

Exploring 2020 Campus Enrollment Type Data for Texas Public Schools

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Introduction

The Texas Education Agency (TEA) is exploring the possibility of improving the public school accountability system by accounting for bias introduced through student selection. By bias introduced through student selection, we mean a campus may improve its accountability ratings through student selection rather than by improving student learning. During the 2019-2020 school year, TEA collected a new data element designed to classify every public school in Texas based on enrollment practices, Campus Enrollment Type (CET).

Objectives

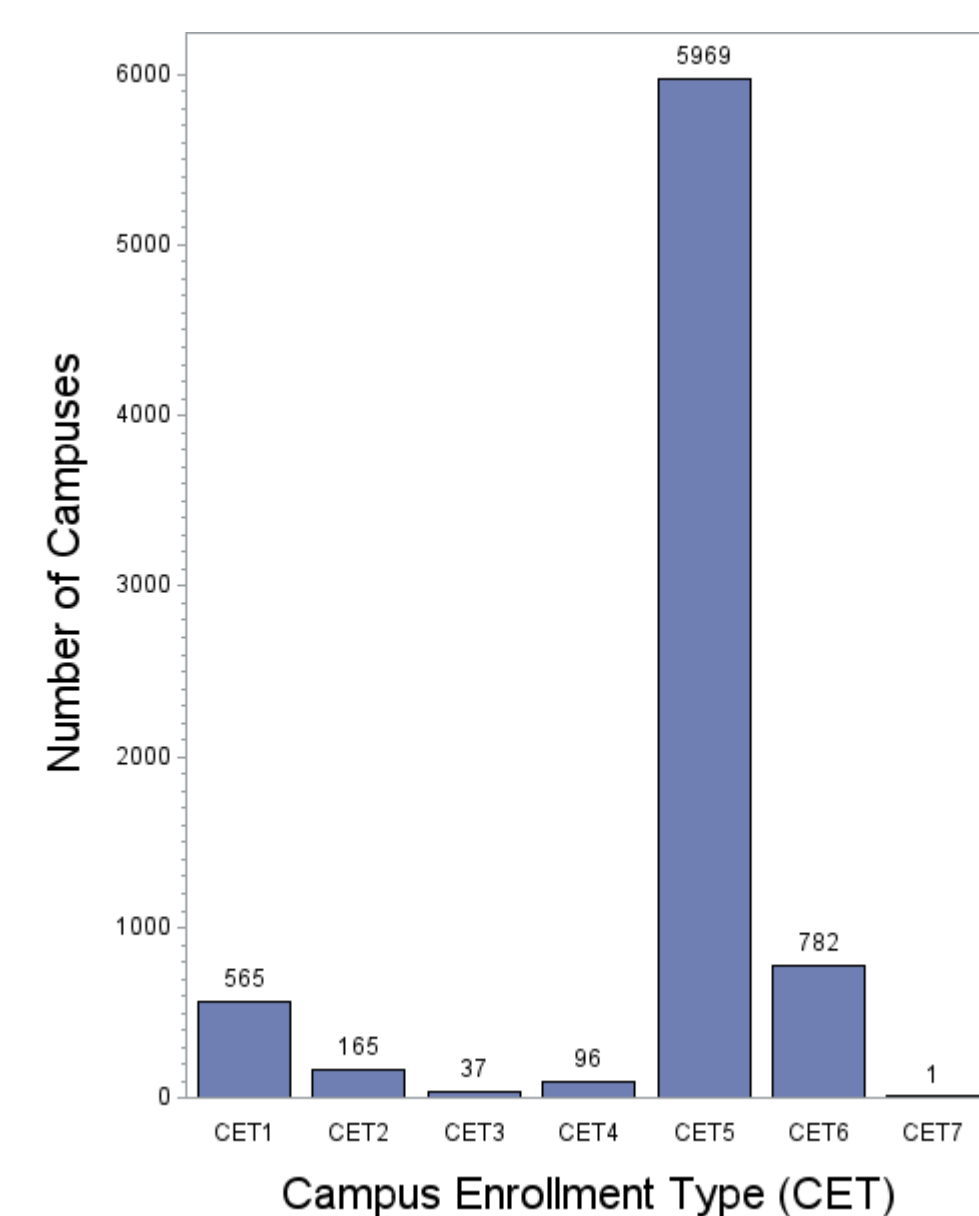
To describe the distribution of Campus Enrollment Type among the public schools in Texas. To determine whether there is a difference in the mathematics and reading achievement at campuses that have selective enrollment compared to those that do not.

