** (0.03)	0.86*** (0.03)	0.86*** (0.03)	0.86*** (0.03)
2017/18[e]	0.78*** (0.03)	0.78*** (0.03)	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)	0.77*** (0.03)
Percentage of English learner students	0.83 (0.28)	0.86 (0.29)	0.88 (0.30)	0.88 (0.29)	0.88 (0.30)	0.90 (0.30)	0.89 (0.30)
Variance							
Traditional school district	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)
Year	0.07 (0.01)	0.07 (0.01)	0.07 (0.01)	0.07 (0.01)	0.07 (0.01)	0.07 (0.01)	0.07 (0.01)
Constant	20.28*** (10.58)	21.14*** (11.01)	21.86*** (11.50)	20.48*** (10.70)	20.86*** (10.89)	22.08*** (11.51)	20.64*** (10.79)

* Significant at *p* < .05; ** significant at *p* < .01; *** significant at *p* < .001.

Note: Teacher retention is based on 100,015 teachers in 538 traditional school districts between 2013/14 and 2018/19. Types of supports available to teachers was based on survey responses from 436 Michigan teachers from 233 traditional school districts. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of continuing to teach in their traditional school district or whether certain types of districts have higher odds of retaining their teachers. For example, the odds that a teacher employed by a traditional school district that gives teachers release time to participate in professional development are 1.06 times the odds of a teacher employed by a traditional school district that does not offer this support. Values less than 1 indicate that the reference group had higher odds of continuing to teach or retaining teachers in their districts.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who taught in the Detroit metro region.

e. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Table B29. Results from multilevel logistic regression models predicting whether teachers continue teaching in their local education agency, with survey respondents' ratings of the quality of supports as the key predictors, fall 2020

Characteristic	Quality of professional development	Satisfaction with teacher collaboration	Supportive school leadership	Satisfaction with Teacher involvement in school governance	Quality of mentor program	Quality and sufficiency of time and material resources	Satisfaction with leadership and advancement opportunities	Quality of new teacher socialization	Satisfaction with salary	Quality of evaluation system
					Teacher perceptions of supports					
Quality of support	1.00 (0.10)	1.10 (0.10)	1.05 (0.09)	1.09 (0.09)	1.07 (0.12)	1.24* (0.14)	1.18 (0.13)	1.00 (0.09)	1.16 (0.13)	0.95 (0.09)
Teacher characteristic										
Ages 25–34[a]	0.26 (0.27)	0.27 (0.28)	0.23 (0.24)	0.23 (0.24)	0.67 (0.51)	0.22 (0.22)	0.76 (0.58)	0.62 (0.65)	2.80*** (0.15)	0.53 (0.40)
Ages 35–44[a]	0.40 (0.41)	0.41 (0.42)	0.35 (0.36)	0.35 (0.35)	1.01 (0.77)	0.32 (0.33)	1.15 (0.88)	0.83 (0.86)	4.09*** (0.19)	0.78 (0.59)
Ages 45–60[a]	0.53 (0.55)	0.54 (0.55)	0.45 (0.47)	0.45 (0.46)	1.41 (1.07)	0.44 (0.45)	1.36 (1.04)	1.12 (1.17)	5.02*** (0.22)	1.15 (0.87)
Ages 61 and over[a]	0.11* (0.11)	0.12* (0.12)	0.09* (0.09)	0.09* (0.09)	0.30 (0.23)	0.09* (0.10)	0.28 (0.21)	0.25 (0.26)	1.00*** (0.00)	0.25 (0.18)
Not in a racial/ethnic minority group[b]	1.45*** (0.09)	1.35*** (0.08)	1.35*** (0.08)	1.25*** (0.07)	1.21*** (0.06)	1.36*** (0.08)	1.43*** (0.11)	1.54*** (0.10)	1.14* (0.08)	1.28*** (0.07)
Male[c]	0.98 (0.04)	0.93* (0.03)	0.92** (0.03)	0.92** (0.03)	0.93* (0.03)	0.92* (0.03)	0.99 (0.04)	0.96 (0.04)	0.95 (0.04)	0.90** (0.03)
Local education agency characteristic										
Traditional school district[d]	2.54*** (0.31)	2.51*** (0.25)	3.14*** (0.32)	2.85*** (0.28)	2.58*** (0.30)	2.78*** (0.34)	2.47*** (0.32)	2.34*** (0.26)	2.85*** (0.35)	2.11*** (0.27)
East Central[e]	1.29 (0.28)	1.33 (0.29)	1.19 (0.28)	1.22 (0.26)	1.14 (0.26)	1.22 (0.28)	1.18 (0.27)	1.40 (0.25)	0.85 (0.23)	1.15 (0.26)
East[e]	1.58 (0.38)	1.21 (0.27)	0.94 (0.20)	1.13 (0.22)	1.15 (0.24)	1.27 (0.27)	1.21 (0.26)	1.30 (0.22)	0.72 (0.16)	1.36 (0.31)
Northeast[e]	1.00 (0.21)	1.09 (0.21)	1.03 (0.19)	0.94 (0.16)	1.14 (0.30)	0.94 (0.23)	0.74 (0.20)	1.24 (0.25)	0.91 (0.31)	0.84 (0.23)
Northwest[e]	0.96 (0.24)	0.94 (0.17)	0.97 (0.18)	0.85 (0.15)	0.70 (0.22)	0.97 (0.28)	1.05 (0.30)	0.70 (0.16)	0.66* (0.13)	0.94 (0.17)

Characteristic	Quality of professional development	Satisfaction with teacher collaboration	Supportive school leadership	Satisfaction with Teacher involvement in school governance	Quality of mentor program	Quality and sufficiency of time and material resources	Satisfaction with leadership and advancement opportunities	Quality of new teacher socialization	Satisfaction with salary	Quality of evaluation system
				Teacher perceptions of supports						
South Central[e]	1.34 (0.26)	1.17 (0.21)	0.74 (0.17)	1.04 (0.19)	1.23 (0.23)	0.99 (0.25)	1.02 (0.25)	1.21 (0.20)	1.05 (0.26)	0.87 (0.18)
Southeast[e]	1.26 (0.23)	1.18 (0.20)	1.22 (0.19)	1.03 (0.15)	1.00 (0.18)	0.96 (0.18)	1.20 (0.24)	0.81 (0.17)	0.79 (0.17)	1.02 (0.19)
Southwest[e]	1.07 (0.18)	0.83 (0.10)	0.84 (0.10)	0.95 (0.13)	1.03 (0.17)	1.00 (0.21)	0.95 (0.15)	0.82 (0.11)	0.80 (0.14)	0.83 (0.15)
Upper Peninsula[e]	1.01 (0.32)	0.89 (0.19)	0.83 (0.20)	0.69 (0.15)	0.79 (0.20)	0.62 (0.19)	0.75 (0.22)	0.87 (0.32)	1.00*** (0.00)	1.00*** (0.00)
West[e]	1.22 (0.15)	1.18 (0.14)	1.12 (0.12)	1.12 (0.12)	1.37* (0.19)	1.02 (0.14)	1.20 (0.18)	1.17 (0.13)	0.91 (0.12)	1.09 (0.15)
2014/15[f]	0.96 (0.07)	0.93 (0.07)	0.92 (0.06)	0.92 (0.06)	0.98 (0.06)	0.93 (0.07)	0.95 (0.08)	0.96 (0.08)	1.09 (0.08)	0.84* (0.06)
2015/16[f]	0.91 (0.07)	0.97 (0.07)	0.92 (0.06)	0.95 (0.06)	1.01 (0.07)	0.92 (0.07)	0.91 (0.08)	0.96 (0.08)	1.09 (0.08)	0.83* (0.06)
2016/17[f]	0.85* (0.06)	0.85* (0.06)	0.87* (0.06)	0.89 (0.06)	0.88* (0.06)	0.87 (0.07)	0.85 (0.07)	0.84* (0.07)	0.91 (0.07)	0.86* (0.07)
2017/18[f]	0.85* (0.06)	0.88 (0.06)	0.84* (0.06)	0.84** (0.05)	0.96 (0.06)	0.90 (0.07)	0.95 (0.08)	0.87 (0.07)	0.88 (0.07)	0.79** (0.06)
Percentage of English learner students	1.33 (0.63)	1.29 (0.62)	1.09 (0.48)	1.38 (0.67)	0.94 (0.48)	0.71 (0.37)	0.59 (0.40)	4.35 (3.70)	0.53 (0.26)	0.78 (0.47)
Variance										
Local education agency	0.11 (0.03)	0.09 (0.02)	0.09 (0.02)	0.10 (0.02)	0.19 (0.03)	0.16 (0.03)	0.13 (0.03)	0.06 (0.02)	0.13 (0.03)	0.13 (0.03)
Year	0.08 (0.01)	0.09 (0.02)	0.10 (0.01)	0.10 (0.01)	0.10 (0.01)	0.12 (0.02)	0.12 (0.02)	0.13 (0.02)	0.08 (0.02)	0.09 (0.02)
Constant	9.64* (10.04)	9.87* (10.24)	10.83* (11.26)	12.34* (12.73)	3.72 (2.88)	11.07* (11.51)	3.62 (2.83)	4.05 (4.28)	1.23 (0.18)	6.96* (5.35)

* Significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$.

