



Trends in Public School Teacher Licensure in Virginia, 2011 to 2021

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Summary

School districts consider many qualifications when deciding whether to hire an individual to teach its students. One qualification is the type of license the applicant holds. License eligibility requirements vary in strictness across the license types (e.g., level of educational attainment, whether a student teaching experience was completed). Teachers' license types, therefore, are a signal about the supply of teachers to school districts (called "divisions" in Virginia). License type may also be a contributor to divisions' demand for teachers should teachers with specific license types turn over more frequently. The COVID-19 pandemic and its aftereffects presented divisions with new challenges as they worked to hire teachers. In Virginia, the number of teacher vacancies has increased [1] and record numbers of teachers quit teaching after the 2020-21 school year [2].

In partnership with the Virginia Department of Education (VDOE), we analyzed statewide administrative data on teachers to identify trends in teacher licensure and determine whether those trends have changed since the onset of the COVID-19 pandemic. We examined five types of licenses—Postgraduate Professional, Collegiate Professional, Provisional, Career & Technical, and other licenses—over an eleven-year period between the 2011-12 and 2021-22 school years. Our key findings include

the following:

- We did not find evidence of meaningful post-pandemic shifts in the licenses teachers hold; rather, we saw a continuation of pre-pandemic trends.
- Over the full period analyzed (Fall 2011 and Fall 2021), the statewide composition of teacher licenses changed markedly. The percentage of teachers with a Collegiate Professional license decreased while the percentage of teachers with Postgraduate Professional and Provisional licenses increased.
- The change in the composition of teacher licenses in most, but not all, divisions mirrored the statewide trends.
- The number of new licenses issued each year declined such that there were 3,085 fewer licenses issued in 2021 than in 2011 (a 23% reduction).
- The most common license among first-year teachers between Fall 2015 and Fall 2020 was the Provisional license.
- Most Black teachers enter the teaching profession with a Provisional license, as do most male Hispanic teachers. White teachers were the least likely to enter with a Provisional license.
- Annual retention rates were the highest and annual departure rates were the lowest among teachers who started their careers with a Collegiate Professional license.

- Annual retention rates were similar between teachers who started their careers with a Postgraduate Professional or Provisional license; however, their mobility patterns differed: teachers with an initial Provisional license were more likely to depart while teachers with an initial Postgraduate Professional license were more likely to shift into administrative positions.

3) How has the **composition of licenses held by first-year teachers** changed over time statewide, within divisions, and across teacher gender and race/ ethnicity?

4) How has **teacher retention and mobility by initial license type** changed over time and how does it vary with years of experiences?

Over this period, there were many different types of licenses teachers could hold. We collapsed these into five broad categories: Postgraduate Professional, Collegiate Professional, Provisional, Career and Technical Education (CTE) licenses, and other licenses such as the International Educator and Pupil Personnel Services licenses. [4] Eligibility requirements vary across these license categories. [5] Key differences across the license types included that the Postgraduate and Collegiate Professional licenses required individuals to have completed a teacher preparation program while the Provisional license did not. Also, a graduate degree was required for the Postgraduate Professional license and a bachelor's degree was required for the Collegiate Professional and Provisional licenses. Most teachers held a single license; however, some teachers in some years held two. We included all licenses in our analysis. Each research question required a different sample of teachers, and we provided additional details of each sample in the endnotes.

Teacher licensure data

Our primary source of teacher licensure data was the Master Schedule Collection in which divisions reported the licenses held by the teachers who provided instruction to their students. Between Fall 2011 and Fall 2021, the annual percentage of teachers for whom divisions report no license information increased from 0.4% to 4.7%. Some teachers were missing license information in a single year, others multiple years. To recover these missing licenses, we first turned to our second source of information – VDOE's licensure database.

Why Study Teacher Licensure?

Licensure is a tool states use to ensure that individuals are qualified to instruct students in public schools. To be eligible for a license, individuals must meet a set of minimal requirements. In Virginia, those requirements include earning a bachelor's degree [3], completing content-area and professional studies coursework, passing all required assessments, and completing a student teaching experience as well as meeting statutory licensure requirements (e.g., emergency first aid and CPR, child abuse and neglect recognition and intervention, dyslexia awareness, etc.). Individuals meeting all these requirements are eligible for a renewable Professional teacher license. Individuals not meeting these requirements may still teach for up to three years under a non-renewable Provisional license. By the end of those three years, the individual must meet all the requirements for a Professional license or stop teaching.

In partnership with the VDOE, we explored trends in teacher licensure over an eleven-year period (2011-12 through 2021-22) to answer the following research questions:

- 1) How has the **composition of licenses held by teachers** changed over time statewide, within divisions, and across teacher gender and race/ ethnicity?
- 2) How has the **composition of newly-issued licenses** changed over time?

We identified an active license for 46% of these teachers.

With guidance from VDOE, we developed a two-stage process for imputing the remaining missing licensure information. We began with the licensure database to identify licenses that were active within a year or two of the year without a division-reported license. We were able to impute a license for an additional 4.5% and 0.8%, respectively. We were able to impute another 9.9% using division reports from nearby years. This multi-step imputation process allowed us to impute 73.3% of the missing licenses through Fall 2020, yet only 8.0% for Fall 2021. (Unless otherwise noted, we refer to a school year with the fall year, e.g., 2020 refers to SY 2020-21.) Overall, we could not observe a license for only 0.9% of the teacher-by-year observations. We, therefore, excluded these teachers from our analysis of the overall teacher labor force for the research question 1.

First-year teachers were much more likely than other teachers to have no license reported and less likely to have a license imputed. The percentage of first-year teachers for whom divisions did not report a license increased from 4.1% in 2011 to 42.7% in 2021. After imputation, the annual missing rate continued to vary over time,

exceeding 5% after 2015 and remaining unchanged at 42.7% in 2021. We, therefore, ran our analysis of first-year teachers for research question 3 both excluding and including these teachers.

Composition of Licenses Held by Teachers

As shown in **Figure 1**, the composition of teacher licenses changed throughout the full period with little difference in those patterns since the onset of the pandemic. [6] Two license types became more common between Fall 2011 and Fall 2021 – Postgraduate Professional and Provisional – while the Collegiate Professional license became less common. The percentage of teachers holding the Collegiate Professional license declined 6.9 percentage points from 48.0% to 41.1%. The share of teachers with a Postgraduate Professional license

