



Trends in Local Teacher Supply Since the COVID-19 Pandemic: Evidence from Teacher Job Applications

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Recent survey evidence documents pandemic-era challenges in filling teacher vacancies and hiring from too-small applicant pools. However, direct evidence quantifying changes in teacher supply since the onset of the pandemic is scarce. Using longitudinal teacher job application data from a large southeastern school district, we examine trends in local teacher supply from 2015 to 2023. We find substantial declines in the number of applications per job posting beginning in 2021, with application rates 52% to 75% lower than pre-pandemic projections. These declines are pervasive across both hard-to-staff and easier-to-staff subjects, as well as across higher- and lower-poverty schools. We also document that the new teacher applicant pool was 23% to 31% smaller than pre-pandemic projections during this period. These findings advance our understanding of current teacher staffing challenges and underscore the need for research in additional contexts to establish the broader prevalence of these declines.

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Abstract:

Recent survey evidence documents pandemic-era challenges in filling teacher vacancies and hiring from too-small applicant pools. However, direct evidence quantifying changes in teacher supply since the onset of the pandemic is scarce. Using longitudinal teacher job application data from a large southeastern school district, we examine trends in local teacher supply from 2015 to 2023. We find substantial declines in the number of applications per job posting beginning in 2021, with application rates 52% to 75% lower than pre-pandemic projections. These declines are pervasive across both hard-to-staff and easier-to-staff subjects, as well as across higher- and lower-poverty schools. We also document that the new teacher applicant pool was 23% to 31% smaller than pre-pandemic projections during this period. These findings advance our understanding of current teacher staffing challenges and underscore the need for research in additional contexts to establish the broader prevalence of these declines.

Keywords:

Teacher supply; teacher job applications; teacher hiring challenges; teacher labor markets; COVID-19 pandemic

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1. Introduction

In recent years—particularly since the onset of the COVID-19 pandemic—popular news articles have frequently discussed the challenges of teacher hiring, prompting conversations about the nature of teacher shortages. A recent nationwide examination of teacher shortages by Nguyen et al. (2024), drawing primarily from 2021-22 data, estimates that there are 58,300 vacant teacher positions and 288,000 positions that are filled by underqualified teachers across the United States.¹ Based on these estimates, their back-of-the-envelope calculations imply that 1.8% of teacher positions are vacant, and an additional 9.0% of positions are held by underqualified teachers.

Recent survey evidence suggests that hiring teachers during the pandemic-era may have become more difficult. Among principals surveyed in the American Educator Panels, most reported that the number of classroom teacher vacancies increased (67%) and were harder to fill (77%) in 2021-22 than in 2020-21 (Zuo et al., 2023). Survey evidence from California also suggests that districts faced an increased number of teacher vacancies and greater challenges filling them compared to pre-pandemic years (Carver-Thomas et al., 2022).

School leaders point to insufficient applicant pools as key challenges in filling vacancies. Data from the School Pulse Panel from the National Center for Education Statistics (2022a) show that 80% of public schools reported a challenge filling at least one teaching position. The two most frequently cited challenges to filling vacant teaching positions before the start of the school year were “too few candidates applying for open teaching positions” (70%) and “a lack of qualified candidates applying for open teaching positions” (64%). Similarly, among principals

¹ Nguyen et al. (2024), using available data, find that there are at least 39,700 vacant positions, which they suggest as a lower bound. When they extrapolate the vacancy rate to the 14 states where no data on teacher vacancies was available, they estimate that there are approximately 58,300 vacant positions.

surveyed in the American Educator Panels, the most commonly reported barrier to teacher hiring in 2021-22 was not having enough applicants for open positions (87%; Zuo et al., 2023).

While survey data captures school leaders' perceptions of hiring challenges, they do not directly measure changes in local teacher supply. A growing body of work has begun to use teacher application data to study supply directly, but evidence quantifying pandemic-era shifts in the size of teacher applicant pools remains scarce.² We address this gap by examining trends in local teacher supply from 2015 to 2023 using teacher job application data from the Wake County Public School System (WCPSS) in North Carolina, the 14th largest district in the United States (National Center for Education Statistics, 2022b). Specifically, we focus on the supply of new teachers by analyzing applications from candidates who would be new to the district's teacher workforce, including both external candidates and current employees in non-teaching positions.

We ask:

1. How have teacher job application rates changed since the onset of the COVID-19 pandemic?
2. How do trends in teacher application rates vary across jobs in hard-to-staff and easier-to-staff subjects? How do they vary across higher- and lower-poverty schools?

² Recent work using teacher application data demonstrates substantial variation in the number of applications received by teacher job postings across subject areas, schools, and the timing of the job posting in the hiring cycle. For example, James et al. (2023), using teacher job application from Boston in 2014-15 to 2018-19, find that job postings in some subjects (e.g., elementary, early childhood, English Language Arts, and social studies) receive more applications than those in others (e.g., special education, science). Moreover, they find that the number of applications varies across schools even within content areas. James et al. also document that positions posted earlier in the hiring cycle are not only more likely to be filled, but also secure higher quality hires.

Goldhaber et al. (2025) build upon the findings by James et al. using teacher application data from 19 school districts and 24 charter school organizations between 2019 and 2024. They document substantial variation in applicants per opening across subject areas, school characteristics, and timing of job posting. For example, they find that school districts in their sample receive fewer applicants per opening than do charters organizations, and jobs posted early in the hiring season attract more applicants than those posted late in the hiring season. While these recent studies document important variation in applications across teacher job postings, the timespan featured in these studies do not allow for a longitudinal examination of teacher supply before, during, and after the pandemic.

3. How have the size of the applicant pool, the number of job postings, and applicants' job-search intensity changed since the onset of the pandemic?

We find that the average number of applications received by teacher job postings has declined substantially since 2021 relative to pre-pandemic trends. The declines are large, with our estimates suggesting the application rates in 2021 to 2023 are 52% to 75% lower than projected. We observe large declines in application rates across teacher job postings in both hard-to-staff and easier-to-staff subjects, as well as in both higher- and lower-poverty schools, suggesting that these declines were pervasive across the district.

