

METHODS

Three datasets: FileDropouts, StaffDemos and DistrictSubset were used in the analyses. Observations with subset number 42 were extracted from the DistrictSubset and used to subset district observations from FileDropouts and StaffDemos using SAS University Edition 9.4 and R Version 1.0.136. The unique 7 digit district code from variables DistrictCode and CDS_Code were extracted from StaffDemos and FileDropouts respectively: DistrictCode corresponded to 7 digits and CDS_Code corresponded to 14 digits. The extracted 7 digit code was used to select observations and merge datasets. After subsetting the FileDropouts with subset number 42, the resulting dataset had 47,687 observations consisting of student information from subset 42 in 750 districts. After subsetting the StaffDemos by subset number 42, the resulting dataset had 284,405 observations consisting of staff information from subset 42 in 750 districts.

Enrollment and dropout by gender, ethnicity, and grade were summed across each district by the district code. The total student enrollment and total student dropout regardless of the other variables was summed across each district using the district code. Students enrolled in ungraded secondary classes were included in the totals, such as enrollment counts and dropout counts. They were also summed across as their own grade category. There were not any inherent missing values in the dataset, however, when calculating the dropout rates, the rate was set to missing if enrollment values were 0.

Staff characteristics were calculated across districts using the unique district code. Education level was categorized as outlined in the prompt. Years teaching, years in district, and Full-Time Equivalent (FTE) duties, were calculated by district and then averaged. The median overall student dropout rate across all districts was calculated and used to separate the districts into an upper and lower group (375 districts each). Districts with a higher overall dropout rate were categorized as “Above Median”, and districts with the same or lower overall dropout rate were categorized as “At or Below the Median”. Percent staff with a Master’s or Doctorate, percent tenured staff, average staff age, average years teaching, and average years in the District were averaged by the median designation across districts. The average administrative, pupil, and teaching FTE for each district was plotted by the district’s overall student dropout rate. Scatter markers were included to show data clustering.

RESULTS

Of all 284,405 staff members, 73.43% were females (Table 1). The staff is well-educated, with over half of the staff holding a Baccalaureate (50.73%) and almost half holding a Master’s (44.95%). The diversity in staff is lacking, with 61.41% of staff being White, 21.02% being Hispanic or Latino, and only 4.80% being African American. Overall, 66.86% of staff are tenured. On average, the staff have spent 9.37 years teaching, and this is similar to the average years in the district, 8.90. This suggests staff may begin teaching at one district and have long-term retention in their teaching positions.

Across districts, the median number of enrolled male students is 351 and for enrolled females is 352 (Table 2). Most students are Hispanic or Latino (median 243) or White (median 155). 7th and 8th grade enrollment appear different than other grade enrollment across districts, where the lower 25% of districts have 0 students enrolled in grades 9-12, whereas the lower 25% quartile has 50 students enrolled in grades 7 and 8. There are few students enrolled in ungraded secondary classes, and across 75% of districts, there are 0 students enrolled.

Male students tend to dropout at a higher rate than female students, 2.41 male students per 100 enrolled male students and 1.86 female students per 100 enrolled female students (Table

3). Students lacking a reported ethnicity had the highest dropout rate of 17.42 students per 100 enrolled students without a reported ethnicity. As the grade levels increased from 7th to 12th, the mean dropout rate per 100 enrolled students also increased, from 0.45 students in 7th and 8th grade to 5.77 students in 11th and 12th grade. Students enrolled in ungraded secondary classes also had a relatively high dropout rate of 9.71 students per 100 enrolled students in ungraded secondary classes.

The median dropout rate was 0.39% across all districts. The staff characteristics between the districts in the upper or lower 50% are similar in percent tenured staff, age of staff, years teaching, and average years in the district (Table 4). The characteristic that may have a significant difference is the percent staff with a Master's or Doctorate degree. The districts below the median dropout rate have an average 35.64% of staff with either degree but those above the median have an average 40.86% with either degree.

TABLES AND FIGURES

Table 1. Staff Demographics and Teaching Characteristics

| | Frequency | Percent |
|--|-------------|---------------------------|
| Gender | | |
| Female | 208,839 | 73.43 |
| Male | 75,566 | 26.57 |
| Age | | |
| 17-30 | 33,427 | 11.75 |
| 31-45 | 122,758 | 43.16 |
| 46-60 | 105,169 | 36.98 |
| 61-75 | 22,790 | 8.01 |
| 76 or older | 261 | 0.09 |
| Education Level | | |
| Associate Degree | 997 | 0.35 |
| Baccalaureate | 144,291 | 50.73 |
| Doctorate | 3,822 | 1.34 |
| Fifth Year | 1,719 | 0.60 |
| Master's Degree | 127,850 | 44.95 |
| Not Reported or Special | 5,726 | 2.01 |
| Ethnicity | | |
| American Indian or Alaska Native | 1,430 | 0.50 |
| Asian | 16,709 | 5.88 |
| Pacific Islander | 938 | 0.33 |
| Filipino | 4,657 | 1.64 |
| Hispanic or Latino | 59,768 | 21.02 |
| African American | 13,639 | 4.80 |
| White | 174,654 | 61.41 |
| Two or More Races | 2,293 | 0.81 |
| Not Reported | 10,317 | 3.63 |
| Employment Status | | |
| Long term substitute or temporary employee | 15,397 | 5.41 |
| Probationary | 44,223 | 15.55 |
| Tenured | 190,156 | 66.86 |
| Not Reported or Other | 34,629 | 12.18 |
| Characteristics | Mean | Standard Deviation |
| | N= 284,405 | |
| Years Teaching | 13.85 | 9.37 |
| Years in District | 11.69 | 8.90 |
| Full-Time Equivalent Teaching Duties | 82.06 | 37.92 |