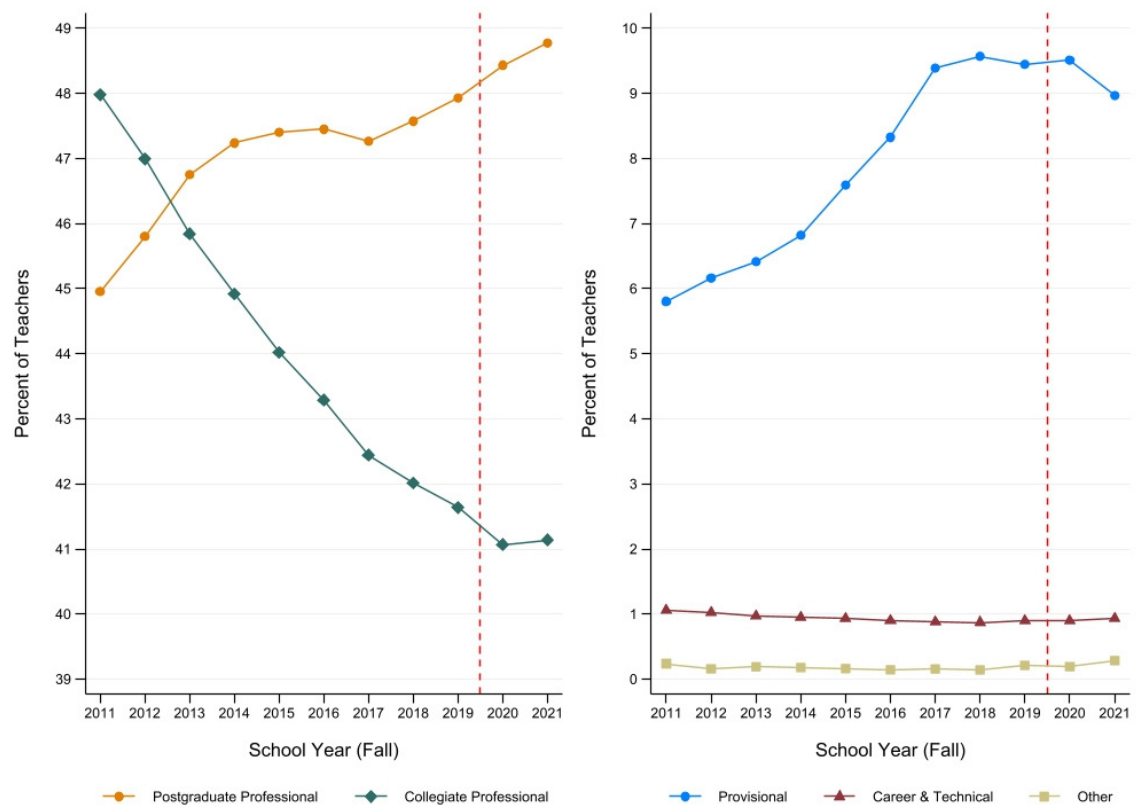


Figure 1. Composition of teachers' licenses by year, 2011 to 2021

How to Interpret: In 2021, roughly 49% of teachers were teaching with a Postgraduate Professional license and 41% with a Collegiate Professional license (panel A). The remaining teachers (panel B) were teaching with a Provisional License (9%), a CTE license (1%), or some other type of license (<0.5%).

Notes: N = 933,396 teacher-year observations of 158,506 unique teachers. 1,119 observations (0.1% of the sample) had two licenses in the same year. 8,602 teacher-year observations of 7,387 unique teachers were excluded because they had no license-type data.

grew slightly more than the share with a Provisional license (3.8 versus 3.6 percentage points). In Fall 2021, 48.8% of teachers held a Postgraduate Professional license and 9.4% held a Provisional license. The percentage of teachers holding a CTE or some other license remained steady and small throughout the period (right panel). Given this, we excluded these two groups from much of our subsequent analyses.

Statewide patterns, of course, mask variation in change over time within the 132 divisions. To explore patterns at the division level, we calculated the percentages of

teachers with Postgraduate Professional, Collegiate Professional, and Provisional licenses in each division in each year. We show in panel A of **Figure 2** how the distribution of those percentages across the divisions shifted between Fall 2011 (solid lines) and Fall 2021 (dotted lines). Across the divisions, the percentage of teachers with Collegiate Professional licenses decreased (reflected in the leftward shift in the green distribution curve) and the percentage with a Provisional license increased (reflected in the rightward shift in the blue distribution curve) while there was a slight increase in the percentage with a Postgraduate Professional license.

The average within-division change differed from the change in the state overall. While the 6.9-percentage-point decline in the share of teachers with a Collegiate Professional license mirrored the

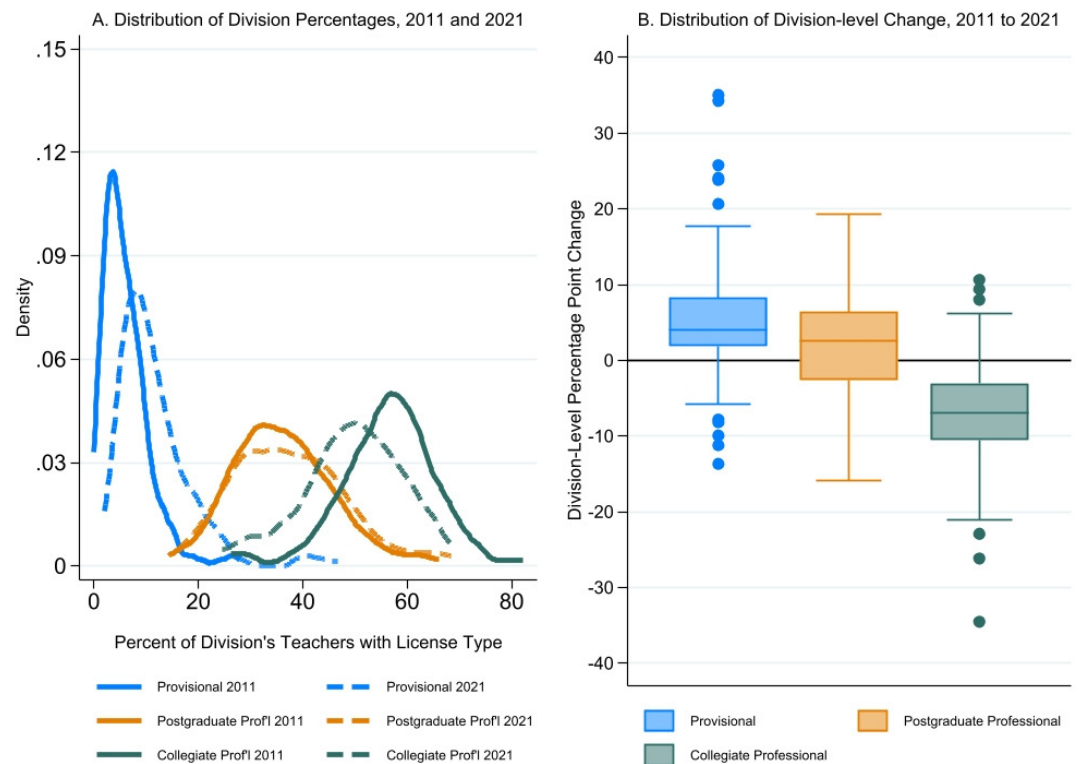


Figure 2. Distribution of division-level composition of teacher licenses in 2011 and 2021 and division-level change between 2011 and 2021

How to Interpret Panel B: The three horizontal lines of each box represent the percentage point change in the share of teachers with a given license type in the divisions at the 25th, 50th (median), and 75th percentiles. The horizontal lines above and below the box represent the upper and lower adjacent values while the dots represent outlier divisions (i.e., divisions with particularly extreme values).

Notes: Analysis was conducted at the division level and included 132 observations.

statewide decline, the average increase in the share with a Provisional license was almost four times larger than the increase in the share with a Postgraduate Professional license (5.5 versus 1.4 percentage points). Furthermore, the direction of the change was not the same in all divisions (panel B, **Figure 2**). The percentage of teachers with a Collegiate Professional license increased in 15 divisions while the share with a Postgraduate Professional license decreased in 51 divisions and the share with a Provisional license decreased in 20 divisions.