We also find that these excess declines in application rates correspond with larger-than-projected declines in the size of the new teacher applicant pool in the same years. Our estimates indicate that the new teacher applicant pool was 23% to 31% smaller in 2021 to 2023, as compared to pre-pandemic projections. Increases in teacher job postings may also play a role.

Together, these findings advance our understanding of current teacher staffing challenges and underscore the need for research in additional contexts to establish the broader prevalence of these declines. WCPSS, one of the top-20 largest districts in the U.S., serves approximately 160,000 students, of whom 22% are Black and 19% are Hispanic/Latino, and 35% receive free or reduced-price lunch in 2022-23. Importantly, WCPSS sits in a fast-growing metropolitan area,³ and it has traditionally been considered a desirable district employer, as it offers competitive local supplements to the state salary schedule. In 2023-24, WCPSS offered the second highest supplement across districts in the state (Public Schools First NC, 2025). Evidence of teacher supply disruptions in a relatively well-resourced district such as WCPSS may be cause for

³ The Raleigh-Cary, North Carolina Metro Area had the 13th highest population gain across U.S. Metropolitan Statistical Areas between April 1, 2020 and July 1, 2024 (United States Census Bureau, 2025).

concern that similar—or even more severe—trends may exist in districts with fewer resources and/or less competitive labor markets.

Our results also contribute to a broader literature on how teacher labor markets respond to economic conditions. Prior work demonstrates teacher supply is responsive to wages and alternative job opportunities (Bacolod, 2007; Corcoran et al., 2004; Loeb & Page, 2000; Murnane & Olsen, 1990), as well as macroeconomic shocks, recessionary periods, and unemployment rates (Goldhaber & Theobald, 2022; Nagler et al., 2020; Deneault, 2025). We advance the understanding of how teacher supply responds to unprecedented public health and economic disruptions by providing the first longitudinal evidence quantifying substantial declines in local new teacher supply following the pandemic.

Beyond contributing to our understanding of teacher supply responses, this work addresses the broader literature on how the pandemic disrupted the labor force across occupations and sectors. Evidence suggests that the labor force's willingness to work fell during the pandemic, contributing to the contraction in labor supply and rapid tightening of the labor market that followed the onset of the pandemic (Faberman et al., 2022). Indeed, the broader labor market remained unusually tight well into 2022 with job openings reaching record highs (Penn & Huang, 2023), suggesting that strong outside options for potential teachers may have persisted beyond the initial pandemic disruption. Evidence also suggests that there remained a small shift in employment away from customer-facing jobs and low-skilled service-related occupations, driven by labor supply and worker preferences (Forsythe et al., 2022). Teaching, while not a customer-facing job, similarly requires high interpersonal contact and lacks the flexibility for remote work that many workers desire (Barrero et al., 2021). Our findings demonstrate how pandemic-era disruptions to the labor force manifested among potential

entrants into a critical public sector occupation, complementing recent studies of pandemic-era teacher turnover (Bacher-Hicks et al., 2023; Bastian & Fuller, 2023; Camp et al., 2025; Goldhaber & Theobald, 2023).

2. Data and Measures

To address our research questions, we use WCPSS administrative data and applications to online teaching job postings from January 2015 to September 2023. The data include application-level information, such as applicant ID, job ID, job title, and school, as well as the demographic characteristics of applicants. In our analysis, we focus on the supply of prospective teachers who would be new to teaching in the district; therefore, we exclude teacher job applications that are submitted by applicants who are employed as WCPSS teachers at the time of application (i.e., teacher transfer applications). Our resulting sample includes 784,250 submitted teacher applications from 38,254 individuals for 21,987 teacher jobs.

In WCPSS, the teacher job posting and application season typically runs from February through August of a calendar year. That is, the number of job postings and job applications received by the district increases in February, peaks in April and May, and declines by August. This timing aligns with the need to hire teachers for the next academic year, which begins in August of the same calendar year.⁴

Figure 1 plots the number of teacher job applications received by WCPSS by month from January 2015 to September 2023. In each year of the data, we observe the seasonal nature of teacher job applications. However, as shown in Figure 1, we observe a substantial decline in the

⁴ This seasonality of job postings and applications can be observed in Appendix Figure A1, where Panel A plots the number of teacher job postings by month from January 2017 to December 2019, and Panel B plots the number of teacher job applications from January 2017 to December 2019.

number of teacher job applications received by the district in the years since the start of the COVID-19 pandemic, indicated by the dotted vertical line corresponding to March 2020. For example, the district received 25,329 applications in its peak application month of May in 2019, as compared to 12,650 applications in its peak month of May in 2022.

To better understand the observed decline in the overall number of teacher job applications, we focus on examining the aggregate trends in:

- (a) **the rate of applications**, which we define as the number of applications received by a teacher job posting within the first 14 days after the job is posted.⁵

Since changes in application rates can be driven by some combination of changes in the size of the applicant pool, the number of teacher job postings, or the number of applications that applicants choose to submit, we also examine aggregate trends in:

- (b) **the number of active applicants to the district in month t** , where an individual is considered an active applicant if (s)he/they submits one or more applications to any teacher job posting in the district in the calendar month t ,
- (c) **the number of teacher job postings in the district in month t** , and
- (d) **job-search intensity**, which we define as the number of applications that an individual submitted in the first 14 days of their job-seeking-spell in the application year.

3. Empirical Strategy

We adopt two strategies to examine the aggregate trends in application rates and the related measures described in Section 2. First, we generate event study figures to visualize

⁵ Results are robust to alternative application window definitions of 7 and 21 days. We report estimates based on a 14-day window, which captures the most active phase of the application period for a given posting.

changes in trends from 2015 to 2023. Then, we estimate deviations from pre-pandemic linear trends for each year since the onset of the pandemic.