Commented [AH(1): I have 34,029 (11.96%)

| | | |
|--|------|-------|
| Full-Time Equivalent Pupil Services Duties | 8.22 | 27.10 |
| Full-Time Equivalent Administrative Duties | 7.19 | 25.74 |

Table 2. District-Level Enrolled Student Demographic Characteristic Frequencies

| | First Quartile | Median | Third Quartile |
|----------------------------------|--------------------------|--------|----------------|
| | <i>N</i> = 750 Districts | | |
| Gender | | | |
| Male | 57 | 351 | 1238 |
| Female | 53 | 332 | 1152 |
| Ethnicity | | | |
| American Indian or Alaska Native | 1 | 4 | 17 |
| Asian | 1 | 10 | 99 |
| Pacific Islander | 0 | 1 | 9 |
| Filipino | 0 | 3 | 35 |
| Hispanic or Latino | 37 | 243 | 1228 |
| African American | 1 | 9 | 79 |
| White | 32 | 155 | 673 |
| Two or More Races | 2 | 12 | 65 |
| Not Reported | 0 | 1 | 8 |
| Grade | | | |
| 7th and 8th | 50 | 244 | 921 |
| 9th and 10th | 0 | 49 | 732 |
| 11th and 12th | 0 | 57 | 725 |
| Ungraded Secondary | 0 | 0 | 0 |

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Table 3. District-Level Dropout Rates by Gender, Race/Ethnicity, and Grade

| | Mean Dropout per 100 students | Standard Deviation |
|----------------------------------|-------------------------------------|--------------------|
| | <i>N</i> = 750 Districts | |
| Gender | | |
| Male | 2.41 | 7.7 |
| Female | 1.86 | 6.63 |
| Ethnicity | | |
| American Indian or Alaska Native | 3.98 | 14.01 |
| Asian | 2.14 | 13.7 |
| Pacific Islander | 2.48 | 10.51 |
| Filipino | 1.1 | 6.62 |
| Hispanic or Latino | 2.27 | 7.67 |

| | | |
|--------------------|-------|--------|
| African American | 3.47 | 11.06 |
| White | 2.21 | 7.89 |
| Two or More Races | 2.61 | 10.19 |
| Not Reported | 17.42 | 203.01 |
| Grade | | |
| 7th and 8th | 0.45 | 2.35 |
| 9th and 10th | 2.19 | 6.57 |
| 11th and 12th | 5.77 | 11.27 |
| Ungraded Secondary | 9.71 | 27.70 |

Table 4. District-Level Student Dropout Rates by Staff Employment Characteristics

| | At or Below Dropout Median of 0.39% | | Above Dropout Median of 0.39% | |
|---|--|-----------------------|----------------------------------|-----------------------|
| | Mean | Standard Deviation | Mean | Standard Deviation |
| | N= 375 | | N= 375 | |
| Percent Staff with a Masters or Doctorate | 35.64 | 20.20 | 40.86 | 15.60 |
| Percent of Tenured Staff | 55.62 | 26.56 | 55.04 | 24.35 |
| Average Age of Staff | 45.28 | 4.29 | 44.80 | 2.94 |
| Average Staff Years Teaching | 13.31 | 4.09 | 13.00 | 2.93 |
| Average Staff Years in District | 9.62 | 3.61 | 9.78 | 3.18 |

Commented [AH(3)]: Great job. The numbers in this table are tricky to get!

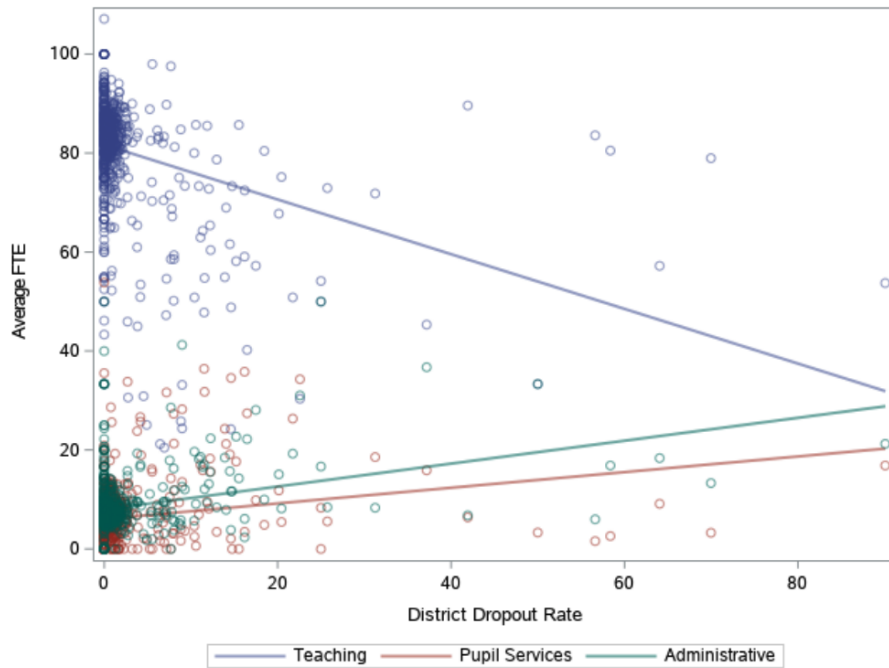


Figure 1. Plot of District-Level Student Dropout Rates by Full-Time Equivalent Duties (FTE). Average staff hours of FTE per district were calculated for Teaching, Pupil Services, and Administrative duties and plotted by the district's overall student dropout rate.

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