



Sample Representativeness Analysis for Frontline Education: Clients Using the Recruiting
and Hiring Solution vs. National District Norms

Betsy Wolf, Ph.D.

Center for Research and Reform in Education (CRRE)
Johns Hopkins University

February 2018

Sample Representativeness Analysis: Recruit & Hire Clients vs. National District Norms

This report descriptively analyzes the comparability of public school districts who use Frontline Education’s Recruiting and Hiring (R&H) solutions with the population of public school districts in the U.S. To determine the degree to which the R&H client subsample was representative of school districts nationally, the Center for Research and Reform in Education (CRRE) at Johns Hopkins University compared district demographics using 2015-16 data from the National Center for Educational Statistics (NCES).¹ The population consisted of 13,128 public school districts, and the R&H subsample of 894 public school districts, approximately 7% of the former.² Comparisons between the R&H district sample and the public school district population were made on the following available demographic variables:

- Geographic region
- Urbanicity
- District size in terms of number of employees
- Low-income student population
- Special education student population
- Student population who have limited English proficiency
- Student population by race/ethnicity

The following section outlines the results from the descriptive analysis.

Results

Geographic Region

This analysis examined differences in the R&H district subsample and population by geographic region in the U.S. The descriptive analysis showed both geographic regional differences and similarities between the R&H district subsample and population. Districts located in the Midwest are overrepresented in the R&H subsample compared with the population (51.7% vs. 36.6%), and districts located in the South and West are underrepresented (16.0% vs. 23.6% and 10.4% vs. 20.7%, respectively). These differences are consequential only if district and student characteristics differ across geographic regions, which is explored in more detail in a

¹ Data Source: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Local Education Agency (School District) Universe Survey Directory Data", 2015-16 v.1a; "Local Education Agency (School District) Universe Survey LEP Data", 2015-16 v.1a; "Local Education Agency (School District) Universe Survey Membership Data", 2015-16 v.1a; "Local Education Agency (School District) Universe Survey Special ED Data", 2015-16 v.1a; "Local Education Agency (School District) Universe Survey Staff Data", 2015-16 v.1a; "Public Elementary/Secondary School Universe Survey Free Lunch Data", 2015-16 v.1a; "Public Elementary/Secondary School Universe Survey Geo Data", 2014-15 v.1a.

² To best align the R&H district subsample with the national district sample, public school districts in which all schools were charter schools were eliminated from the analysis, and the analysis was restricted to “regular public school districts.”

subsequent section. The percentages of districts located in the Northeast were relatively similar in the R&H subsample and population.

Table 1

Percentages of districts by geographic region

Geographic Region	Overall %	R&H Subsample %
Midwest	36.6	51.7
South	23.6	16.0
Northeast	19.1	21.9
West	20.7	10.4
Total	100	100

Urbanicity

This analysis examined differences in the R&H district subsample and population by urbanicity. The percentages of districts by urbanicity in the R&H subsample are within a few points of those in the overall population for districts located in cities, small or mid-sized suburbs, towns, and distant and fringe rural areas. Districts located in large suburbs are overrepresented compared with the population (28.1% vs. 19.1%), and districts located in remote rural areas are underrepresented (10.6% vs. 17.8%).

Table 2

Percentages of districts by urbanicity

Urbanicity	Overall %	R&H Subsample %
City	6.1	9.2
Large suburb	19.1	28.1
Small or mid-sized suburb	4.3	4.6
Town	18.3	17.0
Rural fringe	11.9	11.5
Rural distant	22.5	19.0
Rural remote	17.8	10.6
Total	100	100

Differences in urbanicity for the R&H district subsample and population can be at least partially explained by differences in geographic region. For example, higher proportions of districts in the Northeast and Midwest are located in large suburbs compared with districts located in the South or West, and the R&H subsample contains a higher proportion of districts in the Northeast and Midwest and a lower proportion of districts in the South and West, relative to the population.

District Size

District size was defined in terms of the total number of staff in the district. The majority of districts in both the district population and R&H subsample employ between 100–1000 employees. Yet the R&H average district has more employees than the average district in the population. Small districts are underrepresented in the R&H subsample (19.4% vs. 36.6%) whereas all categorizations of larger districts are overrepresented.

Table 3

Percentages of districts by size

Size	Overall %	R&H Subsample %
1–100 employees	36.6	19.4
100–1000 employees	54.5	63.0
1000–2500 employees	6.3	11.2
2500+ employees	2.6	6.3
Total	100	100

Differences in district size between the R&H subsample and district population cannot be explained by differences in geographic region or urbanicity. Thus, districts in the R&H subsample are typically larger than the average district.

Student Demographic Subgroup

Differences in student demographic characteristics between the R&H district subsample and the district population were also examined. The descriptive analysis compared the district-level mean proportions of students in each category for the overall district population and the R&H district subsample. The R&H district subsample is very similar to the population in terms of student demographic characteristics, including student race/ethnicity and proportions of special education and limited English proficient students. The only student characteristic in which the mean district percentage differed by more than approximately one percentage point for the R&H subsample and population was students' low-income status.³ The R&H districts serve a lower average proportion of low-income students compared with the average district (42.1% vs. 48.5%). While this difference is statistically significant, the difference in mean district percentages of low-income students between the R&H subsample and population is relatively modest at a six percentage point difference.

³ Students' low-income status was defined by receiving free or reduced-price meals.

Table 4

Mean district percentages of student subgroups

Student Characteristics	Overall %	R&H Subsample %
Low-income	48.5	42.1
Special education	14.4	13.7
Limited English proficient	6.4	5.3
Race/Ethnicity		
White	70.1	70.0
Hispanic	14.7	14.5
Black	7.0	8.5
Asian	2.1	3.0
More than one race	3.0	2.7
Other	3.2	1.3

Differences in the percentages of low-income students between the R&H subsample and population are partially explained by differences in geographic region. For example, districts in the Midwest have lower proportions of low-income students than districts in the South or West, and districts in the Midwest are overrepresented in the R&H subsample whereas districts in the South and West are underrepresented.

Conclusion

Given that R&H school district clients are self-selected rather than randomly sampled, it is not expected for them to duplicate population characteristics. However, the descriptive comparison between R&H school districts and the population of public school districts in the U.S. (as reported by the National Center for Educational Statistics) shows reasonable comparability on student characteristics examined: student low-income status, special education status, English proficiency, and race/ethnicity. There was a high degree of comparability between R&H and population districts on all student characteristics with the exception of one: R&H districts serve a lower proportion of low-income students than population districts, on average.

In terms of district characteristics, the R&H subsample over-represents districts in the Midwest and underrepresents districts in the South and West. This finding partially explains why districts in the R&H subsample also over-represent large suburbs and under-represents remote rural areas. Districts in the R&H subsample are also typically larger (have more employees) than the average district in the population.

Overall, these descriptive analyses suggest that R&H districts are reasonably representative of the population in terms of student characteristics. Whether the R&H districts are representative of the population in terms of district characteristics depends on the analysis and whether district geographic region, urbanicity, and size are consequential.