3.1 Event Studies

To visualize changes in (a) the rate of applications, (b) the number of active applicants, (c) the number of teacher job postings, and (d) job-search intensity among applicants, we generate event study figures of these measures at the month-year level relative to March 2020. Specifically, to examine change in the (a) rate of applications, we estimate:

$$Y_{jkst} = \sum_{t=-62}^{-1} \beta_t \text{Before}_t + \sum_{t=1}^{42} \beta_t \text{After}_t + \sigma_s + \gamma_k + \epsilon_{jkst}, \quad (1)$$

where Y_{jkst} is the number of applicants for job j in subject k at school s posted in month t .

Before_t is a vector of indicators for month t before March 2020 (i.e., $t = 0$ in March 2020).

After_t is a vector of indicators for month t after March 2020. σ_s and γ_k represent school and subject fixed effects, respectively. Our coefficients of interest, β_t , represent the conditional mean number of applications received by teaching jobs posted in month t , relative to March 2020.

To generate event studies of (b) the number of active applicants, (c) the number of teacher job postings, and (d) job-search intensity among applicants, we modify Equation 1 by omitting school and subject fixed effects, and then using each measure in turn as the dependent variable. That is, to examine (b) the number of active applicants, the dependent variable is A_t , the number of active applicants to the district in month t . To examine (c) the number of teacher job postings, the dependent variable becomes P_t , the number of teacher jobs posted by WCPSS in month t . To examine (d) job-search intensity among applicants, the dependent variable is $S_{i,y(t)}$, the number of applications submitted by applicant i in the first 14 days of their job-seeking-spell, which began in month t of year $y(t)$.

3.2 Interrupted Time Series

We use an interrupted time series framework to estimate deviations from the linear time trend in the years since the onset of the pandemic. In this analysis, we exclude job postings—and the associated applications—that are posted in the months of October, November, December, and January, as these are posted outside the regular teacher hiring season and likely represent positions that need to be filled immediately.

To examine trends and deviations in the (a) rate of applications, we estimate:

$$Y_{jkst} = \beta_0 + \beta_1 Year_{y(t)} + T_{y(t)}\pi + \mu_{m(t)} + \sigma_s + \gamma_k + \epsilon_{jkst}, \quad (2)$$

where Y_{jkst} is the number of applicants for job j in subject k at school s posted in month t .

$Year_{y(t)}$ is the calendar year in which the job is posted. $T_{y(t)}$ represents a vector of indicators for each calendar year since the onset of the pandemic (i.e., 2020, 2021, 2022, 2023). $\mu_{m(t)}$ represents month-of-year fixed effects (i.e., February, March, ..., September). σ_s and γ_k represent school and subject fixed effects, respectively. β_1 represents the slope of the pre-pandemic linear trend, and π represents the vector of estimates of the deviations from the linear trend in calendar years 2020 through 2023. We estimate Equation 2 using OLS. We also estimate an alternative Poisson regression specification of Equation 2, as the dependent variable is count data. When doing so, $(\exp(\pi) - 1) * 100$ represents the percent change in the application rate relative to the projected application rate.

In our analysis of trends in application rates by the subject and school poverty level of the job posting, we focus on results from the Poisson regression specification, as application rates vary across subjects and schools (Goldhaber et al., 2025; James et al., 2023). More specifically, we examine trends in application rates among job postings in hard-to-staff subjects (special

education and math/science) and easier-to-staff subjects (elementary and English Language Arts/History). We also examine trends in application rates among job postings in higher- and lower-poverty schools as defined by being above or below the median in the percent of students receiving free- and reduced-price lunch.

Following a similar framework to examine trends and deviations in (b) the number of active teacher applicants, we estimate:

$$A_t = \delta_0 + \delta_1 Year_{y(t)} + T_{y(t)}\lambda + \mu_{m(t)} + \varepsilon_t, \quad (3)$$

where A_t is the number of active teacher applicants in month t . $Year_{y(t)}$, $T_{y(t)}$, and $\mu_{m(t)}$ represent the same as in Equation 2. When examining trends in (c) the number of teacher job postings, we estimate an equation analogous to Equation 3 with P_t as the dependent variable, where P_t is the number of teaching jobs posted by WCPSS in month t .

Finally, to examine trends and deviations in (d) job-search intensity among applicants, we estimate:

$$S_{i,y(t)} = \alpha_0 + \alpha_1 Year_{y(t)} + T_{y(t)}\zeta + \theta_{m(t)} + e_{i,y(t)}, \quad (4)$$

where $S_{i,y(t)}$ is the number of applications submitted by applicant i in the first 14 days of their job-seeking-spell in year $y(t)$. $Year_{y(t)}$ and $T_{y(t)}$ represent the same as in Equations 2 and 3. $\theta_{m(t)}$ represents month-of-year fixed effects for the month in which the job-seeking-spell began (i.e., February, March, ..., September). We also estimate alternative Poisson regression specifications of Equations 3 and 4, as our dependent variables are count data.

4. Results

4.1 Application Rate

We find that the average number of applications per job declined in the 2021 hiring season and then further declined in 2022 and 2023. Figure 2 Panel A presents the event study of the application rate relative to March 2020, where the coefficients of interest (β_t from Equation 1) are graphed in black and the 95% confidence interval around the coefficients are shaded in blue. The decline in 2021, and the substantial declines in 2022 and 2023, clearly deviate from the pre-pandemic seasonal pattern in application rate.

Our estimates from the interrupted time series analysis help to quantify these declines. Table 1 Columns 1 and 2 provide the estimates from our linear and Poisson models, while Figure 2 Panel B depicts the OLS estimated deviations from the linear trend in each year from 2020 to 2023. The pre-pandemic linear trend is flat (i.e., slope is near 0) from 2015 to 2019, and the projected linear trend is displayed in a dotted line in the years 2020 to 2023. We find statistically significant deviations in linear trends in all years since the onset of the pandemic. In the 2020 hiring season, the average application rate was lower than expected by only 1.77 applications. However, the application rate negatively deviated from the projected linear trend by 14.49 applications per job in 2021, 20.37 applications per job in 2022, and 21.16 applications per job in 2023 (Table 1 Column 1). For reference, the mean number of applications received by jobs posted in March 2019 and May 2019 is 29.98 and 33.89, respectively.