Methods

Used data available to the public from the TEA website: tea.texas.gov. Descriptive statistics used to explore distribution of Campus Enrollment Type. Used statistical tests to test for significance of explanatory variables: campus population size (Cpop), percent of economically disadvantaged students (ECD), percent of Limited English Proficient students (LEP), percent of early college high school enrollment (ECHS19), percent of student population served by special education (SPED19), and Campus Enrollment Type (CET) and response variables mathematics (MAME19) and reading achievement (REME19). Modeled response variables mathematics achievement (MAME19) and reading achievement (REME19) at the campus level using linear regression. Checked for interaction effects and included a significant interaction effects in the model. 2-sided statistical tests performed at $\alpha=0.05$. SAS 9.4 software used.

Results

Figure 1. Campus Enrollment Type for non-Alternative Campuses



Results (cont.)

Table 1. Distribution of Ratings by CET

Campus Enrollment Type (CET)	Percent of 2019 Ratings				
	A	B	C	D	F
CET1: Open-Enrollment Charter School	23	37	24	9	6
CET2: Selective Enrollment School - Criteria-Based	56	26	13	2	2
CET3: Selective Enrollment School - Special Program-Based	47	17	22	6	3
CET 4: Zoned School - No Transfers Accepted	27	44	19	4	6
CET 5: Zoned School - Transfers Accepted	20	40	27	8	5
CET 6: Combined Enrollment Type School	20	44	26	7	3
CET 7: Special Assignment School	0	0	100	0	0

Table 2. Descriptive Statistics of Variables

Variable	N	Mean	Standard Deviation	Min	Max	Student's T-test P-value
MAME19	7608	50.9	16.3	0	100	<.0001
REME19	7608	47.4	15.2	12	100	<.0001
Cpop	7608	685	534	14	6290	<.0001
ECD	7608	62.8	26.0	0	100	<.0001
LEP	7608	20.4	19.8	0	97.1	<.0001
ECHS19	7607	1.3	10.4	0	100	<.0001
SPED19	7607	9.9	3.9	0	100	<.0001

This project only included analysis of data for non-Alternative public schools in Texas. There were a total of 7,608 campuses included with 5,968 belonging to the CET category of Zoned School – Transfers Accepted shown in Figure 1. Table 1 shows that selective enrollment campuses earned ratings of A at more than twice the percentage of other campus enrollment types.

Table 3. Bivariate Analysis for Mathematics Achievement

Explanatory Variables	Estimate	Standard Error	P-value
Population (Cpop)	0.003	0.0003	<.0001
% Economically Disadvantaged (ECD)	-0.33	0.01	<.0001
% Limited English Proficient (LEP)	-0.13	0.01	<.0001
% Early College High Schhol (ECHS19)	0.19	0.02	<.0001
% Special Education (SPED19)	-0.68	0.05	<.0001
Interaction: Cpop*ECHS19	0.0002	0.00002	<.0001

Table 4. Bivariate Analysis for Reading Achievement

Explanatory Variables	Estimate	Standard Error	P-value
Population (Cpop)	0.003	0.0003	<.0001
% Economically Disadvantaged (ECD)	-0.41	0.005	<.0001
% Limited English Proficient (LEP)	-0.24	0.01	<.0001
% Early College High Schhol (ECHS19)	0.24	0.02	<.0001
% Special Education (SPED19)	-0.85	0.04	<.0001
Interaction: Cpop*ECD	0.0001	0.00002	<.0001