Following our approach in our analysis of teacher retention and mobility [2], we analyze license composition among groups of teachers defined by their gender and race/ethnicity. As shown in **Table 1**, teachers during this period were overwhelmingly

female and White. Two of the groups we examined each represented only about half a percent of teachers (Hispanic males and other race males). Comparisons among the six panels of

Table 1. Teacher gender and race, 2011 to 2021

| | White | Black | Hispanic | Other Race | Missing Race | Total |
|----------------|-------|-------|----------|------------|--------------|--------|
| Female | 64.7% | 9.0% | 2.3% | 2.4% | 0.5% | 78.9% |
| Male | 17.2% | 2.5% | 0.5% | 0.6% | 0.1% | 20.9% |
| Missing Gender | <0.0% | <0.0% | <0.0% | <0.0% | 0.1% | 0.2% |
| Total | 81.9% | 11.5% | 2.8% | 3.0% | 0.8% | 100.0% |

Notes: N = 933,369 teacher-year observations of 158,506 unique teachers. 8,602 teacher-year observations of 7,387 unique teachers with an unknown license type were excluded. "Other Race" combined American Indian/Alaska Native, Asian, Native Hawaiian or Pacific Islander, and teachers who identified as multi-racial.

Figure 3, which illustrate variation in license type by teacher race/ethnicity and gender, revealed many interesting patterns. First, the composition of

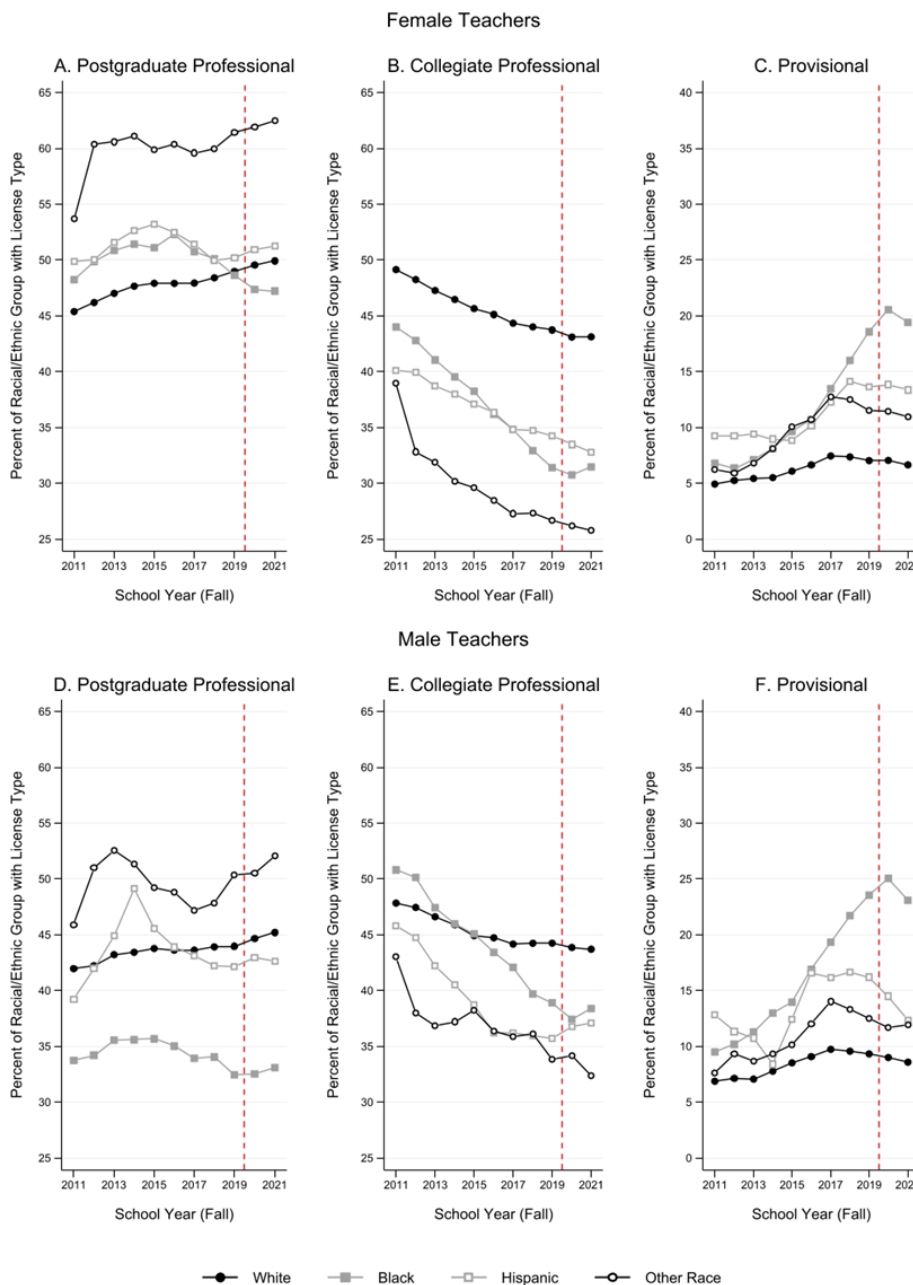
licenses for each group of teachers (White, Black, Hispanic, and other race female and male teachers) changed between 2011 and 2021 in the same

manner as the statewide composition of licenses, with a few exceptions. The percentage of teachers with a Postgraduate Professional license increased among all groups except Black female and Black male teachers. The decline over the full period for female and male Black teachers (1.0 and 0.6 percentage points, respectively) reversed earlier

Figure 3. Licenses held by female and male teachers within racial/ethnic groups, 2011 to 2021

How to interpret: In 2021, 62% of female other race teachers held a Postgraduate Professional license as did 51% of female Hispanic teachers, 50% of female White teachers, and 47% of female Black teachers. Percentages within a racial/ethnic group do not sum to 100% across the three panels because there are other license types not shown here.

Notes: Analysis was conducted at the teacher-year level and included 731,474 observations on 155,769 unique teachers. 910 observations (0.1% of the sample) had two licenses in the same year. 4,050 unique teachers were excluded because they had no license-type data. "Other Race" combined American Indian/Alaska Native, Asian, Native Hawaiian or Pacific Islander, and teachers who identified as multi-racial.



increases. The other exception was the percentage of Hispanic male teachers with a Provisional license which decreased slightly over the full period (0.4 percentage points) but had increased over much of the period.

A second interesting pattern emerged across license types within teacher groups. Female teachers, regardless of race/ethnicity, were more likely than male teachers to hold a Postgraduate license in each year analyzed. They were also less likely than male teachers to hold a Provisional license except among Hispanic teachers in 2021. In this year, female Hispanic teachers were more likely than male Hispanic teachers to hold a Provisional license. With respect to the Collegiate Professional license, female Black and other race teachers were less likely than their male peers to hold this license type. The same was true among Hispanic teachers (except in 2016) and among White teachers (since 2018).

Finally, the difference in license composition within gender but across race/ethnicity increased over time. This was most noticeable in the percentage of teachers with a Provisional license. Between 2011 and 2021, the share with a Provisional license increased the most among Black teachers and the least among White teachers. In 2011, the difference between the group with the highest percentage and the group with the lowest percentage was 4.3 percentage points among female teachers and 5.9 percentage points among male teachers. By 2021, these differences had grown to 12.8 and 14.5 percentage points, respectively.