Estimates from our Poisson models similarly show large declines. Relative to projected trends, application rates fell by 5.5% in 2020, 52.3% in 2021, 73.9% in 2022, and 75.3% in 2023 (Table 1 Column 2 reports incidence rate ratios (IRRs); percent changes calculated as $IRR - 1$). The magnitudes of the estimates from both the linear and Poisson models suggest that the relative declines in application rates are large and substantively significant. We next examine the

extent to which trends in application rates vary by the subject of the teacher job postings and school poverty category.

4.2 Application Rates by Subject and School Poverty

Figure 3 Panel A presents our results from the interrupted time series analysis for application rates among job postings in hard-to-staff subjects (i.e., special education and math/science) and easier-to-staff subjects (i.e., elementary and ELA/history). We find similar large declines in the percent change in the application rate, relative to the projected application rate, across job postings in these subject areas.

Figure 3 Panel B presents our results for application rates among higher- and lower-poverty schools. We also find similar large declines in the percent change in the application rate, relative to the projected application rate, across these two school poverty categories. Taken together, these analyses suggest that the substantial declines in application rates are pervasive across subject areas, as well as higher- and lower-poverty schools.

These deviations in trends could be driven by one or more changes in the size of the applicant pool, the number of teacher job postings, or the job-search intensity among applicants. For example, such declines could be driven by a large increase in the number of job postings, while the size of the active applicant pool and the job-search intensity among applicants remain constant. Alternatively, large declines in application rates could be driven by a decrease in the size of the active applicant pool, while the number of job postings and job-search intensity among applicants remains constant. We now turn to our examination of trends in these related measures.

4.3 Number of Active Applicants, Number of Job Postings, and Job Search Intensity

Figure 4 presents our results of the event studies and interrupted time series analyses in the number of active applicants (Panels A and B, respectively), the number of job postings (Panels C and D, respectively), and job-search intensity (Panels E and F, respectively). As shown in Panel B, we find that the number of active teacher applicants declined substantially more than projected in years 2020 through 2023. The active monthly applicant pool was smaller than projected by 351 applicants in 2020, 281 applicants in 2021, 360 applicants in 2022, and 355 applicants in 2023 (Table 1 Column 3). As reference points, the active applicant pool included 1,382 applicants in March 2019 and 2,182 applicants in May 2019. Estimates from our Poisson models suggest negative deviations of 27.3% in 2020, 22.7% in 2021, 29.9% in 2022, and 30.6% in 2023 relative to the projection (Table 1 Column 4). Such declines in the size of the applicant pool likely contribute to the decline in application rates.

As shown in Panel D, the number of job postings was lower than projected in 2020 but either on trend or higher than expected in 2021 through 2023, with the only statistically significant positive deviation occurring in 2022. Holding applicant pool size and applicants' job-search intensity constant, increases in job postings would mechanically reduce application rates. Thus, the excess increases in job postings may partially explain the observed declines in applications per job.

In contrast, as shown in Panel F, the number of submitted applications per applicant was higher than projected in 2021 through 2023. Changes in job-search intensity therefore cannot account for the excess declines in application rates. Taken together, our results indicate that applications per teacher job posting declined substantially below projections from 2021 to 2023.

These declines coincide with smaller-than-projected applicant pools and potentially higher-than-projected numbers of job postings.

5. Conclusion

Using longitudinal teacher application data from WCPSS, we find that the average number of applications received by teacher job postings has declined substantially in years 2021 to 2023, as compared to pre-pandemic trends. These estimated declines are large, ranging from declines of 52% to 75%, relative to the projected trend. Such declines in application rates are evident across job postings in hard-to-staff and easier-to-staff subject areas, as well as job postings in higher- and lower-poverty schools. Our results suggest that the excess decline in overall applications per job posting is driven, in part, by a larger-than-projected decline in the size of the new teacher applicant pool in the same years. Increases in teacher job postings may also contribute to the decline in application rates.

The timing and character of the observed declines align with broader macroeconomic conditions following the pandemic. The broader labor market remained unusually tight with a record low ratio of unemployed people per job opening in 2022, reflecting historically high levels of job openings as well as declines in unemployment (Penn & Huang, 2023). As such, potential teachers likely faced a relatively favorable set of outside options during much of our post-2020 study period. Prior research documents that teacher supply is sensitive to alternative labor market opportunities (Bacolod, 2007; Corcoran et al., 2004; Loeb & Page, 2000) and that teacher attrition rises and falls with broader labor market conditions over time (Goldhaber & Theobald, 2022). Our findings are consistent with this body of evidence, suggesting that the historically tight post-pandemic labor market—and the unusually strong outside options it

afforded potential teachers—may have contributed to the contraction in the new teacher applicant pool we document.

At the same time, our results point to simultaneous demand-side pressures. Even as the applicant pool contracted, WCPSS posted more teaching jobs than projected in 2022. This expansion in postings may reflect, in part, the availability of federal Elementary and Secondary School Emergency Relief (ESSER) funds, which districts could deploy to expand their teacher workforce. Together, these patterns suggest that the application rate declines we document potentially reflect supply contraction and demand expansion occurring simultaneously, rather than supply-side constraints alone. Whether the expiration of ESSER funds and a normalization of broader labor market conditions will ease these pressures—or reveal a more structural shift in teacher supply—remains an important open question for future research.