Table 5. Model Fit for Mathematics Achievement

Explanatory Variables	Estimate	Standard Error	P-value
Intercept	77.28	0.64	<.0001
Campus population size (Cpop)	-0.0007	.0003	0.0113
% Economically Disadvantaged (ECD)	-0.43	0.01	<.0001
% Limited English Proficient (LEP)	0.21	0.01	<.0001
% Early College High Schhol (ECHS19)	0.08	0.02	0.0003
% Special Education (SPED19)	-0.36	0.04	<.0001
Cpop*ECHS19	0.0002	0.00003	<.0001
CET1: Open-Enrollment Charter School	-2.56	0.59	<.0001
CET2: Selective Enrollment School - Criteria-Based	10.43	1.11	<.0001
CET3: Selective Enrollment School - Special Program-Based	9.86	2.17	<.0001
CET 4: Zoned School - No Transfers Accepted	-1.86	1.34	0.1648
CET 5: Zoned School - Transfers Accepted	Reference for CET		
CET 6: Combined Enrollment Type School	2.69	0.50	<.0001
CET 7: Special Assignment School	-3.43	12.93	0.7910

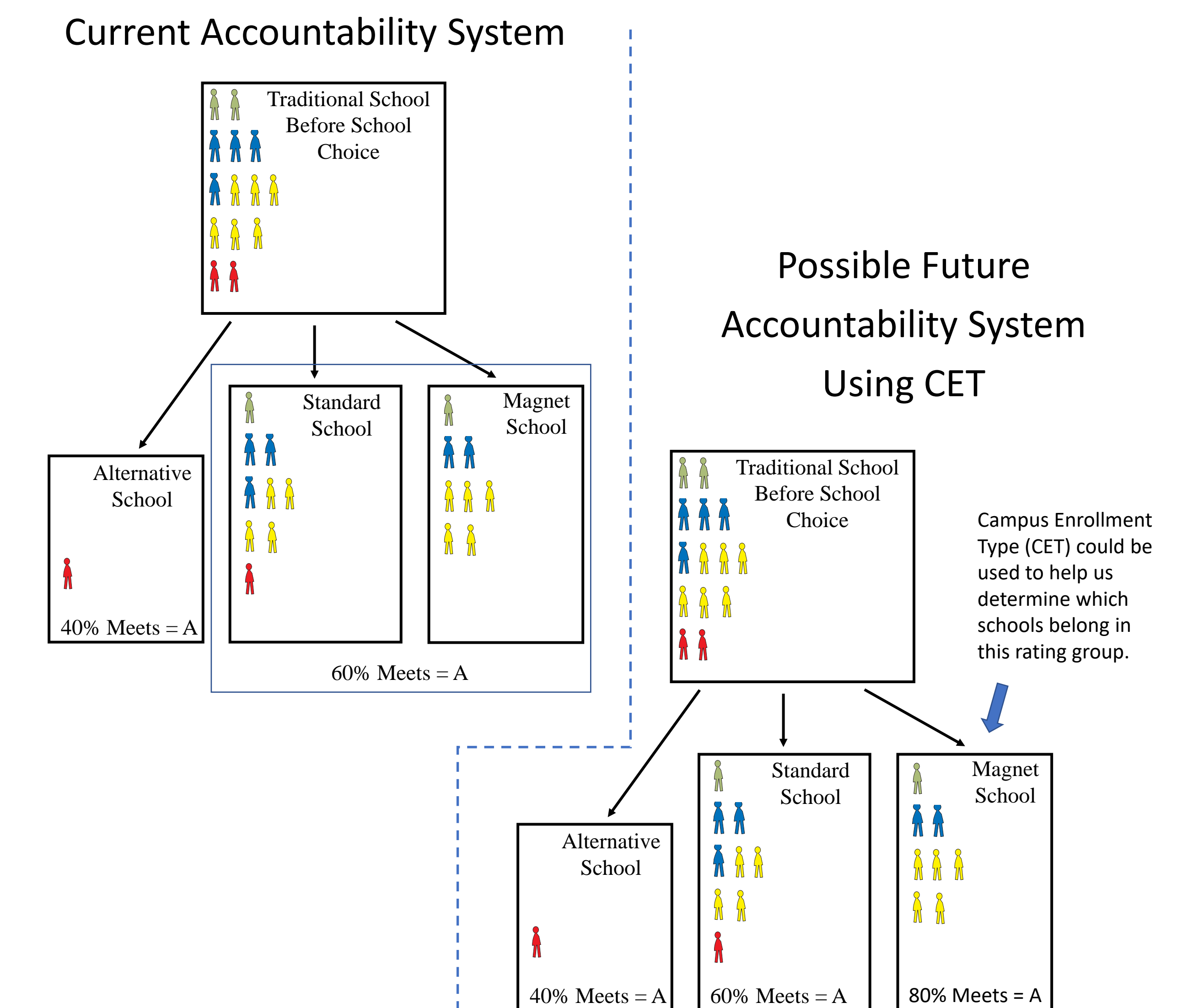
Table 6. Model Fit for Reading Achievement

