



Methodology for Calculating Socioeconomic Tiers

San Antonio ISD Department of Accountability, Research, Evaluation & Testing
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Mirroring prior work done by Dallas ISD (DISD) and Chicago Public Schools (CPS),¹ SAISD created a Socioeconomic measure for every area in the District. Looking at income, home ownership, single-parent family rates, and education levels, a quarter of all school-age students in the District were assigned to 1 of 4 Socioeconomic Blocks.

Socioeconomic data was gathered at the Census block group level for the 321 block groups falling within SAISD's attendance boundaries. Some of the block groups were only partially within the boundaries. The proportion of each block group that fell within the SAISD boundaries was calculated and then used to adjust data accordingly.

Although DISD elected to use proprietary ESRI data, SAISD used publicly-available data from the Census Bureau. All data was derived from the 2017 American Community Survey (ACS) 5-Year Estimates at the Census block group level. Block groups are the smallest area of measurement for which education data is available. This dataset was chosen because it is more current than the Decennial Census, and when compared to other ACS estimates, it offers the largest sample size and highest reliability.²

Following the methodology used in DISD's analysis, the four datasets collected were (1) Median Household Income, (2) Owner-Occupied Homes, (3) Single-Parent Homes, and (4) Educational Attainment. Each block group was ranked in each category to obtain a percentile score. The scores from each category were then averaged to create a Socioeconomic Score.

With a student's educational outcome depending on both socioeconomic and classroom factors, this analysis focused on the socioeconomic side, which has a significant impact on a student's education.³ Block groups with a lower income, less home ownership, more single-parent households, and lower educational attainment received a higher Socioeconomic score (Block 4). Areas of high socioeconomic status received a low score (Block 1).

The following table provides a breakdown of an average area in each Block:

Block	Median Household Income	Percent Home Ownership	Percent Single-Parent Households	Educational Score Percent	Total Socioeconomic Score
Block 1	\$55,385	67%	34%	53%	0.275
Block 2	\$36,580	57%	54%	46%	0.486
Block 3	\$31,460	48%	61%	42%	0.618
Block 4	\$20,924	36%	72%	39%	0.780

¹ See DISD at <http://www.dallasisd.org/Page/32986>. This was in turn originally based on documentation from CPS at <http://cps.edu/AccessAndEnrollment/Pages/OAE.aspx>. Also see <http://cpstiers.opencityapps.org/tier-calculation.html>.

² See <https://www.census.gov/programs-surveys/acs/guidance/estimates.html>.

³ See <http://www.apa.org/pi/ses/resources/publications/education.aspx> for an overview.



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To build a map of Socioeconomic Scores, the population of individuals between the ages of five and seventeen residing in each block group was calculated, with the goal of having 25% of the student population in each Block. From the ACS 5-Year Estimate data, there were 59,324 school-age children residing within SAISD's boundaries. Roughly 14,831 school-age individuals were placed in each Block. The Socioeconomic Score was then calculated by ranking the following metrics:

- (1) Median Household Income by block group (in 2017 dollars), from lowest median income to highest.
- (2) The Home Ownership rate (calculated by taking the number of owner-occupied homes out of the total number of occupied homes), from lowest to highest.
- (3) The percentage of Single-Parent Households (calculated out of the total number of family households), from highest to lowest.
- (4) An Education Score, as described by CPS and DISD, representing the educational attainment level of the area. First, the percentage of the population over the age of 25 was determined for each of 5 educational attainment categories: Less than a HS Diploma, HS Diploma or GED, Some College (including Associates Degrees), Bachelor's Degree, and Advanced Degree. These categories reflect the educational levels of individuals residing in the block group. Higher educational attainment was given more weight. The percentages were multiplied by the following numbers:
 - Less than a HS Diploma – 0.2
 - HS Diploma or GED – 0.4
 - Some College – 0.6
 - Bachelor's Degree – 0.8
 - Advanced Degree – 1.0

Results were added to get a block group Education Score from 0.2 to 1.0. The Education Score was then ranked from lowest to highest.

All four indicators were ranked and assigned a score from 0 to 1. Rankings were calculated for all census blocks where estimates were available (i.e. null values were not ranked). The ranking scores were averaged to create an overall Socioeconomic Score falling between 0 and 1.

After calculating a Socioeconomic Score for each of the block groups, they were ranked in order from highest to lowest. Census block groups were then placed into Block 4 (the highest score) until 25% (14,831) of school age children were in that Block. Once 25% of students were in Block 4, the same process was followed until 25% of students were in Block 3, and so on for Blocks 1 and 2.

Students who resided out-of-district were excluded from the scoring and ranking process. Socioeconomic Scores were assigned to each out-of-district Census Block Group based on the distribution of Socioeconomic Blocks within the district boundaries. Out-of-district students were then geocoded and placed into Blocks 1-4.