Note: Teacher retention is based on 114,283 teachers in 788 local education agencies between 2013/14 and 2018/19. Ratings of the quality of supports were based on survey responses from 539 Michigan teachers from 305 local education agencies. Local education agencies are defined as public school academies (charter schools) or traditional school districts. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of continuing to teach in their local education agency or whether certain types of agencies have higher odds of retaining their teachers. For example, the odds that teachers in local education agencies with a higher than average score (by one standard deviation) for quality and sufficiency of instructional time and material resources would continue teaching in their agencies are 1.24 times the odds of teachers in agencies with a lower than average score (by one standard deviation). Values less than 1 indicate that the reference group had higher odds of continuing to teach or retaining teachers in their agencies.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who were in a public school academy.

e. Reference group is teachers who taught in the Detroit metro region.

f. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Table B30. Results from multilevel logistic regression models predicting whether teachers continue teaching in their public school academy, with survey respondents' ratings of the quality of supports as the key predictors, fall 2020

| Characteristic | Quality of supports | | | | | | | | | |
	Quality of professional development	Satisfaction with Teacher collaboration	Supportive school leadership	Satisfaction with teacher involvement in school governance	Quality of mentor program	Quality and sufficiency of time and material resources	Satisfaction with leadership and advancement opportunities	Quality of new teacher socialization	Satisfaction with salary	Quality of evaluation system
Quality of support	1.50 (0.51)	1.05 (0.36)	2.30 (1.26)	1.29 (0.33)	1.24 (0.39)	2.13** (0.55)	1.45 (0.45)	1.76 (0.57)	0.81 (0.36)	0.89 (0.23)
Teacher characteristic										
Ages 25–34[a]	1.25 (1.43)	1.39 (0.23)	0.81 (0.90)	1.37 (0.23)	1.78 (2.10)	0.97 (1.08)	1.21 (1.38)	1.21 (0.25)	1.19 (0.23)	1.35 (1.61)
Ages 35–44[a]	1.38 (1.58)	1.42* (0.23)	0.93 (1.03)	1.36 (0.22)	1.87 (2.21)	0.96 (1.08)	1.45 (1.66)	1.25 (0.24)	1.25 (0.24)	1.52 (1.81)
Ages 45–60[a]	1.30 (1.49)	1.37 (0.23)	0.95 (1.06)	1.51* (0.26)	2.05 (2.43)	0.95 (1.07)	1.35 (1.54)	1.04 (0.21)	1.31 (0.26)	1.86 (2.23)
Ages 61 and over[a]	0.89 (1.04)	1.00*** (0.00)	0.72 (0.81)	1.00*** (0.00)	1.55 (1.84)	0.63 (0.71)	1.09 (1.26)	1.00*** (0.00)	1.00*** (0.00)	1.28 (1.55)
Not in a racial/ethnic minority group[b]	1.40* (0.19)	1.16 (0.13)	1.04 (0.13)	1.07 (0.11)	1.00 (0.09)	1.32* (0.15)	1.18 (0.16)	1.27 (0.19)	1.04 (0.13)	1.42* (0.22)
Male[c]	1.00 (0.13)	0.96 (0.10)	0.76* (0.08)	0.95 (0.09)	0.96 (0.08)	0.92 (0.09)	0.95 (0.11)	0.91 (0.11)	0.76* (0.08)	0.76* (0.10)
Public school academy characteristic										
East Central[d]	1.00*** (0.00)	1.51 (0.54)	2.47 (1.68)	1.20 (0.60)	1.24 (0.62)	1.00*** (0.00)	1.47 (0.73)	0.82 (0.26)	1.02 (0.73)	1.00*** (0.00)
East[d]	1.00*** (0.00)	1.47 (0.54)	1.91 (1.27)	1.00*** (0.00)	1.11 (0.76)	2.19 (0.99)	2.01 (1.02)	0.90 (0.41)	0.71 (0.31)	4.99** (2.91)
Northeast[d]	1.12 (0.61)	1.47 (0.72)	1.46 (0.63)	1.22 (0.64)	1.28 (0.88)	1.00 (0.61)	1.00*** (0.00)	0.58 (0.29)	1.00*** (0.00)	1.00*** (0.00)
Northwest[d]	1.79 (0.89)	1.90 (0.69)	2.19* (0.83)	1.92 (0.93)	1.00*** (0.00)	1.63 (0.93)	1.65 (1.01)	1.00*** (0.00)	1.74 (1.01)	2.10 (0.97)
South Central[d]	1.79 (0.89)	2.32 (1.02)	1.51 (1.03)	1.22 (0.43)	1.48 (0.63)	1.62 (0.93)	1.15 (0.53)	0.79 (0.31)	2.21 (1.54)	1.15 (0.44)

Characteristic	Quality of supports									
	Quality of professional development	Satisfaction with Teacher collaboration	Supportive school leadership	Satisfaction with teacher involvement in school governance	Quality of mentor program	Quality and sufficiency of time and material resources	Satisfaction with leadership and advancement opportunities	Quality of new teacher socialization	Satisfaction with salary	Quality of evaluation system
Southeast[d]	1.45 (0.51)	1.68 (0.52)	1.66 (0.43)	1.55 (0.61)	1.15 (0.43)	0.70 (0.25)	1.59 (0.58)	1.17 (0.39)	0.78 (0.31)	1.91 (0.71)
Southwest[d]	1.00*** (0.00)	0.54 (0.25)	1.08 (0.42)	0.50 (0.26)	1.00*** (0.00)	1.00*** (0.00)	0.84 (0.51)	0.36** (0.13)	1.00*** (0.00)	1.04 (0.48)
Upper Peninsula[d]	1.00*** (0.00)	1.00*** (0.00)	1.00*** (0.00)	1.00*** (0.00)	1.00*** (0.00)	1.00*** (0.00)	1.00*** (0.00)	1.00*** (0.00)	1.00*** (0.00)	1.00*** (0.00)
West[d]	1.35 (0.42)	1.72 (0.49)	1.14 (0.26)	1.36 (0.37)	1.38 (0.42)	0.89 (0.27)	1.54 (0.56)	0.93 (0.20)	0.76 (0.26)	0.81 (0.21)
2014/15[e]	0.91 (0.16)	0.90 (0.13)	0.89 (0.14)	0.76 (0.12)	0.77 (0.10)	0.81 (0.12)	0.84 (0.12)	0.79 (0.18)	1.20 (0.19)	0.61* (0.13)
2015/16[e]	0.98 (0.18)	0.99 (0.15)	0.90 (0.14)	0.93 (0.15)	0.96 (0.13)	0.93 (0.15)	0.91 (0.14)	1.01 (0.23)	1.05 (0.16)	0.58** (0.12)
2016/17[e]	0.82 (0.15)	0.81 (0.12)	0.90 (0.14)	0.94 (0.16)	0.99 (0.14)	0.87 (0.14)	0.89 (0.14)	0.99 (0.23)	1.02 (0.16)	0.77 (0.17)
2017/18[e]	1.18 (0.22)	1.08 (0.17)	1.09 (0.17)	1.10 (0.18)	1.42* (0.21)	1.13 (0.18)	1.27 (0.21)	1.29 (0.30)	1.18 (0.18)	0.90 (0.20)
Percentage of English learner students	0.88 (0.89)	3.35 (3.61)	1.50 (0.98)	1.33 (1.40)	0.83 (0.59)	1.45 (1.03)	0.60 (0.62)	0.00 (0.01)	0.95 (0.88)	2.75 (2.21)
Variance										
Public school academy	0.14 (0.07)	0.09 (0.04)	0.08 (0.04)	0.14 (0.06)	0.34 (0.10)	0.25 (0.09)	0.26 (0.10)	0.00 (0.00)	0.26 (0.10)	0.10 (0.07)
Year	0.05 (0.04)	0.05 (0.03)	0.05 (0.04)	0.10 (0.04)	0.08 (0.03)	0.09 (0.04)	0.03 (0.03)	0.15 (0.05)	0.05 (0.04)	0.12 (0.06)
Constant	1.65 (1.94)	2.06* (0.58)	1.53 (1.91)	2.27** (0.58)	1.65 (2.01)	1.95 (2.26)	2.13 (2.53)	3.19*** (0.96)	3.35*** (1.00)	2.65 (3.24)

* Significant at *p* < .05; ** significant at *p* < .01; *** significant at *p* < .001.