Composition of Newly-Issued Licenses

To identify how the composition of new licenses issued by the VDOE changed, we examined data on licensure maintained by the Office of Licensure. [7] The number of new licenses issued each year has declined over the period. 3,085 fewer licenses were issued in 2021 than in 2011 (**Figure 4**, panel A). This decline has continued since the beginning pandemic. There were 1,540 fewer new Postgraduate Professional licenses issued in 2021 than in 2011, 1,243 fewer Collegiate Professional licenses, and 438 fewer Provisional licenses. Given these changes, the composition of the newly-issued licenses shifted somewhat over this period (panel B) away from the two professional licenses and towards the Provisional and other licenses. The trends in the most recent years could be the result of the post-pandemic backlog in processing licensure applications; however, many of those were

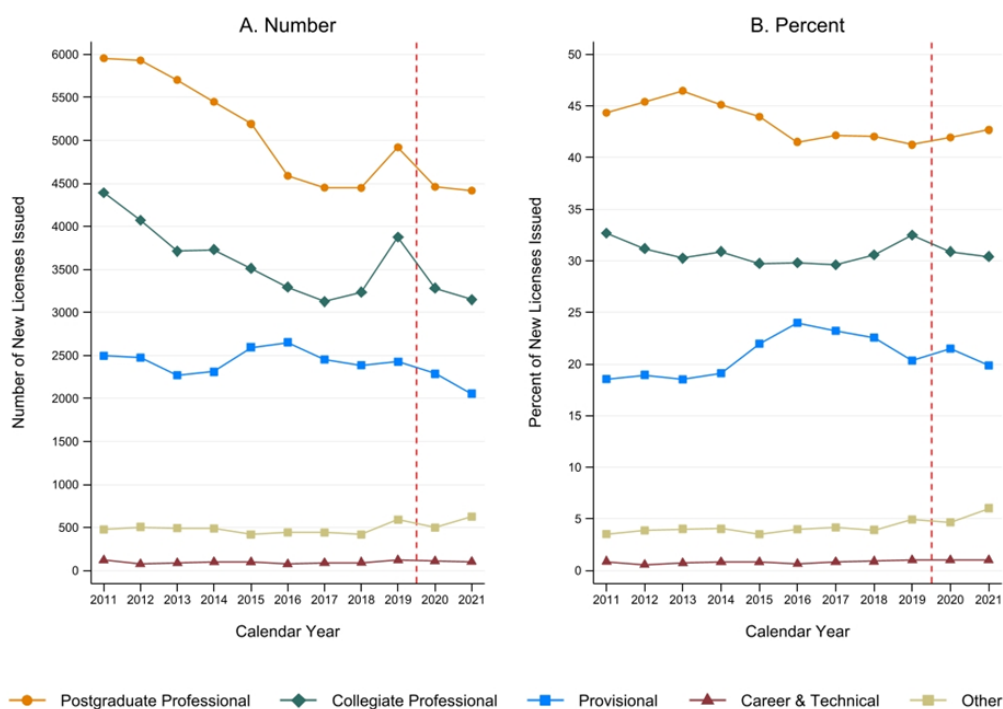


Figure 4. Number and percent of new licenses issued by type and year, 2011 to 2021

How to Interpret: Among the new licenses issued in 2021, 43% were Postgraduate Professional licenses, 30% were Collegiate Professional licenses, 20% were Provisional licenses, 1% were CTE licenses, and 6% were other types of licenses (panel B).

Notes: Analysis was conducted at the teacher-license type level and included 145,295 observations on 118,729 unique teachers.

for renewals which were not included in this analysis.

Composition of Licenses Held by First-year Teachers.

Not all the individuals receiving new Virginia teaching licenses took a teaching position in a Virginia public school. We, therefore, shift our focus to the licenses held by first-year teachers in Virginia K-12 public schools. Changes over time in the licenses held by new teachers were a key driver of the patterns we observed among all teachers that we highlighted above. [8]

In **Figure 5**, we show how the composition of

the licenses of first-year teachers changed since 2011 when we excluded the teachers with an unknown license type (panel A) and when we included them (panel B). Three distinct periods can be seen in these time trends. The first was between 2011 and 2014 during which time the license composition changed little. Between 2015 and 2017, the second period, the percentage of first-year teachers with a Provisional license increased while the share with a Collegiate or Postgraduate Professional license decreased. These changes reversed somewhat between 2018 and 2020. Comparing 2020 to 2011, the share of first-year teachers with a Provisional license increased 5.8 percentage points. The Provisional license has been the most common license among first-year teachers since 2015 (excluding 2021 due to data concerns). Over this same period, the share with a Postgrad-

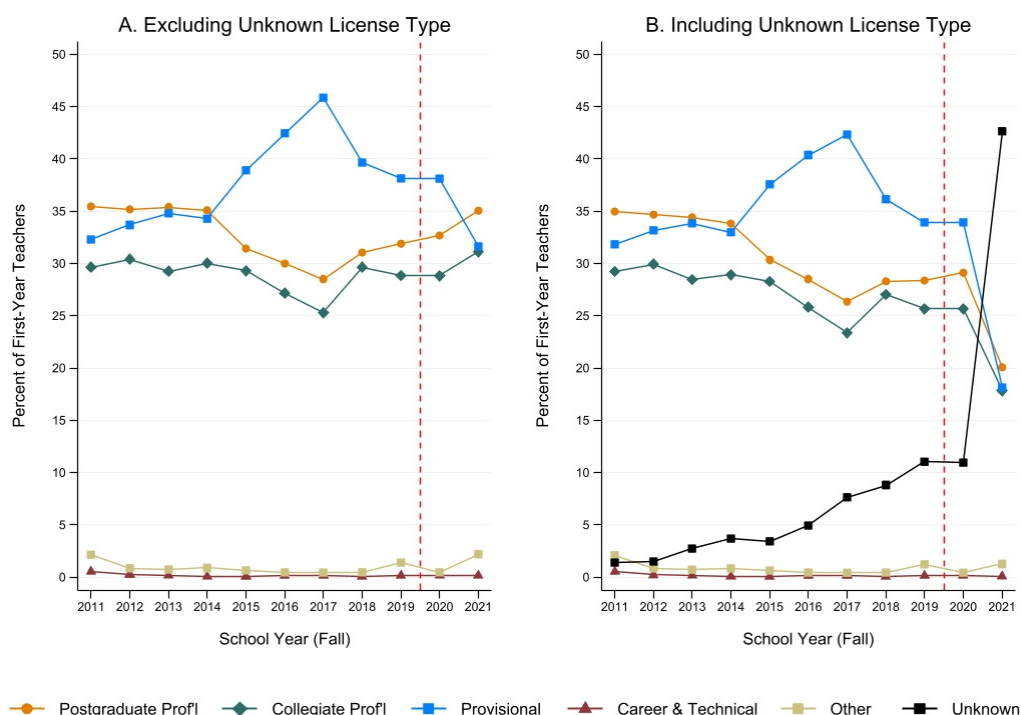


Figure 5. Number and percent of licenses held by first-year teachers by type and year, 2011 to 2021

How to Interpret: Among the first-year teachers in 2019 with a known license type (panel A), 38% of first-year teachers held a Provisional license, 32% held a Postgraduate Professional license, 29% held a Collegiate Professional license, less than 1% held a Technical Professional license, and 1% held some other type of license.

Notes: Analysis was conducted at the first-year teacher level and included 74,440 and 81,827 teachers in panels A and B, respectively. 243 teachers (0.3% of the sample) had two licenses in the same year.

uate or Collegiate Professional license decreased by 2.8 and 0.8 percentage points, respectively (panel A). Finally, the fact that 42.7% of the first-year teachers in 2021 were missing a license type greatly complicates any comparison of 2021 to the prior years. We include 2021 in the figures, however, for the sake of completeness.