Regardless of the causes, our findings raise the question: how problematic are these excess declines for the school district? The answer depends on teacher hiring outcomes. If the district can continue to fill positions with high-quality teachers from the smaller applicant pools, the declines may be inconsequential. Some evidence suggests this may be feasible: James et al. (2023) find that the size of a position’s applicant pool is uncorrelated with the quality of the hire after accounting for the timing of the posting. However, if the smaller applicant pools lead to more unfilled positions, pressure to lower hiring standards, and/or declines in the quality of new hires, they may be highly problematic. Notably, principals’ reports suggest cause for concern: insufficient applicant pools are the most commonly cited challenge to filling teacher vacancies (National Center for Education Statistics, 2022a; Zuo et al., 2023). Assessing how these declines relate to teacher hiring outcomes should be an important priority for future work.

Nevertheless, these post-pandemic trends raise concerns about the overall health of the new teacher pipeline into school districts. Whether these patterns are widespread, however, remains an open question. One notable limitation is that our data come from a single large district, limiting our ability to assess the extent to which these results generalize to other districts. To the extent that WCPSS' competitive compensation and location in a fast-growing metropolitan area make it a more attractive employer than a typical district, our estimates may represent a lower bound on the declines experienced elsewhere; districts with fewer resources or lower salaries may face even more severe contractions in their teacher applicant pools. This interpretation is consistent with evidence from Goldhaber et al. (2025), who find that applicant supply is positively associated with salary across a broad sample of districts and charter organizations, suggesting that lower-paying districts may face even greater supply constraints than those we document here.

This limitation, in conjunction with our results, underscores the urgent need to improve access to individual-level teacher application data for research and monitoring of local teacher supply. A potential step forward would be for district leaders to negotiate with their application system vendors to secure regular data extractions, facilitating ongoing monitoring of local teacher supply using internal research capacity or collaborations with external researchers. Such efforts, if implemented at scale, would improve our understanding of the post-pandemic dynamics of new teacher supply and enable more timely policy responses to disruptions in the teacher pipeline.

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Figures

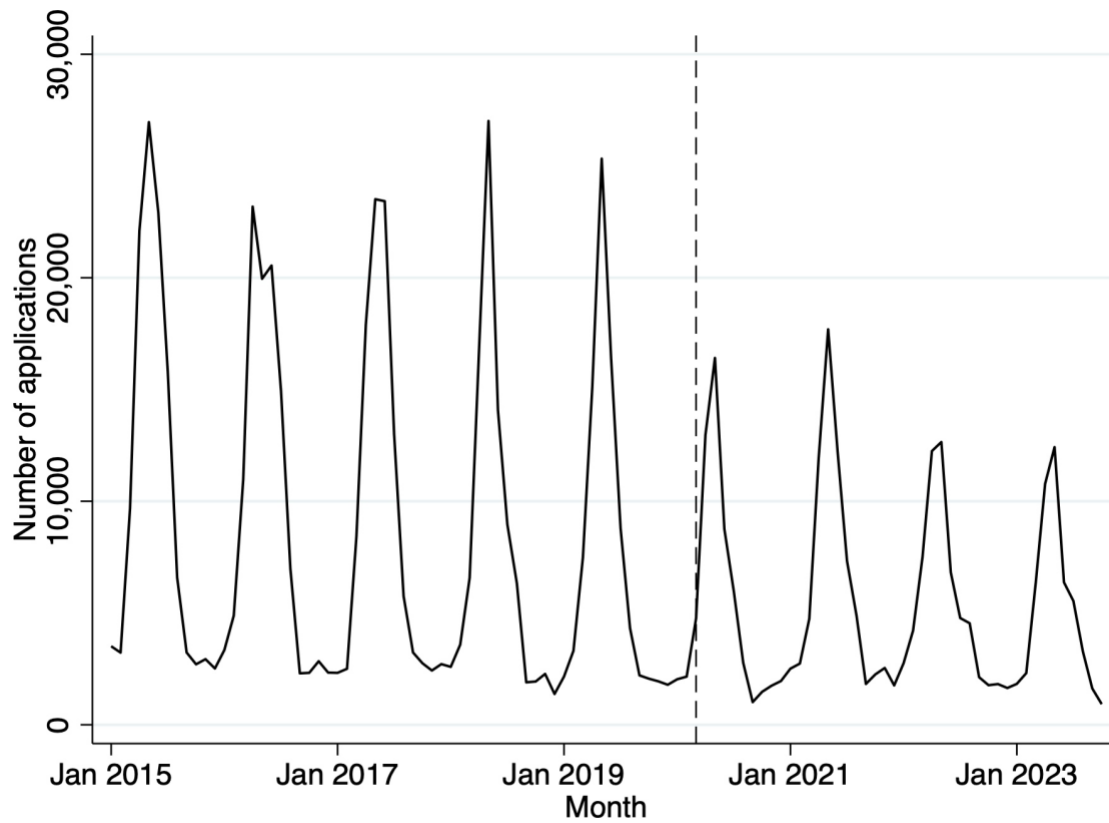
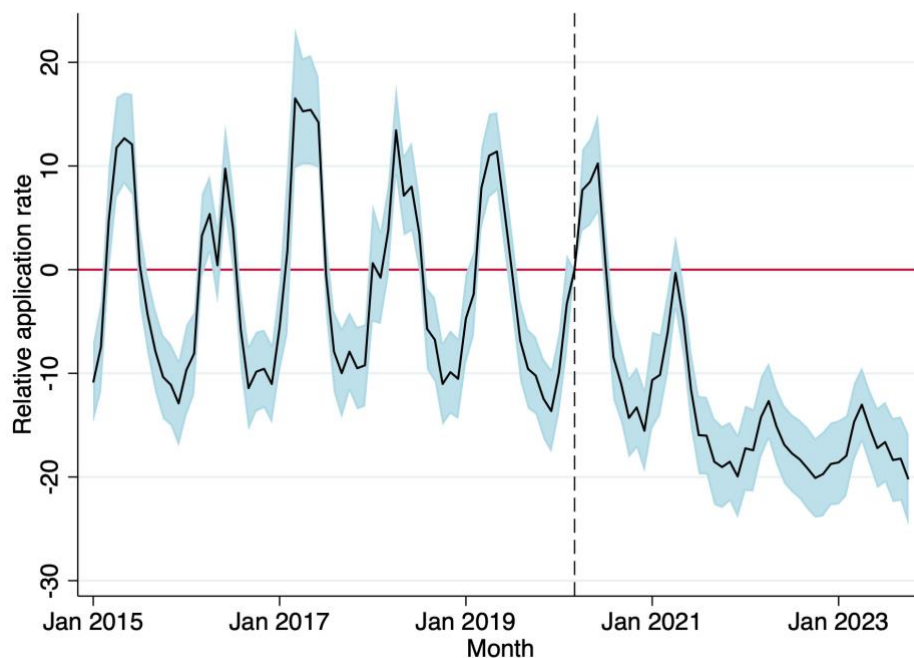