Note: Teacher retention is based on 14,268 teachers in 250 public school academies between 2013/14 and 2018/19. Perceptions of supports were based on survey responses from 103 Michigan teachers from 72 academies. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of continuing to teach in their public school academy or whether certain types of academies have higher odds of retaining their teachers. For example, the odds that teachers in public school academies with a higher than average score (by one standard deviation) for quality and sufficiency of instructional time and material resources would continue to teach in their academies are 2.13 times the odds of teachers in academies with a lower than average score (by one standard deviation). Values less than 1 indicate that the reference group had higher odds of continuing to teach or retaining teachers in their academies.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who taught in the Detroit metro region.

e. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Table B31. Results from multilevel logistic regression models predicting whether teachers continue teaching in their traditional school district, with survey respondents' ratings of the quality of supports as the key predictors, fall 2020

Characteristic	Quality of supports									
	Quality of professional development	Satisfaction with teacher collaboration	Supportive school leadership	Satisfaction with teacher involvement in school governance	Quality of mentor program	Quality and sufficiency of time and material resources	Satisfaction with leadership and advancement opportunities	Quality of new teacher socialization	Satisfaction with salary	Quality of evaluation system
Quality of support	0.91 (0.09)	1.01 (0.09)	0.96 (0.09)	1.03 (0.09)	1.00 (0.12)	1.05 (0.11)	1.10 (0.12)	0.95 (0.09)	1.16 (0.11)	0.96 (0.09)
Teacher characteristic										
Ages 25–34[a]	2.38*** (0.12)	0.38 (0.39)	2.59*** (0.12)	0.30 (0.31)	0.45 (0.46)	2.17*** (0.11)	0.60 (0.63)	0.58 (0.61)	2.74*** (0.16)	0.36 (0.37)
Ages 35–44[a]	3.96*** (0.17)	0.65 (0.67)	4.14*** (0.17)	0.49 (0.50)	0.74 (0.77)	3.68*** (0.16)	0.99 (1.03)	0.83 (0.86)	4.47*** (0.22)	0.55 (0.57)
Ages 45–60[a]	5.28*** (0.22)	0.87 (0.89)	5.41*** (0.21)	0.63 (0.64)	1.04 (1.08)	5.03*** (0.21)	1.18 (1.23)	1.15 (1.20)	5.41*** (0.24)	0.81 (0.84)
Ages 61 and over[a]	1.00*** (0.00)	0.17 (0.18)	1.00*** (0.00)	0.12* (0.12)	0.20 (0.21)	1.00*** (0.00)	0.22 (0.23)	0.24 (0.25)	1.00*** (0.00)	0.17 (0.17)
Not in a racial/ ethnic minority group[b]	1.44*** (0.10)	1.37*** (0.09)	1.38*** (0.09)	1.28*** (0.08)	1.30*** (0.07)	1.34*** (0.09)	1.49*** (0.13)	1.58*** (0.11)	1.15 (0.09)	1.24*** (0.08)
Male[c]	0.98 (0.04)	0.92* (0.03)	0.92** (0.03)	0.91** (0.03)	0.92** (0.03)	0.92* (0.03)	0.99 (0.04)	0.96 (0.04)	0.97 (0.04)	0.91* (0.03)
Traditional school district characteristic										
East Central[d]	1.20 (0.24)	1.29 (0.35)	1.11 (0.29)	1.18 (0.27)	1.03 (0.25)	1.11 (0.21)	1.13 (0.28)	1.49 (0.31)	0.84 (0.20)	1.03 (0.20)
East[d]	1.54 (0.35)	1.35 (0.41)	1.01 (0.24)	1.07 (0.20)	1.12 (0.24)	1.11 (0.24)	1.05 (0.23)	1.27 (0.22)	0.76 (0.18)	0.99 (0.22)
Northeast[d]	0.87 (0.19)	0.97 (0.19)	0.90 (0.18)	0.84 (0.15)	0.97 (0.26)	0.83 (0.20)	0.69 (0.16)	1.21 (0.26)	0.83 (0.22)	0.72 (0.18)
Northwest[d]	0.64 (0.18)	0.72 (0.15)	0.77 (0.16)	0.69* (0.13)	0.65 (0.19)	0.69 (0.20)	0.80 (0.24)	0.70 (0.16)	0.55*** (0.09)	0.79 (0.14)
South Central[d]	1.15 (0.22)	1.02 (0.19)	0.79 (0.21)	1.03 (0.22)	1.09 (0.22)	0.83 (0.20)	1.08 (0.29)	1.07 (0.21)	0.88 (0.20)	0.77 (0.15)

Characteristic	Quality of supports									
	Quality of professional development	Satisfaction with teacher collaboration	Supportive school leadership	Satisfaction with teacher involvement in school governance	Quality of mentor program	Quality and sufficiency of time and material resources	Satisfaction with leadership and advancement opportunities	Quality of new teacher socialization	Satisfaction with salary	Quality of evaluation system
Southeast[d]	1.11 (0.23)	1.01 (0.19)	1.01 (0.18)	0.92 (0.14)	0.93 (0.19)	1.02 (0.20)	0.98 (0.23)	0.69 (0.16)	0.75 (0.20)	0.81 (0.14)
Southwest[d]	0.99 (0.16)	0.83 (0.10)	0.82 (0.10)	0.97 (0.13)	1.00 (0.15)	0.98 (0.17)	0.93 (0.14)	0.89 (0.12)	0.80 (0.11)	0.83 (0.15)
Upper Peninsula[d]	0.98 (0.29)	0.83 (0.16)	0.79 (0.19)	0.66 (0.14)	0.74 (0.17)	0.63 (0.17)	0.72 (0.19)	0.85 (0.31)	1.00*** (0.00)	1.00*** (0.00)
West[d]	1.19 (0.16)	1.12 (0.14)	1.11 (0.13)	1.07 (0.12)	1.38* (0.21)	1.10 (0.15)	1.16 (0.17)	1.21 (0.14)	0.95 (0.12)	1.12 (0.16)
2014/15[e]	0.98 (0.08)	0.94 (0.08)	0.93 (0.07)	0.95 (0.07)	1.06 (0.07)	0.98 (0.08)	0.99 (0.10)	0.99 (0.09)	1.07 (0.09)	0.90 (0.07)
2015/16[e]	0.90 (0.07)	0.96 (0.08)	0.93 (0.07)	0.96 (0.07)	1.04 (0.07)	0.91 (0.08)	0.92 (0.09)	0.97 (0.09)	1.10 (0.10)	0.89 (0.07)
2016/17[e]	0.87 (0.07)	0.86 (0.07)	0.87 (0.07)	0.88 (0.06)	0.87* (0.06)	0.87 (0.07)	0.85 (0.08)	0.84* (0.07)	0.88 (0.08)	0.88 (0.07)
2017/18[e]	0.80** (0.06)	0.84* (0.07)	0.81** (0.06)	0.81** (0.06)	0.88 (0.06)	0.84* (0.07)	0.87 (0.09)	0.83* (0.07)	0.81* (0.07)	0.77** (0.06)
Percentage of English learner students	1.25 (0.71)	0.76 (0.43)	0.68 (0.40)	1.03 (0.58)	0.31 (0.32)	0.23 (0.19)	0.36 (0.45)	4.04 (3.62)	0.38 (0.20)	0.16* (0.14)
Variance										
Public school academy	0.08 (0.02)	0.07 (0.02)	0.08 (0.02)	0.08 (0.02)	0.14 (0.03)	0.09 (0.02)	0.07 (0.03)	0.06 (0.02)	0.06 (0.02)	0.08 (0.02)
Year	0.08 (0.01)	0.10 (0.02)	0.11 (0.02)	0.09 (0.01)	0.08 (0.01)	0.12 (0.02)	0.13 (0.02)	0.12 (0.02)	0.08 (0.02)	0.08 (0.02)
Constant	2.90*** (0.39)	17.96** (18.66)	3.22*** (0.41)	27.56** (28.41)	14.36* (15.10)	3.32*** (0.43)	11.53* (12.16)	9.67* (10.20)	3.52*** (0.48)	23.82** (24.76)

* Significant at *p* < .05; ** significant at *p* < .01; *** significant at *p* < .001.

Note: Teacher retention is based on 100,015 teachers in 538 traditional school districts between 2013/14 and 2018/19. Perceptions of supports were based on survey responses from 436 Michigan teachers from 233 traditional school districts. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of continuing to teach in their traditional school district when they perceive supports as high quality than when they perceive the supports as poor quality. For example, the odds that teachers in traditional school districts with a higher than average score (by one standard deviation) for quality and sufficiency of instructional time and material resources would continue to teach in their school district are 1.05 times the odds of teachers in school districts with a lower than average score (by one standard deviation). Values less than 1 indicate that the reference group had higher odds of teachers staying in their districts.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who taught in the Detroit metro region.

e. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Supports associated with teacher retention for local education agencies in the highest two quartiles for the percentage of economically disadvantaged students

Additional multilevel regression models were developed that focused on associations between the existence of supports and the probability of teachers staying in their positions, but only for local education agencies in the top two quartiles for percentage of economically disadvantaged students (tables B32–B35). For these local education agencies serving higher percentages of economically disadvantaged students, a final set of regression models was developed to examine associations between teachers' perceptions of quality of supports and the probability that teachers would stay in their position, after characteristics of teachers and their local education agencies were adjusted for (table B36).