Given the amount of missing data in 2021, we examined change at the division-level between 2011 and 2020. We plot in **Figure 6** (on the next page) the change, measured in percentage points, in the percentage of each division's first-year teachers with a specific license type. We excluded the teachers with an unknown license type in panel A and included them in panel B. The scale of the division-level change in license composition among first-year teachers was larger than it was among all teachers

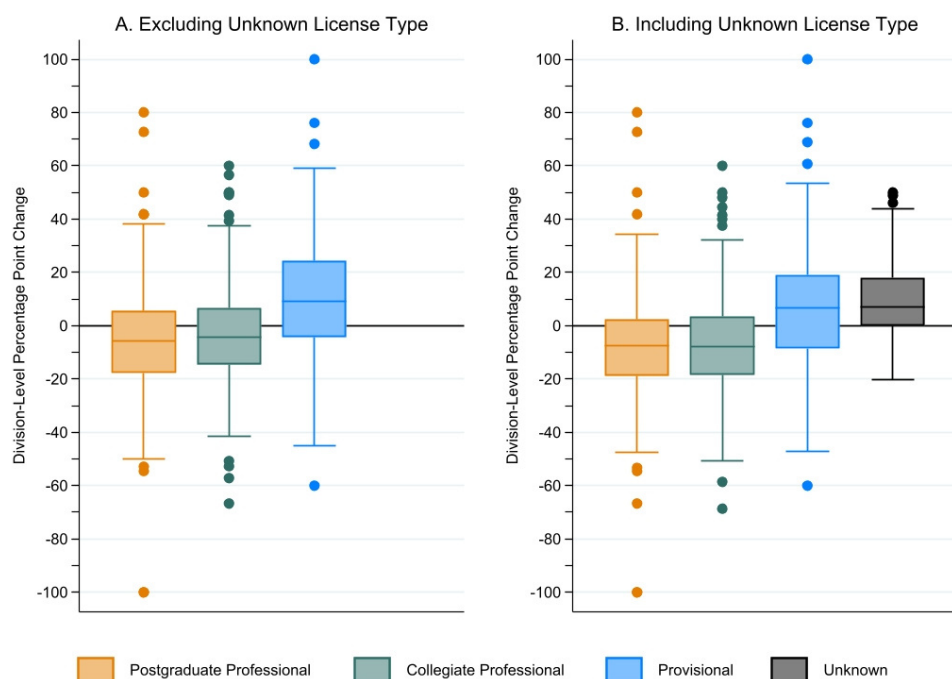


Figure 6. Distribution of division-level change in the percentage of first-year teachers with Postgraduate Professional, Collegiate Professional, and Provisional licenses, 2011 to 2020

How to Interpret: The three horizontal lines of each box represent the percentage point change in the share of first-year teachers with a given license type in the divisions at the 25th, 50th (median), and 75th percentiles. The horizontal lines above and below the box represent the upper and lower adjacent values while the dots represent outlier divisions (i.e., divisions with particularly extreme values).

Notes: Analysis was conducted at the division level and included 132 observations.

(Figure 2). This was because some divisions hire very few first-year teachers in any given year. For example, 15 divisions hired 5 or fewer first-year teachers in 2021. That number increased to 30 divisions when we excluded teachers without a license type.

Similar to the overall patterns that we showed in Figure 5, the share of first-year teachers with a Provisional license increased in the majority of

divisions while the share with either of the Professional licenses decreased. In the average division (excluding the unknown license types), the share with a Provisional license increased 10.5 percentage points, the share with a Postgraduate Professional license decreased 5.2 percentage points, and the share with a Collegiate Professional decreased 3.6 percentage points.

Turning to how licensure differed across teacher gender and race/ethnicity, in **Table 2**, we decompose the first-year teacher sample by gender and race/ethnicity. We excluded first-year teachers with unknown license types. First-year teachers were less likely to be White than were teachers overall even after accounting for a higher share of teachers with missing information (roughly 3.4% were missing gender and/or race/ethnicity). As with all teachers (Table 1), some populations were quite small as a share of all first-year teachers, e.g., male Hispanic and male other race teachers.

Most groups of first-year teachers exhibited the same trends between 2011 and 2020 as we found among all first-year teachers; however, there were exceptions. The share of all groups with a Postgraduate Professional license decreased for all but two groups – male Hispanic and female other race teachers (panels A and D, **Figure 7** on the next page). While

Table 2. Percent of first-year teachers by gender and race/ethnicity, 2011 to 2021

| | White | Black | Hispanic | Other Race | Missing Race | Total |
|----------------|-------|-------|----------|------------|--------------|--------|
| Female | 62.1% | 8.8% | 3.2% | 3.3% | 1.9% | 79.3% |
| Male | 15.0% | 2.7% | 0.8% | 0.7% | 0.4% | 19.6% |
| Missing Gender | 0.1% | <0.0% | <0.0% | <0.0% | 0.9% | 1.1% |
| Total | 77.2% | 11.5% | 4.0% | 4.1% | 3.2% | 100.0% |

Notes: $N = 74,440$ teachers. First-year teachers with unknown license types were excluded. “Other Race” combined American Indian/Alaska Native, Asian, Native Hawaiian or Pacific Islander, and teachers who identified as multi-racial.

teachers were more likely in 2020 than in 2011 to have a Postgraduate Professional license, the rate decreased after 2012. The share with a Collegiate Professional license decreased for all groups except White teachers, although the increase was small among both female and male White teachers (panels B and E). Finally, for the Provisional license, only male Hispanic teachers experienced a decrease (panel F).

Between 2011 and 2020, a Provisional license was the most common license among 6 of the 8 groups of first-year teachers. Among male teachers, 44.4%

of White, 65.4% of Black, 48.2% of Hispanic, and 44.0% of other race teachers had a Provisional license as well as 53.0% of Black female and 39.3% of Hispanic female teachers. The two exceptions were White female and other race female teachers (30.9% and 36.6%, respectively). The Postgraduate Professional license was the most common license among these two groups (35.7 and 40.8%, respectively). Entering the classroom without first completing a teacher preparation program (which the Provisional license does not require) was more common among males than females (48.4% versus

34.5%). Most Black teachers entered the profession this way (56.5% overall, 53.6% of female teachers, and 65.9% of male teachers). This pathway was also very popular among Hispanic teachers. Over the full period, 51.4% of male Hispanic teachers and 40.4% of female Hispanic teachers began their careers with a Provisional license. White teachers were the least likely to enter the