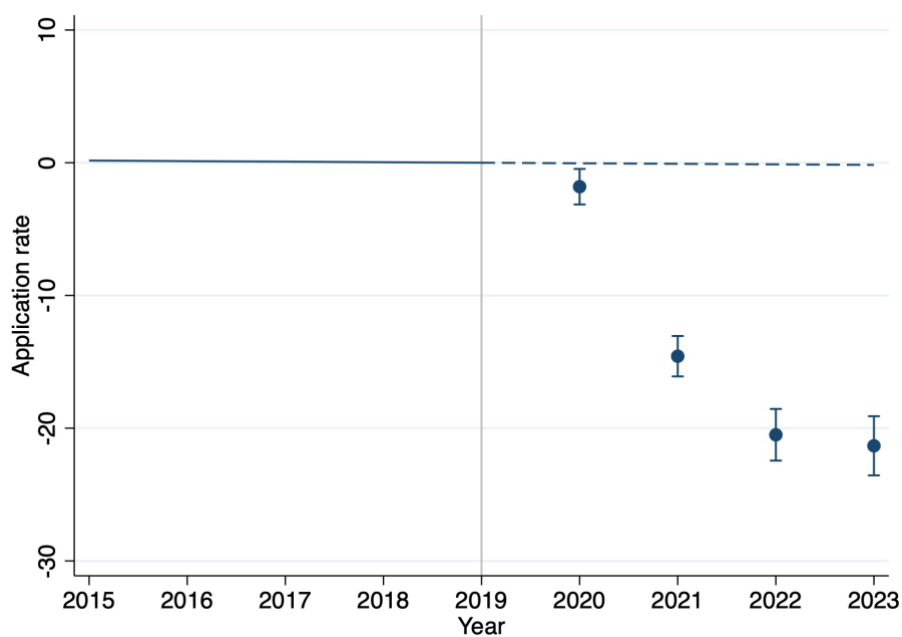
Figure 1. The number of teacher job applications received in WCPSS by month from January 2015 to September 2023.

Note: All data are from the Wake County Public School System. The dotted vertical line corresponds to the start of the COVID-19 pandemic in March 2020.

Panel A: Event Study of the Application Rate Relative to March 2020

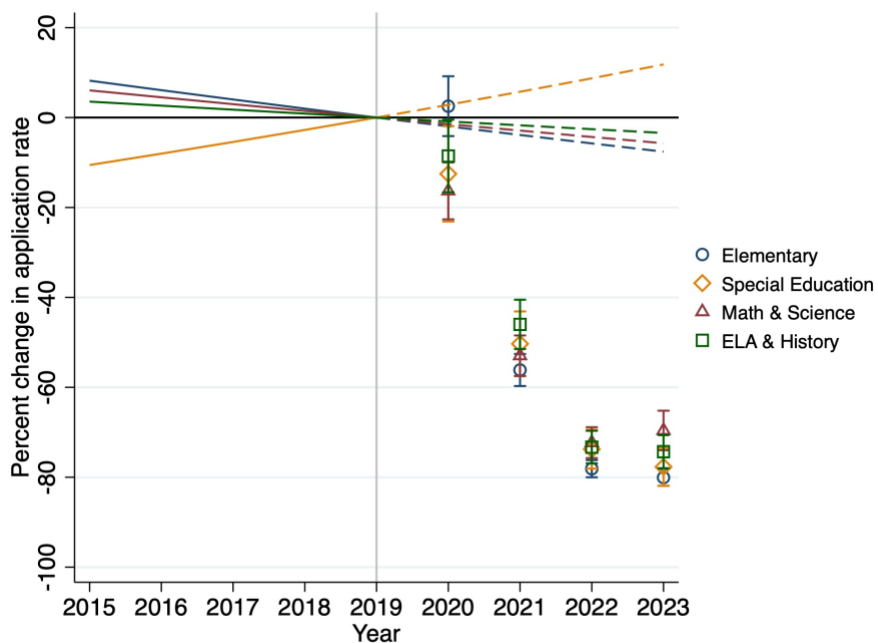


Panel B: Deviations from the Linear Trend in Application Rate

**Figure 2. Application rate.**

Note: Panel A displays the mean application rate by month of the job posting for each month from January 2015 to September 2023, relative to March 2020, controlling for subject and school fixed effects. The shaded areas surrounding the lines represent 95% confidence intervals. Panel B displays the linear trend line from 2015 to 2019, with the predicted trend as the dotted line for 2020 to 2023. Estimated deviations from the linear trend and their 95% confidence intervals are shown for 2020 to 2023. All data are from the Wake County Public School System.