Table B32. Results from multilevel logistic regression models predicting whether teachers continue teaching in their local education agency, with survey respondents' ratings of the presence of supports for new teachers as the key predictors among local education agencies serving large numbers of economically disadvantaged students, fall 2020

Characteristic	Supports for new teachers								
	Reduced teaching schedule or additional preparation time periods or release time	Common planning time with teachers in your subject area and/or grade level	Seminars, classes, or professional development sessions for beginning teachers	Extra classroom assistance	Regular supportive communication with your principal, other administrators, or department chair	An orientation to the school	A mentoring program for new teachers	Instructional rounds with peers	Professional learning community teams with added supports for new teachers
Presence of support	1.11 (0.10)	0.93 (0.07)	0.88 (0.07)	0.96 (0.07)	1.01 (0.09)	1.09 (0.09)	1.19 (0.11)	0.92 (0.07)	0.94 (0.07)
Teacher characteristic									
Ages 25–34[a]	0.33 (0.24)	0.33 (0.24)	0.33 (0.24)	0.33 (0.24)	0.33 (0.24)	0.33 (0.24)	0.33 (0.24)	0.33 (0.24)	0.33 (0.24)
Ages 35–44[a]	0.47 (0.35)	0.47 (0.35)	0.47 (0.35)	0.47 (0.35)	0.47 (0.35)	0.47 (0.35)	0.47 (0.35)	0.47 (0.35)	0.47 (0.35)
Ages 45–60[a]	0.65 (0.48)	0.65 (0.48)	0.65 (0.48)	0.65 (0.48)	0.65 (0.48)	0.65 (0.48)	0.65 (0.48)	0.65 (0.48)	0.65 (0.48)
Ages 61 and over[a]	0.19* (0.14)	0.19* (0.14)	0.19* (0.14)	0.19* (0.14)	0.19* (0.14)	0.19* (0.14)	0.19* (0.14)	0.19* (0.14)	0.19* (0.14)
Not in a racial/ethnic minority group[b]	1.08* (0.03)	1.08* (0.03)	1.08* (0.03)	1.08* (0.03)	1.08* (0.03)	1.08* (0.03)	1.08* (0.03)	1.08* (0.03)	1.08* (0.03)
Male[c]	0.89*** (0.02)	0.89*** (0.02)	0.89*** (0.02)	0.89*** (0.02)	0.89*** (0.02)	0.89*** (0.02)	0.89*** (0.02)	0.89*** (0.02)	0.89*** (0.02)
Local education agency characteristic									
Traditional school district[d]	2.56*** (0.21)	2.50*** (0.20)	2.55*** (0.20)	2.51*** (0.20)	2.53*** (0.20)	2.55*** (0.21)	2.55*** (0.20)	2.54*** (0.20)	2.50*** (0.20)
East Central[e]	0.98 (0.22)	0.97 (0.22)	1.00 (0.22)	0.99 (0.23)	0.99 (0.23)	1.04 (0.24)	1.07 (0.25)	0.97 (0.22)	0.97 (0.22)
East[e]	1.13 (0.17)	1.13 (0.17)	1.15 (0.17)	1.17 (0.19)	1.13 (0.17)	1.17 (0.18)	1.11 (0.17)	1.13 (0.17)	1.16 (0.18)

Characteristic	Supports for new teachers								
	Reduced teaching schedule or additional preparation time periods or release time	Common planning time with teachers in your subject area and/or grade level	Seminars, classes, or professional development sessions for beginning teachers	Extra classroom assistance	Regular supportive communication with your principal, other administrators, or department chair	An orientation to the school	A mentoring program for new teachers	Instructional rounds with peers	Professional learning community teams with added supports for new teachers
Northeast[e]	0.93 (0.18)	0.93 (0.18)	0.94 (0.18)	0.96 (0.19)	0.95 (0.18)	0.97 (0.19)	0.93 (0.18)	0.93 (0.18)	0.94 (0.18)
Northwest[e]	0.85 (0.15)	0.85 (0.15)	0.85 (0.15)	0.87 (0.16)	0.85 (0.16)	0.87 (0.16)	0.85 (0.15)	0.85 (0.15)	0.86 (0.16)
South Central[e]	0.78 (0.17)	0.80 (0.17)	0.78 (0.16)	0.80 (0.17)	0.80 (0.17)	0.80 (0.17)	0.79 (0.17)	0.79 (0.17)	0.80 (0.17)
Southeast[e]	0.89 (0.14)	0.89 (0.15)	0.90 (0.14)	0.92 (0.15)	0.91 (0.15)	0.93 (0.15)	0.90 (0.15)	0.91 (0.15)	0.91 (0.15)
Southwest[e]	0.95 (0.11)	0.95 (0.11)	0.97 (0.11)	0.96 (0.11)	0.95 (0.11)	0.92 (0.11)	0.92 (0.11)	0.96 (0.11)	0.97 (0.11)
Upper Peninsula[e]	0.98 (0.21)	0.96 (0.21)	0.94 (0.20)	0.97 (0.21)	0.97 (0.21)	0.99 (0.22)	0.96 (0.21)	0.81 (0.19)	0.82 (0.20)
West[e]	1.01 (0.11)	1.02 (0.11)	1.02 (0.11)	1.02 (0.11)	1.02 (0.11)	1.01 (0.11)	1.00 (0.11)	1.03 (0.11)	1.03 (0.12)
2014/15[f]	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)
2015/16[f]	0.95 (0.05)	0.95 (0.05)	0.95 (0.05)	0.95 (0.05)	0.95 (0.05)	0.95 (0.05)	0.95 (0.05)	0.95 (0.05)	0.95 (0.05)
2016/17[f]	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)
2017/18[f]	0.90* (0.05)	0.90* (0.05)	0.90* (0.05)	0.90 (0.05)	0.90* (0.05)	0.90* (0.05)	0.90* (0.05)	0.90* (0.05)	0.90* (0.05)
Percent of students with limited English proficiency	1.43 (0.37)	1.44 (0.37)	1.46 (0.38)	1.46 (0.38)	1.45 (0.38)	1.49 (0.39)	1.42 (0.37)	1.45 (0.37)	1.42 (0.37)

Characteristic	Supports for new teachers								
	Reduced teaching schedule or additional preparation time periods or release time	Common planning time with teachers in your subject area and/or grade level	Seminars, classes, or professional development sessions for beginning teachers	Extra classroom assistance	Regular supportive communication with your principal, other administrators, or department chair	An orientation to the school	A mentoring program for new teachers	Instructional rounds with peers	Professional learning community teams with added supports for new teachers
Variance									
Local education agency	0.13 (0.02)	0.13 (0.02)	0.12 (0.02)	0.13 (0.02)	0.13 (0.02)	0.13 (0.02)	0.13 (0.02)	0.13 (0.02)	0.13 (0.02)
Year	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)
Constant	8.26** (6.16)	8.92** (6.67)	9.21** (6.88)	8.56** (6.38)	8.37** (6.26)	7.96** (5.95)	7.43** (5.56)	8.72** (6.51)	8.77** (6.55)

* Significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$.

Note: Teacher retention is based on 44,509 teachers in 360 local education agencies between 2013/14 and 2018/19. Types of supports available to teachers was based on survey responses from 238 Michigan teachers from 136 local education agencies. Local education agencies are defined as public school academies (charter schools) or traditional school districts. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of continuing to teach in their local education agency or whether certain types of agencies have higher odds of retaining their teachers. For example, the odds that teachers employed by a local education agency that provides an orientation to new teachers continue to teach in their local education agency are 1.09 times the odds of teachers employed by local education agencies that do not offer this support. Values less than 1 indicate that the reference group had higher odds of continuing to teach or retaining teachers in their agencies.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who were in a public school academy.

e. Reference group is teachers who taught in the Detroit metro region.

f. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Table B33. Results from multilevel logistic regression models predicting whether teachers continue teaching in their local education agency, with survey respondents' indication of the presence of compensation and benefits-related supports as the key predictors among agencies serving large percentages of economically disadvantaged students, fall 2020

Characteristic	Compensation and benefits-related supports					
	Annual salary increases	Performance-based compensation such as bonuses or salary increases	Financial incentives for teachers in high-need subjects or at high-need schools	Teacher housing or mortgage assistance programs	Childcare benefits such as subsidies, on-site childcare, or childcare assistance	Tuition reimbursement or financial assistance for additional endorsements or professional learning
Presence of support	1.21*	0.99	0.90	0.60*	1.09	1.00
	(0.11)	(0.09)	(0.11)	(0.14)	(0.18)	(0.08)
Teacher characteristic						
Ages 25–34[a]	0.33	0.33	0.33	0.33	0.33	0.33
	(0.24)	(0.24)	(0.24)	(0.24)	(0.24)	(0.24)
Ages 35–44[a]	0.47	0.47	0.47	0.47	0.47	0.47
	(0.35)	(0.35)	(0.35)	(0.35)	(0.35)	(0.35)
Ages 45–60[a]	0.65	0.65	0.65	0.65	0.65	0.65
	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)
Ages 61 and over[a]	0.19*	0.19*	0.19*	0.19*	0.19*	0.19*
	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)
Not in a racial/ethnic minority group[b]	1.08*	1.08*	1.08*	1.07*	1.08*	1.08*
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Male[c]	0.89***	0.89***	0.89***	0.89***	0.89***	0.89***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Local education agency characteristic						
Traditional school district[d]	2.47***	2.52***	2.52***	2.58***	2.54***	2.53***
	(0.20)	(0.21)	(0.20)	(0.20)	(0.20)	(0.22)
East Central[e]	1.03	0.99	0.98	0.98	0.99	0.99
	(0.23)	(0.22)	(0.22)	(0.22)	(0.22)	(0.22)
East[e]	1.15	1.13	1.12	1.12	1.13	1.14
	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)
Northeast[e]	0.97	0.94	0.93	0.93	0.93	0.94
	(0.19)	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)