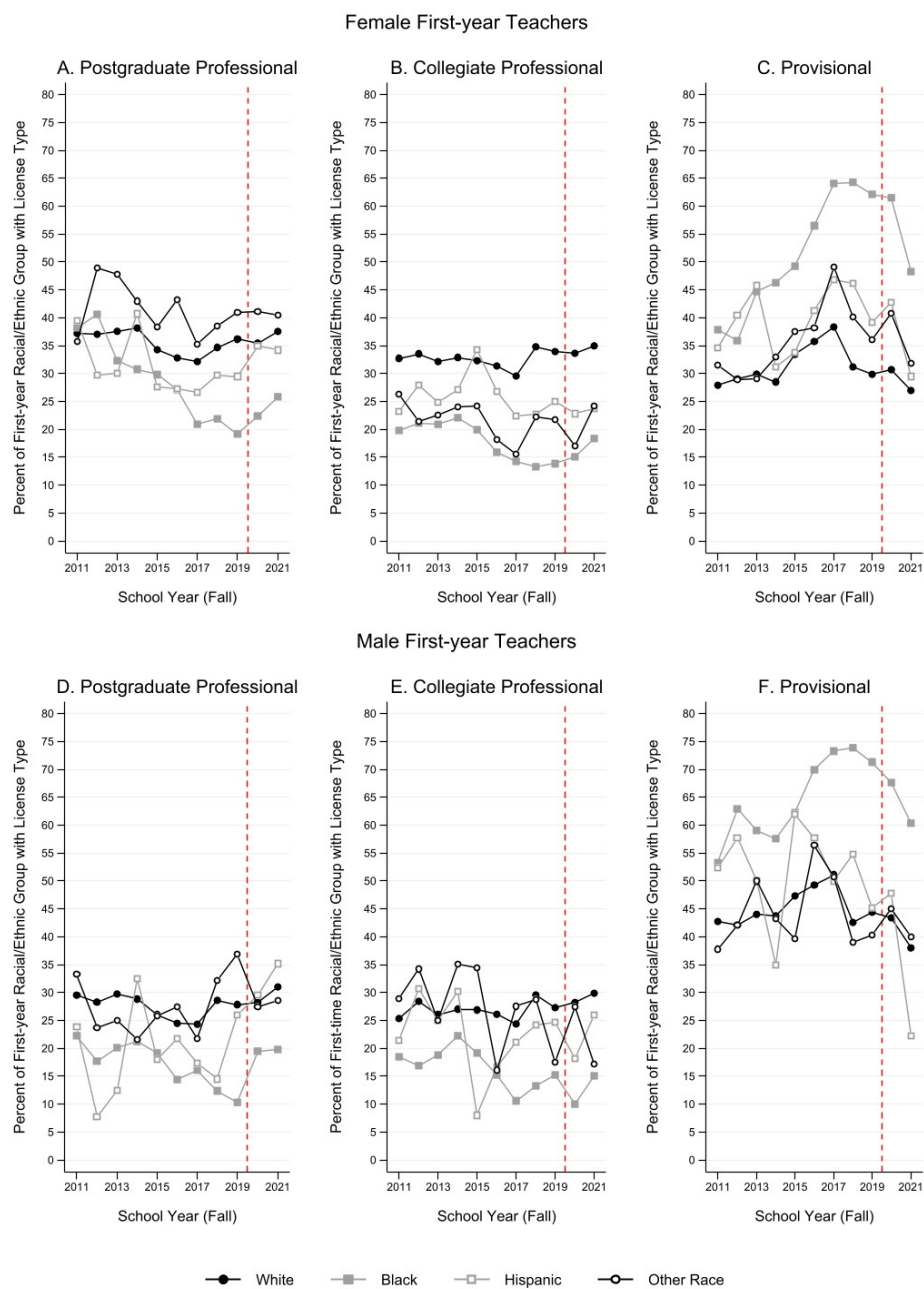


Figure 7. Licenses held by female first-year teachers within racial/ethnic groups, 2011 to 2021

How to interpret: In 2020, 41% of female other race first-year teachers held a Postgraduate Professional license (panel A) compared to 36% of female White first-year teachers, 35% of female Hispanic first-year teachers, and 22% of female Black first-year teachers. Percentages with a racial/ethnic group do not sum to 100% across the three panels because there were other license types not shown here.

Notes: Analysis was conducted at the teacher-year level and included 71,916 teachers. 233 teachers (0.3% of the sample) had two licenses in the same year. Observations with no license data were excluded. “Other Race” combined American Indian/Alaska Native, Asian, Native Hawaiian or Pacific Islander, and teachers who identified as multi-racial.

profession this way (34.0% overall, 31.4% of female teachers, and 45.1% of male teachers). The percentages shown in Figure 7 were calculated on a sample that excluded first-year teachers without a known license type. In **Figure 8**, we display the percentage of teachers without a known license type by race/ethnicity separately by gender. The differences between race/ethnicity started off relatively small when the overall rates of unknown license types were low. Starting around 2016, however, the rate for Black teachers began growing at a faster rate than the others. In 2021, 60% of female first-year Black teachers had an unknown license type compared to 44% of other race teachers, 41% of Hispanic teachers, and 38% of White teachers (panel A). The differences were similar for male first-year teachers: 63% for Black teachers, 55% of other race teachers, 42% White teachers, and 40% for Hispanic teachers.

We hope that future updates of the licensure data and additional years of employment data will allow us to impute more of these unknown licenses to gain a more complete picture of how initial licensure has changed over time.

Teacher Retention and Mobility by Initial License Type

To examine how retention and mobility varied across license type, we assigned teachers to their initial license type (rather than their current license type as in prior analyses) and ignored any subsequent changes to the type of license they held. [9] The nature of the Provisional license required this approach. Given that it was non-

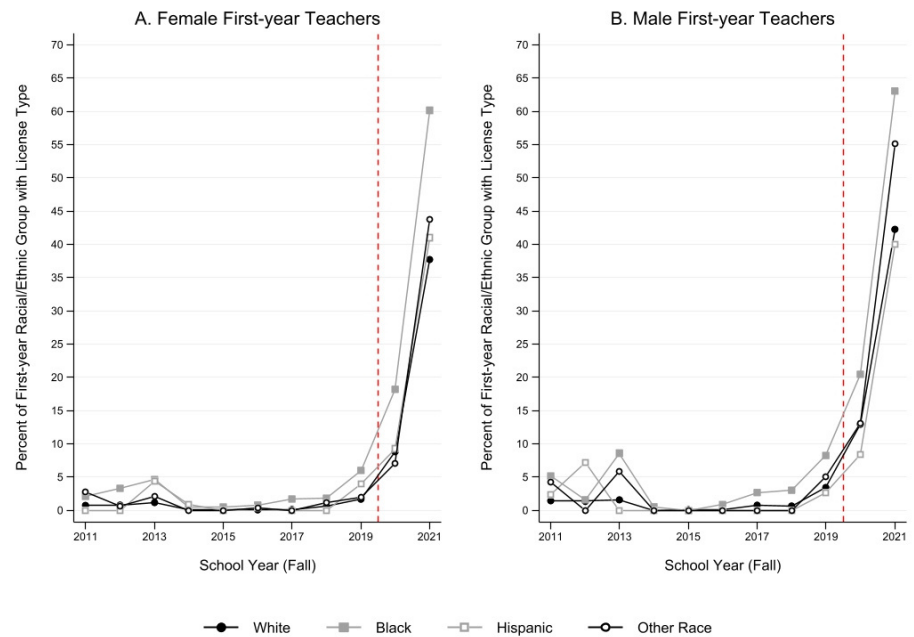


Figure 8. Percent of first-year teachers with missing license type by gender, race/ethnicity, and year, 2011 to 2021

How to Interpret: In 2021, 60% of female Black first-year teachers had missing license type information (panel A) compared to 44% of female other race first-year teachers, 41% of female Hispanic first-year teachers, and 38% of female White first-year teachers.

Notes: Analysis was conducted at the first-year teacher level and included 61,070 female and 15,385 male teachers. “Other Race” combined American Indian/Alaska Native, Asian, Native Hawaiian or Pacific Islander, and teachers who identified as multi-racial.

renewable and valid for only three years, teachers with a current Provisional license would be early career teachers while teachers with either of the Professional licenses would span the full experience spectrum. Research has consistently shown that early career teachers have the lowest retention and highest mobility rates.

Teachers were identified as retained if they continued to teach in the same school the following year. We considered all other teachers to have exhibited some form of mobility. Some teachers transferred to teach in a different school the following year, either in the same or a different Virginia division. Other teachers stopped teaching to assume an administrative role in a Virginia public school. The remaining teachers, those who departed, were not employed in any Virginia regular K-12 public school the following year. Given that teachers’ retention and mobility decisions were made at the

end of each school year, we referred to school years by the spring of the year in this section (e.g., 2020 refers to SY 2019-20).