Explanatory Variables	Estimate	Standard Error	P-value
Intercept	74.53	0.58	<.0001
Campus population size (Cpop)	0.005	.0005	<.0001
% Economically Disadvantaged (ECD)	-0.41	0.01	<.0001
% Limited English Proficient (LEP)	0.13	0.01	<.0001
% Early College High Schhol (ECHS19)	0.21	0.01	<.0001
% Special Education (SPED19)	-0.46	0.03	<.0001
Cpop*ECD	-0.00009	.000008	<.0001
CET1: Open-Enrollment Charter School	1.74	0.44	<.0001
CET2: Selective Enrollment School - Criteria-Based	11.55	0.82	<.0001
CET3: Selective Enrollment School - Special Program-Based	14.15	1.61	<.0001
CET 4: Zoned School - No Transfers Accepted	-2.73	1.00	0.0065
CET 5: Zoned School - Transfers Accepted	Reference for CET		
CET 6: Combined Enrollment Type School	1.42	0.38	0.0002
CET 7: Special Assignment School	-4.52	9.69	0.6412

Discussion and Conclusion

The great majority of schools in Texas identified themselves as Zoned School – Transfers Accepted. The distribution of ratings during the 2019 school year shows that campuses with selective enrollment practices earned a higher proportion of A ratings under the 2019 accountability system. The mathematics and reading achievement at selective enrollment schools was higher than the achievement at other schools. Why? A hypothesis for further exploration is whether the higher scores which translate into higher ratings earned by selective enrollment schools are due to student selection rather than differences in other factors such as quality of instruction. A follow-up study, now that we have Campus Enrollment Type (CET) data, could explore whether the CET data collection needs to improve to ensure that schools are correctly placed in the different CET categories by TEA. Figure 2 illustrates the concept of using CET to form a separate accountability group for selective enrollment schools.

Figure 2. Illustration of Possible Future Use for Campus Enrollment Type Data in Public School Accountability System



For mathematics achievement, bivariate analysis results in Table 3 show that the effect of campus population size (Cpop) and the interaction effect Cpop*ECHS19 were close to zero compared to the effects of other variables.

Table 3 also shows Mathematics achievement decreased as ECD, LEP and SPED19 increased, and mathematics achievement increased as ECHS19 increased.

For reading achievement, bivariate analysis results in Table 4 show that the effect of campus population size (Cpop) and the interactions effect Cpop*ECD were close to zero compared to the effects of the other variables.

Table 4 also shows Reading achievement decreased as ECD, LEP and SPED increased, and reading achievement increased as ECHS19 increased.

Even though the interaction effects were close to zero in both cases, the interaction effects were included in the final regression models because including them improved the statistical significance of campus population size (Cpop).

In the mathematics model, achievement at selective enrollment schools was about 10 percentage points higher than at the zoned schools – transfers accepted.

In the reading model, achievement at selective enrollment schools was 12 points higher at CET2 schools and 14 points higher at CET3 schools than at the zoned schools – transfers accepted.

References

- Texas Education Agency. (2019). 2019 data download. Retrieved from <https://rptsvr1.tea.texas.gov/perfreport/account/2019/download.html>.
- Texas Education Agency. (2020). 2020 accountability rating system. Retrieved from [//tea.texas.gov/texas-schools/accountability/academic-accountability/performance-reporting/2020-accountability-rating-system](http://tea.texas.gov/texas-schools/accountability/academic-accountability/performance-reporting/2020-accountability-rating-system).