| Characteristic | Compensation and benefits-related supports | | | | | |
	Annual salary increases	Performance-based compensation such as bonuses or salary increases	Financial incentives for teachers in high-need subjects or at high-need schools	Teacher housing or mortgage assistance programs	Childcare benefits such as subsidies, on-site childcare, or childcare assistance	Tuition reimbursement or financial assistance for additional endorsements or professional learning
Northwest[e]	0.84 (0.15)	0.86 (0.16)	0.86 (0.16)	0.85 (0.15)	0.86 (0.16)	0.86 (0.16)
South Central[e]	0.79 (0.17)	0.80 (0.17)	0.81 (0.17)	0.79 (0.16)	0.77 (0.17)	0.79 (0.17)
Southeast[e]	0.94 (0.15)	0.90 (0.15)	0.90 (0.15)	0.89 (0.14)	0.89 (0.15)	0.91 (0.15)
Southwest[e]	0.94 (0.11)	0.96 (0.12)	0.96 (0.11)	0.97 (0.11)	0.94 (0.11)	0.95 (0.11)
Upper Peninsula[e]	1.01 (0.22)	0.97 (0.21)	0.96 (0.21)	0.96 (0.20)	0.97 (0.21)	0.97 (0.21)
West[e]	1.02 (0.11)	1.02 (0.11)	1.01 (0.11)	1.03 (0.11)	1.01 (0.11)	1.02 (0.12)
2014/15[f]	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)
2015/16[f]	0.95 (0.05)	0.95 (0.05)	0.95 (0.05)	0.95 (0.05)	0.95 (0.05)	0.95 (0.05)
2016/17[f]	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)
2017/18[f]	0.90* (0.05)	0.90* (0.05)	0.90* (0.05)	0.90* (0.05)	0.90* (0.05)	0.90* (0.05)
Percent of students with limited English proficiency	1.40 (0.36)	1.45 (0.38)	1.47 (0.38)	1.49 (0.38)	1.46 (0.38)	1.45 (0.38)

Characteristic	Compensation and benefits-related supports					
	Annual salary increases	Performance-based compensation such as bonuses or salary increases	Financial incentives for teachers in high-need subjects or at high-need schools	Teacher housing or mortgage assistance programs	Childcare benefits such as subsidies, on-site childcare, or childcare assistance	Tuition reimbursement or financial assistance for additional endorsements or professional learning
Variance						
Local education agency	0.12 (0.02)	0.13 (0.02)	0.13 (0.02)	0.12 (0.02)	0.13 (0.02)	0.13 (0.02)
Year	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)
Constant	7.41** (5.54)	8.50** (6.34)	8.57** (6.39)	8.45** (6.29)	8.44** (6.29)	8.45** (6.31)

* Significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$.

Note: Teacher retention is based on 44,509 teachers in 360 local education agencies between 2013/14 and 2018/19. Types of supports available to teachers was based on survey responses from 238 Michigan teachers from 136 local education agencies. Local education agencies are defined as public school academies (charter schools) or traditional school districts. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of continuing to teach in their local education agency or whether certain types of agencies have higher odds of retaining their teachers. For example, the odds that teachers employed by local education agencies that provide annual salary increases are 1.21 times the odds of teachers employed by local education agencies that do not offer this support. Values less than 1 indicate that the reference group had higher odds of continuing to teach in their agency or retaining teachers in their agencies.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who were in a public school academy.

e. Reference group is teachers who taught in the Detroit metro region.

f. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Table B34. Results from multilevel logistic regression models predicting whether teachers continue teaching in their local education agency, with survey respondents' indication of the presence of evaluation-related supports as the key predictors among agencies serving large percentages of economically disadvantaged students, fall 2020

Characteristic	Evaluation-related supports							
	Evaluation includes opportunities for teachers to set goals	Evaluation includes opportunities to collaborate with your supervisor on goal setting	Evaluation includes multiple data sources	Evaluation includes student growth data	Evaluation includes formal observations	Evaluation includes Informal classroom walk-throughs	Evaluation based on performance standards or definitions of high-quality teacher practice	Evaluation includes opportunities to receive feedback
Presence of support	1.55* (0.33)	1.11 (0.13)	0.93 (0.10)	0.89 (0.23)	0.90 (0.20)	0.92 (0.14)	0.91 (0.13)	0.83 (0.14)
Teacher characteristic								
Ages 25–34[a]	0.33 (0.24)	0.33 (0.24)	0.33 (0.24)	0.33 (0.24)	0.33 (0.24)	0.33 (0.24)	0.33 (0.24)	0.33 (0.24)
Ages 35–44[a]	0.47 (0.35)	0.47 (0.35)	0.47 (0.35)	0.47 (0.35)	0.47 (0.35)	0.47 (0.35)	0.47 (0.35)	0.47 (0.35)
Ages 45–60[a]	0.65 (0.48)	0.65 (0.48)	0.65 (0.48)	0.65 (0.48)	0.65 (0.48)	0.65 (0.48)	0.65 (0.48)	0.65 (0.48)
Ages 61 and over[a]	0.19* (0.14)	0.19* (0.14)	0.19* (0.14)	0.19* (0.14)	0.19* (0.14)	0.19* (0.14)	0.19* (0.14)	0.19* (0.14)
Not in a racial/ethnic minority group[b]	1.07* (0.03)	1.08* (0.03)	1.08* (0.03)	1.08* (0.03)	1.08* (0.03)	1.08* (0.03)	1.08* (0.03)	1.08* (0.03)
Male[c]	0.89*** (0.02)	0.89*** (0.02)	0.89*** (0.02)	0.89*** (0.02)	0.89*** (0.02)	0.89*** (0.02)	0.89*** (0.02)	0.89*** (0.02)
Local education agency characteristic								
Type of local education agency[d]	2.45*** (0.20)	2.53*** (0.20)	2.53*** (0.20)	2.52*** (0.20)	2.53*** (0.20)	2.51*** (0.20)	2.53*** (0.20)	2.52*** (0.20)
East Central[e]	0.97 (0.22)	1.03 (0.24)	0.98 (0.22)	0.99 (0.22)	0.97 (0.22)	0.99 (0.22)	0.99 (0.22)	0.99 (0.22)
East[e]	1.12 (0.17)	1.14 (0.17)	1.14 (0.17)	1.14 (0.17)	1.14 (0.17)	1.11 (0.17)	1.14 (0.17)	1.12 (0.17)
Northeast[e]	0.94 (0.18)	0.95 (0.18)	0.96 (0.18)	0.92 (0.18)	0.95 (0.18)	0.95 (0.18)	0.92 (0.18)	0.91 (0.18)

Characteristic	Evaluation-related supports							
	Evaluation includes opportunities for teachers to set goals	Evaluation includes opportunities to collaborate with your supervisor on goal setting	Evaluation includes multiple data sources	Evaluation includes student growth data	Evaluation includes formal observations	Evaluation includes Informal classroom walk-throughs	Evaluation based on performance standards or definitions of high-quality teacher practice	Evaluation includes opportunities to receive feedback
Northwest[e]	0.86 (0.15)	0.86 (0.16)	0.85 (0.15)	0.85 (0.16)	0.86 (0.16)	0.86 (0.16)	0.86 (0.16)	0.86 (0.16)
South Central[e]	0.86 (0.18)	0.80 (0.17)	0.79 (0.17)	0.79 (0.17)	0.80 (0.17)	0.79 (0.17)	0.78 (0.17)	0.77 (0.16)
Southeast[e]	0.99 (0.17)	0.92 (0.15)	0.89 (0.15)	0.89 (0.15)	0.91 (0.15)	0.89 (0.15)	0.88 (0.15)	0.87 (0.14)
Southwest[e]	0.95 (0.11)	0.95 (0.11)	0.96 (0.11)	0.95 (0.11)	0.96 (0.11)	0.95 (0.11)	0.95 (0.11)	0.96 (0.11)
Upper Peninsula[e]	0.97 (0.21)	1.00 (0.22)	0.96 (0.21)	0.97 (0.21)	0.97 (0.21)	0.95 (0.21)	0.96 (0.21)	0.93 (0.20)
West[e]	1.01 (0.11)	1.01 (0.11)	1.02 (0.11)	1.02 (0.11)	1.02 (0.11)	1.00 (0.11)	1.02 (0.11)	1.02 (0.11)
2014/15[f]	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)
2015/16[f]	0.95 (0.05)	0.95 (0.05)	0.95 (0.05)	0.95 (0.05)	0.95 (0.05)	0.95 (0.05)	0.95 (0.05)	0.95 (0.05)
2016/17[f]	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)
2017/18[f]	0.90* (0.05)	0.90* (0.05)	0.90* (0.05)	0.90* (0.05)	0.90* (0.05)	0.90* (0.05)	0.90* (0.05)	0.90* (0.05)
Percentage of English learner students	1.50 (0.39)	1.46 (0.38)	1.46 (0.38)	1.46 (0.38)	1.45 (0.38)	1.44 (0.37)	1.47 (0.39)	1.41 (0.37)

	Evaluation-related supports							
Characteristic	Evaluation includes opportunities for teachers to set goals	Evaluation includes opportunities to collaborate with your supervisor on goal setting	Evaluation includes multiple data sources	Evaluation includes student growth data	Evaluation includes formal observations	Evaluation includes Informal classroom walk-throughs	Evaluation based on performance standards or definitions of high-quality teacher practice	Evaluation includes opportunities to receive feedback
Variance								
Local education agency	0.12 (0.02)	0.13 (0.02)	0.13 (0.02)	0.13 (0.02)	0.13 (0.02)	0.13 (0.02)	0.13 (0.02)	0.13 (0.02)
Year	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)	0.08 (0.01)
Constant	5.60* (4.32)	7.72** (5.81)	9.03** (6.78)	9.46** (7.45)	9.32** (7.22)	9.28** (7.07)	9.25** (7.01)	10.16** (7.76)

* Significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$.