We displayed the trends over time in retention and mobility in **Figure 9**. Annual retention rates were highest (panel A) and the annual departure rates were lowest (panel B) among teachers whose initial license was the Collegiate Professional license. The differences in the retention rates between teachers initially licensed with a Postgraduate Profession and those with a Provisional license were quite small but the two groups did differ in their mobility. While their

likelihood of transferring schools were similar (panels C and D), teachers who started their careers with a Provisional license were more likely than those that started with a Postgraduate Professional license to depart (panel B) and less likely to leave teaching for administrative roles (panel E).

The effects of the pandemic were evident in **Figure 9**. In the first year of the pandemic, retention rose and departures fell for all groups. The retention rate rose the most and the departure rate fell the most for teachers with an initial Provisional license and the least for teachers with an initial Collegiate Pro-

fessional license. For all groups, the retention rates were the highest observed and the departure rates were the lowest observed. In the second year of the pandemic, retention dropped

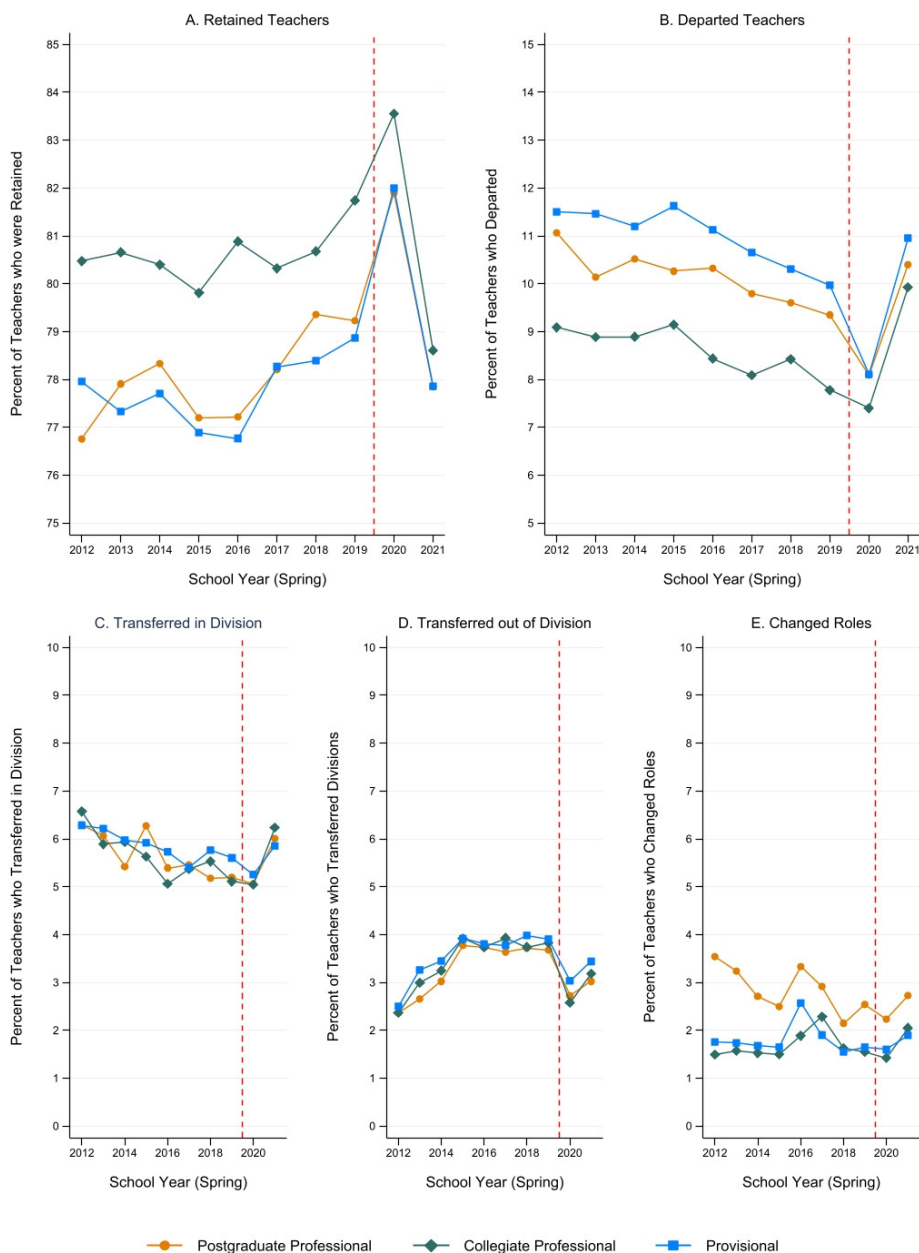


Figure 9. Teacher retention and mobility rates by initial license type and year, Spring 2012 to Spring 2021

How to Interpret: Among teachers teaching in Spring 2021, 78.7% of teachers who began their teaching career with a Collegiate Professional license were retained the following year (panel A) compared to 77.9% of teachers who began their careers with either a Postgraduate Professional or Provisional license.

Notes: Analysis was conducted at the teacher-school-year level. It included 486,517 observations on 96,567 unique teachers from Spring 2012 through Spring 2021 on individuals observed starting their Virginia public school teaching careers since SY 2006-07. Teachers were assigned to the license type(s) they held in their first year as a teacher. 3,189 observations (0.6% of the sample) had two licenses. Trends for teachers with CTE licenses (N = 861) or other license types (N = 10,427) were not shown because they only accounted for 2.3% of the sample. Analysis also excluded teachers in years that their school closed.

and departures increased for all groups. The retention rate dropped the most for teachers with an initial Collegiate Professional license.

One limitation of the trends shown in Figure 9 was that the maximum experience level of the teachers included increased from 6 years in 2012 to 15 years in 2021. That shift across the years contributed to the increasing retention and decreasing mobility rates over time. We, therefore, also show the trends across years of experience in retention and mobility in **Figure 10**. The limitation here was that we cannot observe the effects of the pandemic.