Panel A: Deviations from the Linear Trend in Application Rate by Subject Area of Job Posting



Panel B: Deviations from the Linear Trend in Application Rate by School Poverty Category

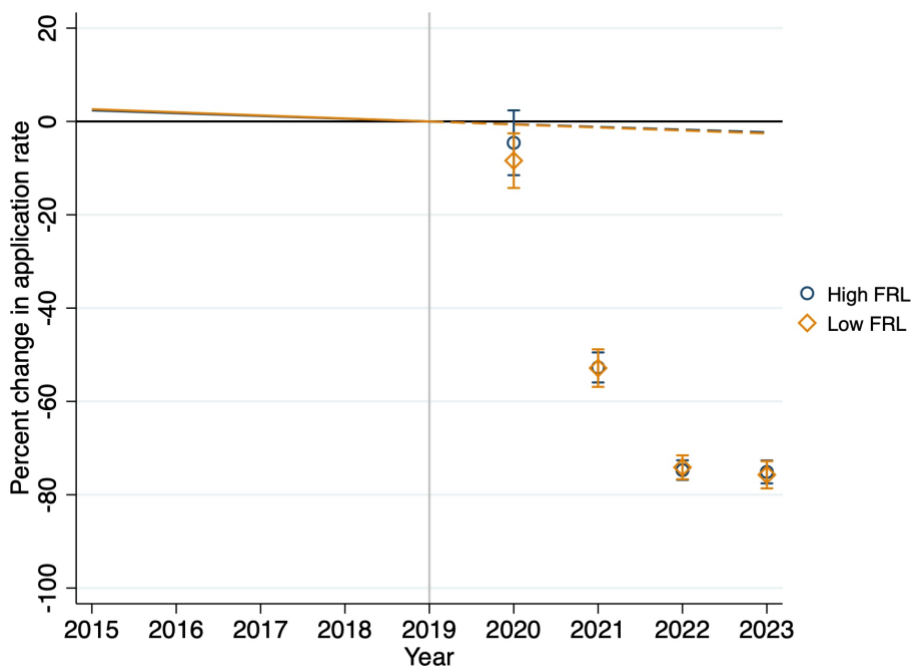


Figure 3. Deviations in Linear Trends in Application Rate by Subject and School Poverty Category

Note: Panels A and B display the linear trend lines from 2015 to 2019, with the predicted trends as the dotted lines for 2020 to 2023. Estimated deviations from the linear trends, in percent change, and their 95% confidence intervals are shown for 2020 to 2023. FRL = Free- and reduced-price lunch. All data are from the Wake County Public School System.

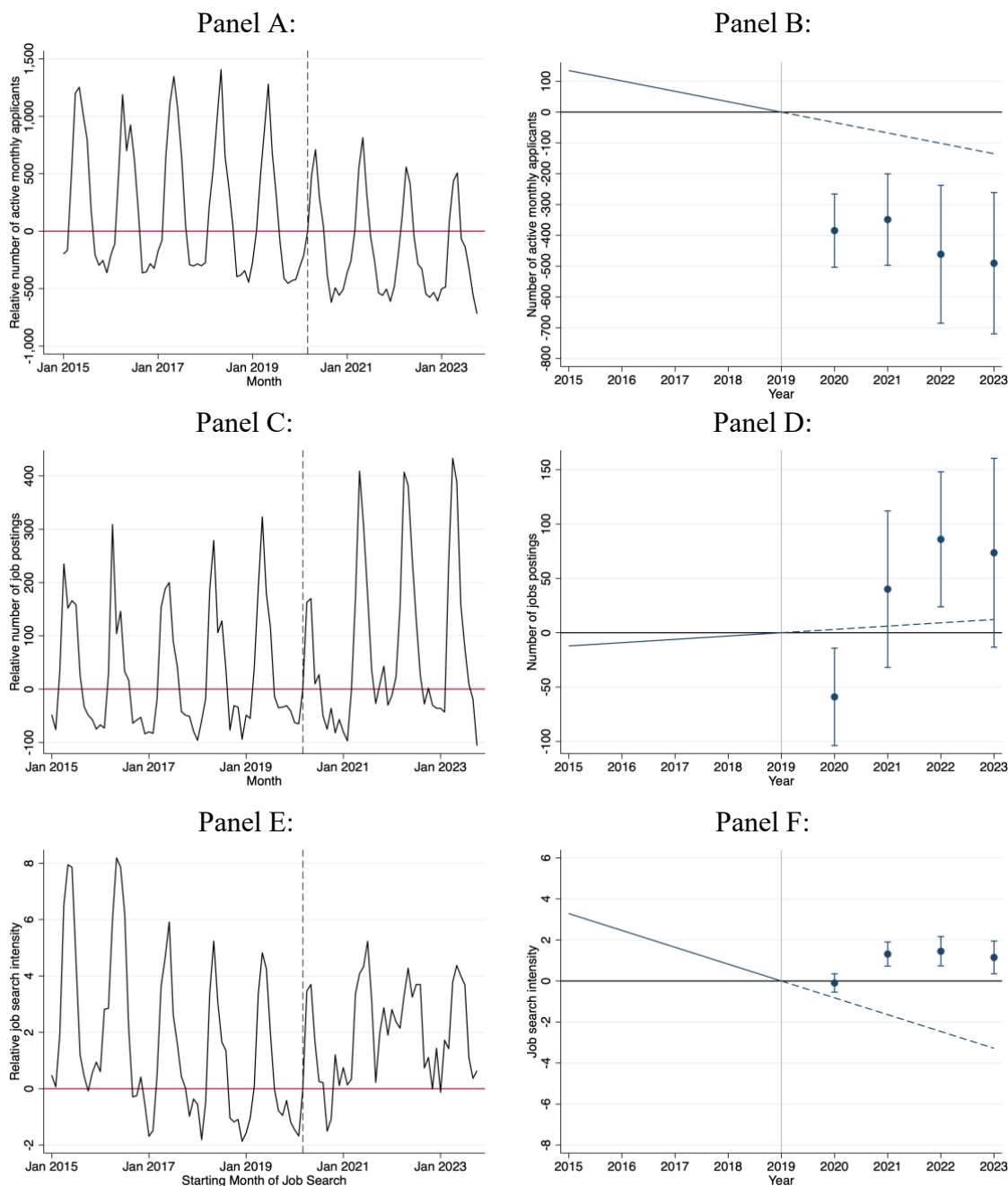


Figure 4. Event Studies and Deviations in Linear Trends in the Number of Active Applicants, the Number of Job Postings, and Job-Search Intensity.