Note: Teacher retention is based on 44,509 teachers in 360 local education agencies between 2013/14 and 2018/19. Types of supports available to teachers was based on survey responses from 238 Michigan teachers from 136 local education agencies. Local education agencies are defined as public school academies (charter schools) or traditional school districts. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of continuing to teach in their local education agency or whether certain types of agencies have higher odds of retaining their teachers. For example, the odds that teachers in local education agencies that provide teachers opportunities to set goals in their evaluations continue to teach in their agencies are 1.55 times the odds of teachers in agencies that do not provide this support. Values less than 1 indicate that the reference group had higher odds of continuing to teach in the agency or retaining teachers in their agencies.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who were in a public school academy.

e. Reference group is teachers who taught in the Detroit metro region.

f. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Table B35. Results from multilevel logistic regression models predicting whether teachers continue teaching in their local education agency, with survey respondents' indication of the presence of professional development–related supports as the key predictors among agencies serving large numbers of economically disadvantaged students, fall 2020

Characteristic	Professional development–related supports						
	Time for observational visits to other classrooms in my school	Observational visits to other schools or local education agencies	Local education agency organized workshops, conferences, or training sessions	Online courses, resources, or platform for knowledge sharing	Reimbursement for conferences, workshops, or courses	Stipends for professional development activities that occur outside regular work hours	Release time from teaching to attend professional development
Presence of support	1.06 (0.09)	1.13 (0.10)	1.23 (0.15)	1.12 (0.10)	1.02 (0.08)	0.93 (0.08)	1.05 (0.09)
Teacher characteristic							
Ages 25–34[a]	0.36 (0.27)	0.36 (0.27)	0.36 (0.27)	0.36 (0.27)	0.36 (0.27)	0.36 (0.27)	0.36 (0.27)
Ages 35–44[a]	0.52 (0.39)	0.52 (0.39)	0.52 (0.39)	0.52 (0.39)	0.52 (0.39)	0.52 (0.39)	0.52 (0.39)
Ages 45–60[a]	0.73 (0.54)	0.73 (0.54)	0.73 (0.54)	0.73 (0.54)	0.73 (0.54)	0.73 (0.54)	0.73 (0.54)
Ages 61 and over[a]	0.21* (0.15)	0.21* (0.15)	0.21* (0.15)	0.21* (0.15)	0.21* (0.15)	0.21* (0.15)	0.21* (0.15)
Not in a racial/ethnic minority group[b]	1.07* (0.03)	1.07* (0.03)	1.07* (0.03)	1.07* (0.03)	1.07* (0.03)	1.07* (0.03)	1.07* (0.03)
Male[c]	0.88*** (0.02)	0.88*** (0.02)	0.88*** (0.02)	0.88*** (0.02)	0.88*** (0.02)	0.88*** (0.02)	0.88*** (0.02)
Local education agency characteristic							
Traditional school district[d]	2.57*** (0.22)	2.51*** (0.21)	2.59*** (0.22)	2.62*** (0.22)	2.56*** (0.22)	2.59*** (0.22)	2.53*** (0.22)
East Central[e]	0.93 (0.24)	0.91 (0.23)	0.90 (0.23)	0.92 (0.24)	0.92 (0.24)	0.91 (0.23)	0.93 (0.24)
East[e]	1.10 (0.18)	1.12 (0.18)	1.06 (0.17)	1.08 (0.17)	1.07 (0.17)	1.09 (0.17)	1.06 (0.17)
Northeast[e]	0.90 (0.19)	0.91 (0.19)	0.88 (0.18)	0.90 (0.19)	0.89 (0.19)	0.92 (0.19)	0.90 (0.19)

Characteristic	Professional development–related supports						
	Time for observational visits to other classrooms in my school	Observational visits to other schools or local education agencies	Local education agency organized workshops, conferences, or training sessions	Online courses, resources, or platform for knowledge sharing	Reimbursement for conferences, workshops, or courses	Stipends for professional development activities that occur outside regular work hours	Release time from teaching to attend professional development
Northwest[e]	0.81 (0.15)	0.77 (0.14)	0.83 (0.15)	0.83 (0.15)	0.82 (0.15)	0.83 (0.15)	0.82 (0.15)
South Central[e]	0.77 (0.17)	0.75 (0.16)	0.79 (0.17)	0.74 (0.16)	0.77 (0.17)	0.77 (0.16)	0.77 (0.17)
Southeast[e]	0.85 (0.15)	0.85 (0.14)	0.84 (0.14)	0.85 (0.15)	0.84 (0.15)	0.85 (0.15)	0.83 (0.14)
Southwest[e]	0.91 (0.11)	0.91 (0.10)	0.90 (0.11)	0.89 (0.10)	0.89 (0.11)	0.91 (0.11)	0.89 (0.10)
Upper Peninsula[e]	1.13 (0.27)	1.12 (0.27)	1.16 (0.27)	1.10 (0.26)	1.12 (0.27)	1.14 (0.27)	1.12 (0.27)
West[e]	0.98 (0.11)	0.97 (0.11)	1.00 (0.11)	0.98 (0.11)	0.98 (0.11)	0.99 (0.11)	0.98 (0.11)
2014/15[f]	0.89 (0.05)	0.89 (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)	0.89* (0.05)
2015/16[f]	0.96 (0.06)	0.96 (0.06)	0.95 (0.06)	0.95 (0.06)	0.95 (0.06)	0.95 (0.06)	0.95 (0.06)
2016/17[f]	0.93 (0.05)	0.93 (0.05)	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)	0.92 (0.05)
2017/18[f]	0.89* (0.05)	0.89* (0.05)	0.88* (0.05)	0.88* (0.05)	0.88* (0.05)	0.88* (0.05)	0.88* (0.05)
Percentage of English learner students	1.31 (0.36)	1.36 (0.37)	1.46 (0.40)	1.36 (0.37)	1.36 (0.37)	1.39 (0.38)	1.36 (0.37)
Variance							
Local education agency	0.13 (0.02)	0.12 (0.02)	0.12 (0.02)	0.13 (0.02)	0.13 (0.02)	0.13 (0.02)	0.13 (0.02)
Year	0.09 (0.01)	0.09 (0.01)	0.09 (0.01)	0.09 (0.01)	0.09 (0.01)	0.09 (0.01)	0.09 (0.01)
Constant	7.61** (5.72)	7.67** (5.75)	6.50* (4.94)	7.24** (5.45)	7.89** (5.93)	8.07** (6.05)	7.74** (5.82)

* Significant at *p* < .05; ** significant at *p* < .01; *** significant at *p* < .001.

Note: Teacher retention is based on 44,509 teachers in 360 local education agencies between 2013/14 and 2018/19. Types of supports available to teachers was based on survey responses from 238 Michigan teachers from 136 local education agencies. Local education agencies are defined as public school academies (charter schools) or traditional school districts. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of continuing to teach in their local education agency or whether certain types of agencies have higher odds of retaining their teachers. For example, the odds that teachers employed by local education agencies that give teachers the opportunity to observe the instruction of their colleagues in other schools or districts are 1.13 times the odds of teachers teaching in local education agencies that do not offer this support. Values less than 1 indicate that the reference group had higher odds of continuing to teach or retaining teachers in their agencies.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who were in a public school academy.

e. Reference group is teachers who taught in the Detroit metro region.

f. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Table B36. Results from multilevel logistic regression models predicting whether teachers continue teaching in their local education agency, with survey respondents' ratings of quality of supports as the key predictors among agencies serving large numbers of economically disadvantaged students, fall 2020