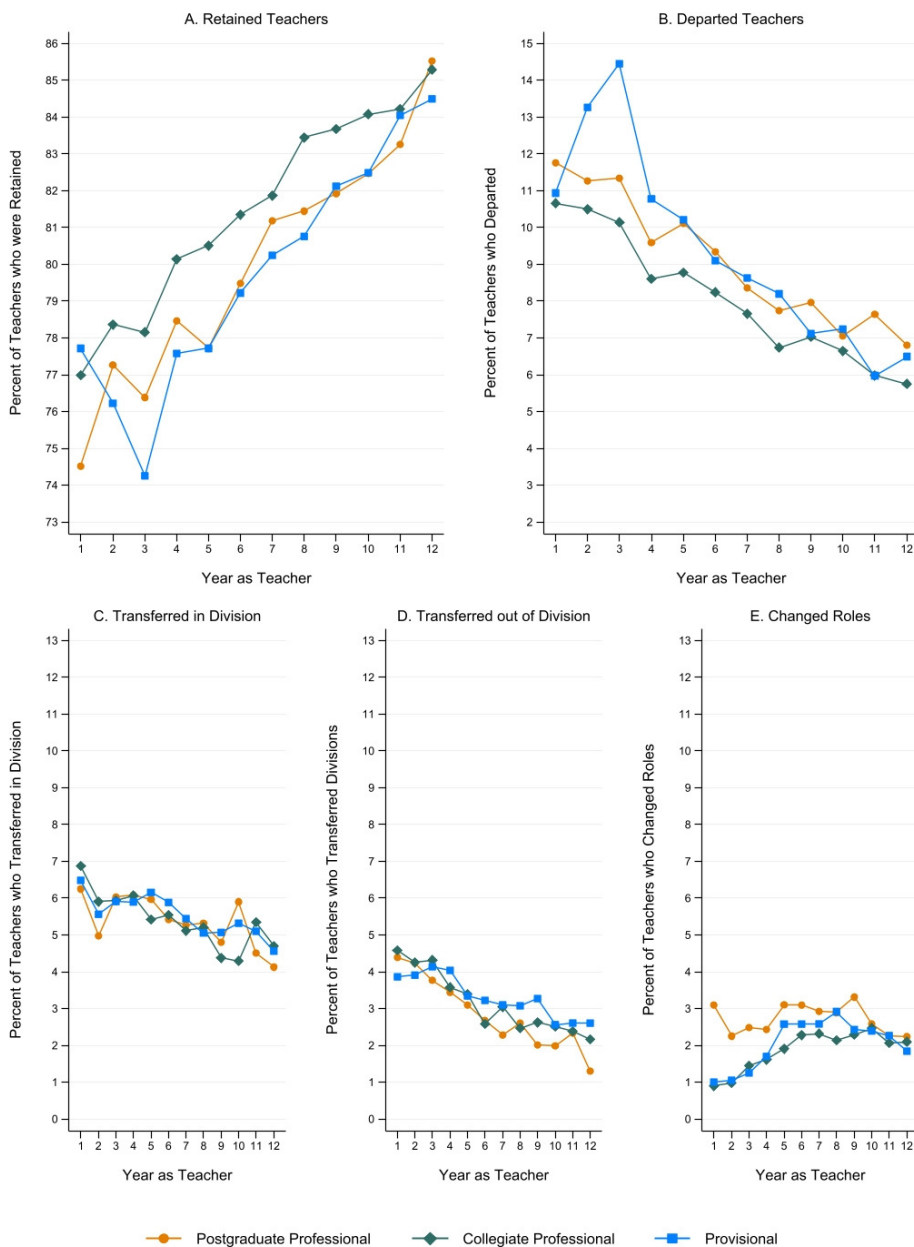
The patterns shown in the panels of **Figure 10** revealed that retention rates generally increased with experience (panel A) and departure rates and rates of transferring schools generally decreased with experience (panels B, C, and D). The share of teachers moving into administrative roles largely plateaued after the 5th or 6th year of teaching (panel E). The most notable deviation from these general patterns was teachers with an initial Provisional license during their first three years of teaching. Their retention and departure rates moved in the opposite direction of teachers with the Professional licenses. This was because their Provisional license was valid for only three years and was non-renewable. For these teachers to teach beyond the third year, they

provisional license was valid for only three years and was non-renewable. For these teachers to teach beyond the third year, they

Figure 10. Teacher retention and mobility rates by initial license type and years as teacher, Spring 2012 to Spring 2021

How to Interpret: Among teachers in their third year of teaching, 78.1% of those who started their teaching career with a Collegiate Professional license were retained the following year (panel A) compared to 76.4% of third-year teachers who began their teaching career with a Postgraduate Professional license and 74.2% of third-year teachers who began their teaching career with a Provisional license.

Notes: Analysis was conducted at the teacher-school-year level. It included 486,517 observations on 96,567 unique teachers from Spring 2012 through Spring 2021 on individuals observed starting their Virginia public school teaching careers since SY 2006-07. Teachers were assigned to the license type(s) they held in their first year as a teacher. 3,189 observations (0.6% of the sample) had two licenses. Trends for teachers with CTE licenses ($N = 861$) or other license types ($N = 10,427$) were not shown because they only accounted for 2.3% of the sample. Analysis also excluded teachers in years that their school closed.



were required to hold a Professional license. The increasing departure rates over the first three years indicated that many were unable to meet the requirements of the Professional license. Among those that did, however, their retention and mobility rates were very similar to teachers with an initial Postgraduate Professional license.

Conclusion

The composition of teacher licenses within the Commonwealth of Virginia changed meaningfully statewide, across divisions, across teacher gender and race/ethnicity, and among first-year teachers over the past decade. The most notable change was the shift toward the Provisional license. Among all teachers statewide, the percentage of teachers with a Provisional license increased 3.6 percentage points and increased in all but 20 divisions. A prime driver of this change was a 5.8-percentage-point increase in the percentage of teachers entering the profession with a Provisional license. These teachers began their career without having had a supervised student teaching experience. While teaching under a Provisional license, teachers must complete coursework towards the Professional license while also learning how to teach on the job. The Provisional license as a route into the teaching profession was more common among Black and Hispanic teachers than White teachers (61%, 41%, and 39% respectively). Our findings raised many important questions about the characteristics of the divisions that hire these teachers, the schools where they work, and the students and subjects they teach. Answers to these questions, while beyond the scope of this brief, can help us better understand the differences in teacher retention and mobility across the license types.

Endnotes

[1] Joint Legislative Audit and Review Commission (2023, September 12). *Virginia's K-12 Teacher Pipeline. Commonwealth of Virginia*. Available at <https://jlarc.virginia.gov/landing-2023-virginias-k-12->

[teacher-pipeline.asp](https://www.doe.virginia.gov/teacher-pipeline.asp).

[2] Katz, V., & Miller, L. C. (2023, April). *Post-Pandemic Onset Public School Teacher Retention and Mobility in Virginia*. EdPolicyWorks, University of Virginia. Available at bit.ly/COVIDequity.

[3] A bachelor's degree is not a requirement for the Technical Professional license.

[4] Provisional licenses include Provisional, Provisional for Special Education, Provisional for Career Switchers, the pandemic-era one-year extensions of these licenses, and Teach for America. Career and Technical Education licenses include the Technical Professional and Career and Technical Education licenses. Other licenses also include the Eligibility and Special Education Conditional Licenses.

[5] <https://www.doe.virginia.gov/teaching-learning-assessment/teaching-in-virginia/licensure>

[6] To explore how the composition of teachers' licenses changed over time we assembled a teacher-level dataset in which a teacher had one or two observations (depending on whether they held two licenses) for each year they taught in a regular public school. The final dataset included 933,396 teacher-year observations of 158,506 unique teachers. Very few teachers (n=1,119) had two licenses in a single year. We exclude 8,602 teacher-year observations of 7,387 unique teachers with missing license information.

[7] This office processes applications for new teaching licenses and renewals of licenses previously issued. Here, we focused only on the newly-issued licenses to get a sense of how the population of individuals licensed to teach in Virginia has changed over time. Most but not all of these newly-issued licenses were issued to new teachers. Consider a teacher who began his Virginia teaching career with a Provisional license and, after three years, converted that Provisional license to a

Postgraduate Professional license. Our analysis included both his Provisional and Postgraduate Professional licenses.

[8] Returning to the teacher-level dataset assembled for first research question, we identified the first year each teacher was observed in the data. (Some of the first-year teachers would have previously taught in another state or in a private school in Virginia; however, we cannot observe this prior experience.) The first school year in the dataset was 2005-06, but we focused only on the 81,827 teachers first observed in or after SY 2011-12. (Very few teachers return to the classroom after hiatus of six or more years.) In our analysis, teachers appeared in one year only and appeared twice in that year if they had two licenses in their first year of teaching in Virginia.

[9] We restrict the dataset to teachers observed between the 2011-12 and 2021-22 school years for whom we were able to identify their initial license type. These teachers could have started their Virginia teaching career as early as the 2006-07 school year. Teachers appeared once for each school they taught at in each year (twice per school per year if they had two licenses). Restricting the analysis to teachers for whom we observed their initial license type meant that our analysis included 57.9% of all teacher-school-year observations. The annual inclusion rates range from 44.4% in 2011-12 to 82.27% in 2020-21. The inclusion rate was above 50% in all but the first two years.

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