Notes: Panels A, C, and E are the event studies of the number of active monthly applicants, the number of job postings, and job-search intensity, relative to March 2020, respectively. Panels B, D, and F are the deviations in linear trends in the number of active monthly applicants, the number of job postings, and job-search intensity, respectively. They display the linear trend lines from 2015 to 2019, with the predicted trends as the dotted lines for 2020 to 2023. Estimated deviations from the linear trends and their 95% confidence intervals are shown for 2020 to 2023. All data are from the Wake County Public School System.

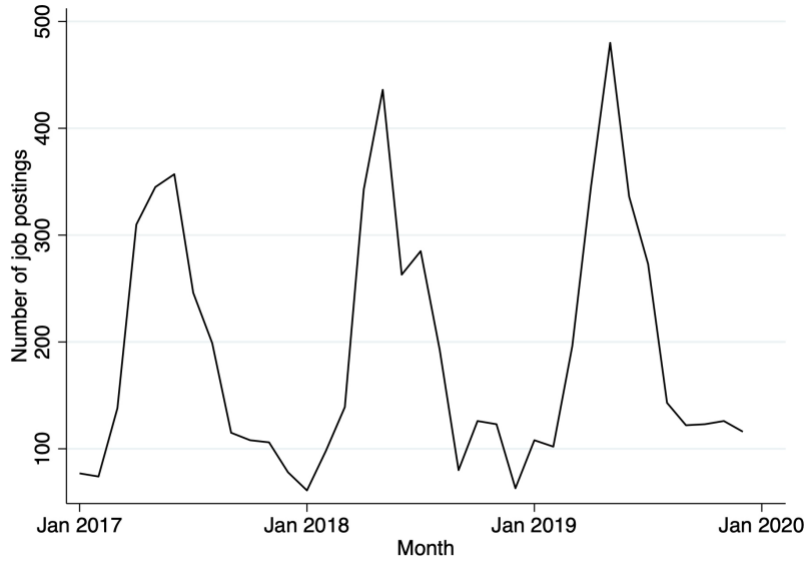
Table 1. Interrupted Time Series Estimates

	Application Rate		Active Applicants		Job Postings		Job-Search Intensity	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	Poisson (IRR)	OLS	Poisson (IRR)	OLS	Poisson (IRR)	OLS	Poisson (IRR)
Slope of trend	-0.041 (0.159)	0.994 (0.005)	-33.750+ (18.341)	0.976* (0.011)	3.050 (5.309)	1.013 (0.020)	-0.821*** (0.054)	0.901*** (0.007)
Year 2020	-1.763* (0.682)	0.945* (0.023)	-350.950*** (60.734)	0.727*** (0.044)	-62.100** (22.857)	0.742*** (0.082)	0.724** (0.228)	1.081* (0.034)
Year 2021	-14.494*** (0.777)	0.477*** (0.025)	-281.325*** (75.741)	0.773*** (0.051)	33.975 (36.752)	1.138 (0.123)	2.953*** (0.299)	1.467*** (0.041)
Year 2022	-20.373*** (0.993)	0.261*** (0.029)	-360.200** (114.262)	0.701*** (0.079)	76.800* (31.681)	1.308* (0.104)	3.910*** (0.364)	1.656*** (0.049)
Year 2023	-21.162*** (1.136)	0.247*** (0.033)	-355.575** (117.039)	0.694*** (0.077)	61.375 (44.336)	1.241 (0.143)	4.431*** (0.406)	1.767*** (0.054)
Subject FE	X	X						
School FE	X	X						
Observations	16,597	16,597	72	72	72	72	49,556	49,556

Notes: +p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001. OLS = Ordinary Least Squares. IRR = Incidence Rate Ratio. FE = fixed effects.

Appendix

Panel A: Number of teacher job postings by month from January 2017 to December 2019.



Panel B: Number of teacher job applications by month from January 2017 to December 2019.

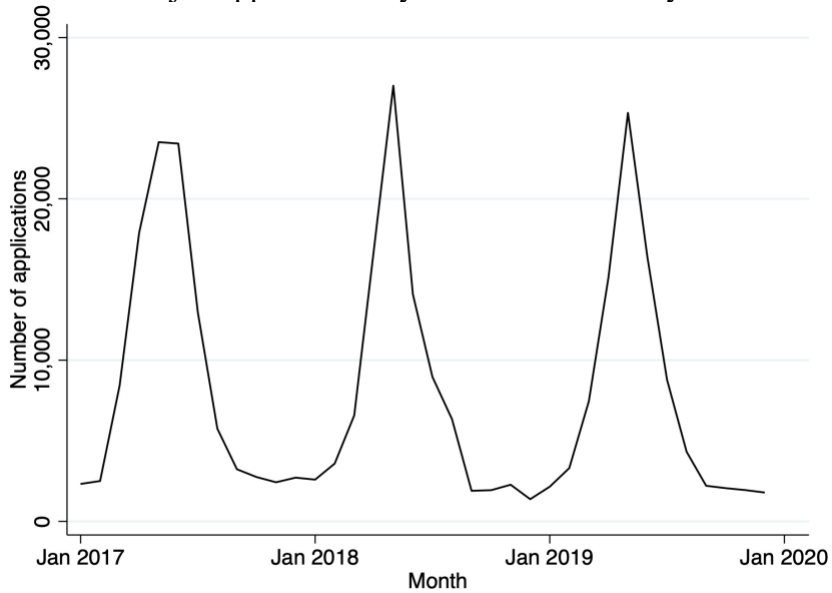


Figure A1. Seasonality of teacher job postings and teacher job applications from January 2017 to December 2019.

Note: All data are from the Wake County Public School System.