Characteristic	Quality of supports									
	Quality of professional development	Satisfaction with Teacher collaboration	Supportive school leadership	Satisfaction with teacher involvement in school governance	Quality of mentor program	Quality and sufficiency of time and material resources	Satisfaction with leadership and advancement opportunities	Quality of new teacher socialization	Satisfaction with salary	Quality of evaluation system
Quality of support	0.92 (0.13)	1.01 (0.12)	1.02 (0.10)	0.95 (0.10)	1.06 (0.14)	1.23 (0.18)	1.10 (0.18)	0.89 (0.09)	1.07 (0.17)	1.15 (0.17)
Teacher characteristic										
Ages 25–34[a]	0.56 (0.60)	0.63 (0.67)	0.47 (0.50)	0.53 (0.56)	0.58 (0.62)	0.40 (0.42)	1.31 (1.05)	2.01*** (0.15)	1.57*** (0.14)	0.82 (0.64)
Ages 35–44[a]	0.83 (0.89)	0.92 (0.97)	0.65 (0.70)	0.72 (0.77)	0.78 (0.84)	0.58 (0.61)	1.88 (1.51)	2.63*** (0.17)	2.10*** (0.17)	1.14 (0.89)
Ages 45–60[a]	1.14 (1.22)	1.21 (1.29)	0.86 (0.91)	0.98 (1.05)	1.15 (1.24)	0.80 (0.85)	2.26 (1.81)	3.46*** (0.23)	2.97*** (0.23)	1.75 (1.37)
Ages 61 and over[a]	0.29 (0.31)	0.38 (0.40)	0.23 (0.25)	0.28 (0.30)	0.33 (0.35)	0.23 (0.24)	0.76 (0.61)	1.00*** (0.00)	1.00*** (0.00)	0.48 (0.38)
Not in a racial/ ethnic minority group[b]	1.34*** (0.11)	1.19* (0.08)	1.13 (0.08)	1.10 (0.07)	1.17** (0.06)	1.28*** (0.09)	1.20 (0.12)	1.35*** (0.11)	1.00 (0.09)	1.20** (0.08)
Male[c]	0.95 (0.05)	0.89* (0.04)	0.85** (0.04)	0.89* (0.04)	0.90** (0.04)	0.86** (0.04)	0.88* (0.05)	0.92 (0.05)	0.78*** (0.05)	0.83*** (0.04)
Local education agency characteristic										
Traditional school district[d]	2.63*** (0.40)	2.40*** (0.32)	2.94*** (0.34)	2.55*** (0.33)	2.36*** (0.31)	2.60*** (0.41)	2.60*** (0.44)	2.19*** (0.26)	2.62*** (0.41)	2.15*** (0.37)
East Central[d]	1.00*** (0.00)	1.54 (0.48)	1.43 (0.55)	1.17 (0.48)	1.05 (0.27)	1.00*** (0.00)	1.26 (0.36)	1.47 (0.38)	1.00 (0.42)	0.94 (0.41)
East[d]	1.78 (0.96)	1.49 (0.40)	1.10 (0.24)	1.66 (0.87)	1.19 (0.27)	1.01 (0.36)	0.91 (0.24)	1.41 (0.26)	0.81 (0.22)	1.26 (0.39)
Northeast[d]	1.21 (0.29)	1.16 (0.28)	1.13 (0.23)	1.01 (0.21)	1.13 (0.30)	0.97 (0.25)	0.90 (0.27)	1.12 (0.26)	1.00*** (0.00)	0.91 (0.25)

Characteristic	Quality of supports									
	Quality of professional development	Satisfaction with Teacher collaboration	Supportive school leadership	Satisfaction with teacher involvement in school governance	Quality of mentor program	Quality and sufficiency of time and material resources	Satisfaction with leadership and advancement opportunities	Quality of new teacher socialization	Satisfaction with salary	Quality of evaluation system
Northwest[d]	0.92 (0.27)	0.89 (0.22)	0.86 (0.23)	0.75 (0.19)	0.60 (0.22)	0.50 (0.23)	0.56 (0.28)	0.91 (0.19)	0.60* (0.14)	1.05 (0.25)
South Central[d]	1.00*** (0.00)	0.97 (0.35)	0.84 (0.20)	0.78 (0.21)	0.80 (0.27)	0.78 (0.34)	0.70 (0.30)	0.83 (0.18)	0.81 (0.28)	0.89 (0.25)
Southeast[d]	1.27 (0.38)	1.31 (0.36)	1.38 (0.34)	1.08 (0.25)	0.89 (0.20)	1.05 (0.26)	1.25 (0.38)	0.87 (0.18)	0.18*** (0.09)	1.04 (0.22)
Southwest[d]	1.14 (0.29)	0.97 (0.15)	0.98 (0.13)	1.17 (0.20)	1.15 (0.25)	1.20 (0.27)	0.99 (0.18)	0.80 (0.12)	0.71 (0.14)	0.88 (0.20)
Upper Peninsula[d]	1.36 (0.43)	1.21 (0.30)	1.13 (0.25)	0.95 (0.22)	0.69 (0.24)	0.75 (0.23)	1.13 (0.36)	1.06 (0.35)	1.00*** (0.00)	1.00*** (0.00)
West[d]	0.99 (0.18)	1.21 (0.19)	1.03 (0.14)	1.14 (0.18)	1.21 (0.23)	1.00 (0.20)	1.03 (0.22)	1.20 (0.17)	0.92 (0.15)	1.19 (0.23)
2014/15[e]	0.95 (0.09)	0.93 (0.09)	0.92 (0.08)	0.84* (0.07)	0.97 (0.08)	0.94 (0.09)	0.81* (0.09)	0.98 (0.11)	0.95 (0.11)	0.86 (0.09)
2015/16[e]	0.96 (0.10)	1.04 (0.10)	1.04 (0.09)	1.00 (0.09)	1.13 (0.09)	1.07 (0.11)	0.97 (0.11)	1.06 (0.12)	1.09 (0.13)	0.93 (0.10)
2016/17[e]	0.91 (0.09)	0.93 (0.09)	0.91 (0.08)	0.95 (0.09)	1.00 (0.08)	0.93 (0.09)	0.90 (0.10)	0.86 (0.09)	0.91 (0.10)	0.93 (0.10)
2017/18[e]	0.90 (0.09)	1.02 (0.10)	0.93 (0.08)	0.89 (0.08)	1.09 (0.09)	1.06 (0.11)	1.02 (0.11)	0.98 (0.11)	0.94 (0.11)	0.86 (0.09)
Percentage of English learner students	2.56* (1.11)	2.30 (1.06)	1.90 (0.72)	2.02 (0.92)	0.59 (0.26)	0.42 (0.19)	1.08 (0.73)	10.72*** (7.29)	1.24 (0.55)	1.03 (0.57)
Variance										
Local education agency	0.09 (0.03)	0.08 (0.03)	0.06 (0.02)	0.09 (0.03)	0.15 (0.04)	0.13 (0.04)	0.09 (0.04)	0.03 (0.02)	0.07 (0.03)	0.08 (0.03)
Year	0.06 (0.02)	0.08 (0.02)	0.07 (0.02)	0.08 (0.02)	0.08 (0.02)	0.10 (0.02)	0.07 (0.02)	0.11 (0.02)	0.08 (0.03)	0.07 (0.02)
Constant	3.46 (3.76)	3.46 (3.72)	4.71 (5.09)	5.21 (5.60)	3.88 (4.23)	5.12 (5.49)	1.83 (1.52)	1.16 (0.20)	2.00*** (0.34)	2.92 (2.37)

* Significant at *p* < .05; ** significant at *p* < .01; *** significant at *p* < .001.

Note: Teacher retention is based on 44,509 teachers in 360 local education agencies between 2013/14 and 2018/19. Perceptions of supports were based on survey responses from 238 Michigan teachers from 136 local education agencies. Local education agencies are defined as public school academies (charter schools) or traditional school districts. Numbers are odds ratios generated from multilevel logistic regression models. Numbers in parentheses are the standard errors of the estimates. Estimates indicate whether certain groups of teachers have higher odds of continuing to teach in their local education agency or whether certain types of agencies have higher odds of retaining their teachers. For example, the odds that teachers in local education agencies that have higher than average scores (by one standard deviation) for quality and sufficiency of instructional time and material resources would continue teaching are 1.23 times the odds of teachers in agencies with lower than average scores (by one standard deviation). Values less than 1 indicate that the reference group had higher odds of staying or retain teachers in their agencies.

a. Reference group is teachers who were age 24 or younger.

b. Reference group is teachers who were in a racial/ethnic minority group.

c. Reference group is teachers who were female.

d. Reference group is teachers who were in public school academy.

e. Reference group is teachers who taught in Detroit metro region.

f. Reference group is school year 2013/14.

Source: Authors' analysis of school staffing data from the Michigan Department of Education and the Michigan Department of Education's survey of teacher supports within local education agencies administered in September and October 2020.

Appendix C. The Michigan Department of Education's Teacher Survey on Teacher Supports

I. TEACHING STATUS

Q1a. Are you currently teaching in any grade between kindergarten and grade 12 (or comparable ungraded levels) in a public school or district in the state of Michigan?

> Yes → **Go to Q1b**
> No → **Go to end**

Q1b. Which grade levels do you teach?

Please select the comparable grade levels if the grade level(s) you teach is ungraded. Select all the apply.

Kindergarten	Fifth	Ninth
First	Sixth	Tenth
Second	Seventh	Eleventh
Third	Eighth	Twelfth
Fourth		

Q1c. As of the end of the last school year (2019/20), **how many years have you . . .**

> 01 Worked at your current school?
> 02 Worked at your current district? → **If answer is other than 3 to 5 years, go to end**
> 03 Worked as a teacher overall, including your current district and other districts/schools?

[Drop down menus with response categories: None, Less than 1 year, 1 to 2 years, 3 to 5 years, 6 to 10 years, 11 to 15 years, 7 More than 15 years]

Q1d. Are you currently teaching in a public school academy in Michigan?

> Yes → questions below will replace the term "district" with "public school academy"
> No

Q1e. How are you and other teachers in your school presently providing instruction to students since September 2020?

Select all that apply.

> 01 Providing face-to-face instruction as before COVID-19
> 02 Face-to-face with precautions (for example, smaller classes, use of masks, grouped in cohorts, students staying in one classroom)
> 03 A mix of face-to-face instruction (with precautions) and online instruction
> 04 Online instruction only
> 05 Other _____

II. INDUCTION AND MENTORING

These first set of questions ask about your experiences during your first year at your current district. For this next set of questions, please think back to your first year teaching in the district.

Q2a. What year did you first start as a full- or part-time teacher at your current district?

2019/20 or later
2018/19
2017/18
2016/17
2015/16
Before school year 2015/16

Q2b. During your FIRST year of teaching at your current district, were the following supports available?

	No	Yes	Don't know
Reduced teaching schedule/additional preparation time periods or release time			
Common planning time with teachers in your subject area and/or grade level			
Seminars, classes, or professional development sessions for beginning teachers			
Extra classroom assistance (for example, teacher aides)			
Regular supportive communication with your principal, other administrators, or department chair			
An orientation to the school			
A mentoring program for teachers new to the district			
Instructional rounds with peers			
Professional learning community teams with added supports for new teachers			
Other _____			

Q2c. Thinking about your FIRST year of teaching at your current district, please indicate the extent to which you disagree or agree with each of the following at your district:

	Strongly disagree	Disagree	Agree	Strongly agree
I had opportunities to meet regularly with other beginning teachers.				
I received support for beginning teachers that accommodated my needs.				
[If yes to orientation item in Q2b] My orientation to the school was comprehensive.				

Q2d. Were you assigned a mentor when you first started teaching in your current district?

A mentor is sometimes also referred to as a coach or consulting teacher who supports teachers new to the district.

> No → skip to Q3a
> Yes
> My district provided a mentor program, but I did not participate → skip to Q3a

Q2e. Please indicate the extent to which you disagree or agree with each of the following:

	Strongly disagree	Disagree	Agree	Strongly agree
My mentor was in the same school as I was.				
My mentor taught the same grade level(s)/subjects as I taught.				
My mentor provided me with timely feedback.				
My school district offered sufficient time for me to collaborate with my mentor.				
My mentor was well-trained to provide support for new teachers				

III. COMPENSATION AND INCENTIVES

For the following questions, please think about your experiences at your <u>current</u> district.

Q3a. Does your district or school provide any of the following?

	No	Yes	Don't know
Annual salary increases			
Performance-based compensation such as bonuses or salary increases for teachers who have effective evaluation ratings			
Financial incentives for teachers in high-need subjects or at high-need schools			
Teacher housing or mortgage assistance programs			
Childcare benefits such as subsidies, on-site childcare, or childcare assistance			
Tuition reimbursement or financial assistance for additional endorsements or professional learning			
Other compensation and/or incentives: _____			

Q3b. Please indicate the extent to which you disagree or agree with each of the following:

	Strongly disagree	Disagree	Agree	Strongly agree
I am satisfied with my current teaching salary.				
I am satisfied with my earning prospects.				
I am satisfied with my current retirement benefits.				
I am satisfied with my current health benefits.				
My district clearly communicates information on teacher salaries.				
My salary is comparable to salaries at other nearby districts.				

IV. EVALUATION AND PROFESSIONAL GROWTH

The next set of questions asks about your experiences with your district's performance evaluations.

Q4a. Does your district's evaluation system include the following?

	No	Yes	Don't know
Opportunities for teachers to set goals			
Opportunities to collaborate with your supervisor on goal setting			
Multiple data sources (such as observations, teacher portfolios, value-added measures, artifacts of teaching practice such as lesson plans, and so on)			
Student growth data			
Formal observations			
Informal classroom walk-throughs			
Performance standards or definitions of high-quality teacher practice			
Opportunities to receive feedback			
Other _____ (any additional district policies, supports or requirements related to teacher evaluation)			

Q4b. When was your most recent performance evaluation?

This fall (2020/21) school year → skip to Q4d

In the last school term or year (2019/20) **before** COVID/schools closing → skip to Q4d

In the last school term or year (2019/20) **after** COVID/schools closing → skip to Q4d

Sometime in the 2018/19 school year → skip to Q4d

Sometime in the 2017/18 school year → skip to Q4d

I have not recently had a performance evaluation → answer Q4c; skip Q4d

Q4c. Were any of the below factors or reasons why you have not recently had a performance evaluation? *Select all that apply.*

My most recent performance evaluation was skipped due to being rated highly effective for multiple years.

My evaluator did not have time to complete.

My most recent performance evaluation was skipped due to COVID.

Other _____

[skip to Q5]

Q4d. Think about your <u>most recent</u> performance evaluation. Please indicate the extent to which you disagree or agree with each of the following:

	Strongly disagree	Disagree	Agree	Strongly agree
The evaluation process in my district has helped me identify specific things I could do to improve my instruction.				
The evaluation process has guided by professional development activities.				
The evaluation process has improved my communication with leadership at my school..				
The evaluation process and standards were clearly communicated to me.				
My district's performance evaluation system is intended to promote growth and development.				

The next set of questions focuses on your experiences with professional development and professional learning in your current district. We know that COVID-19 may have impacted teachers' professional learning experiences. The next set of questions asks you to think about your experiences with professional development both <u>BEFORE AND AFTER</u> COVID-19. For before COVID-19, please think about any time in either the 2019/20 school year or your experience in prior years at your district before COVID. After COVID can include any time after COVID in the 2019/20 school year or this current school year (2020/21).

Q4e. Does your district or school provide any of the following?

	BEFORE COVID-19			AFTER COVID-19	
	No	*Yes*		*No*	*Yes*
Time for observational visits to other classrooms in my school					
Observational visits to other schools or districts					
District-organized workshops, conferences, or training sessions					
Online courses, resources, or platform for knowledge sharing					
Reimbursement for conferences, workshops, or courses					
Stipends for professional development activities that take place outside regular work hours					
Release time from teaching to attend professional development (i.e., your regular teaching responsibilities were temporarily assigned to someone else)					
Other _____(additional district supports related to professional learning not included above)					

Q4f. Think about the professional development provided by your district or school. Please indicate the extent to which you disagree or agree with each of the following:

Overall, my professional development experiences in my district . . .	BEFORE COVID-19					AFTER COVID-19			
	SD	*D*	*A*	*SA*		*SD*	*D*	*A*	*SA*
Are sustained and coherently focused, rather than short-term and unrelated									
Include enough time to think carefully about, try, and evaluate new ideas Are closely connected to my school's improvement plan									
Include opportunities to work productively with teachers from my school									
Include opportunities to work productively with teachers from other schools									
Are differentiated to meet the individual needs of the individual teacher									

Q4g. Please indicate the extent to which you disagree or agree with each of the following:

In my district teachers have . . .	Strongly disagree	Disagree	Agree	Strongly agree
Opportunities for advancement.				
Career pathways to become school leaders or principals.				
Opportunities to become grade-level or content-level department chairs.				
Pathways to become teacher leaders.				

V. EDUCATOR ENVIRONMENT

The next set of questions focuses on your experiences with the school environment in your district. We know that COVID-19 may have impacted teachers' experiences. The next set of questions asks you to think about your experiences with school environment both BEFORE AND AFTER COVID-19. For before COVID-19, please think about any time in either the 2019/20 school year or your experience in prior years at your district before COVID. After COVID can include any time after COVID in the 2019/20 school year or this current school year (2020/21).

Q5a. Please indicate the extent to which you disagree or agree with each of the following:

	BEFORE COVID-19				AFTER COVID-19			
	SD	D	A	SA	SD	D	A	SA
There is an atmosphere of trust and mutual respect within the school.								
Teachers have time available to collaborate with their colleagues.								
In the school, we take steps to solve problems.								
Teachers are provided opportunities to learn from one another.								
The teachers at my school are highly focused on the mission of improving student learning.								

Q5b. Please indicate the extent to which you disagree or agree with each of the following:

In my school district teachers have . . .	BEFORE COVID-19					AFTER COVID-19			
	SD	D	A	SA		SD	D	A	SA
Class sizes that allow teachers to meet the needs of all students.									
Sufficient time to complete the curriculum for their subject(s) and/or grade.									
Sufficient noninstructional time for planning, meetings, paperwork, and so on.									
Sufficient access to appropriate instructional materials and resources such as textbooks, curriculum materials, and so on.									
Access to reliable instructional technology, including computers, email.									
Sufficient training and support to fully utilize the available instructional technology.									
Sufficient access to a broad range of professional support personnel such as school counselors, nurses, psychologists, paraprofessionals, social workers, and so on.									

Q5c. Please indicate the extent to which you disagree or agree with each of the following statements about your district:

	BEFORE COVID-19					AFTER COVID-19			
	SD	D	A	SA		SD	D	A	SA
Teachers are included in decision making at my school.									
Teachers are enabled to make sound professional decisions about instruction.									
The school administration recognizes teachers as educational experts.									

Q5d. Do you agree or disagree with the following statements about your school leadership?

	BEFORE COVID-19					AFTER COVID-19			
	SD	D	A	SA		SD	D	A	SA
The school administration's behavior toward teachers is supportive and encouraging.									
I feel comfortable expressing concerns about teaching and learning to the school leadership.									
Teachers' concerns about teaching and learning issues are addressed by the school leadership.									
The school leadership regularly participates in instructional planning with teachers.									
The school leadership regularly participates in professional development planning with teachers.									

Q6. Overall, are there supports that your district provides teachers that you have found especially helpful? *[Open-ended answer]*

[END OF SURVEY]