

**NAEP 2008 LONG TERM  
TREND SAMPLE  
NONRESPONSE BIAS  
ANALYSIS REPORT**



## TABLE OF CONTENTS

<u>Chapter</u>		<u>Page</u>
1	NONRESPONSE BIAS ANALYSIS IN THE 2008 NAEP LTT SAMPLE...	1-1
2	SCHOOL NONRESPONSE BIAS ANALYSIS .....	2-1
	REFERENCES .....	R-1

### List of Appendices

<u>Appendix</u>		
A	SCHOOL TABLES .....	A-1

### List of Tables

<u>Table</u>		
1	SCHOOL AND STUDENT RESPONSE RATES FOR THE LTT SAMPLES	1-1
2	LTT PRIVATE SCHOOL SAMPLE, CHARACTERISTICS WITH P-VALUES LESS THAN 0.05 .....	2-2

## 1. NONRESPONSE BIAS ANALYSIS IN THE 2008 NAEP LTT SAMPLE

NCES statistical standards calls for a nonresponse bias analysis to be conducted for a sample with a response rate below 85 percent. Weighted school response rates for the 2008 NAEP Long Term Trend (LTT) sample indicate a need for a school nonresponse bias analysis for the private school sample. A student nonresponse bias analysis is not necessary for any of the student samples. Response rates for schools and students are shown in tables 1 and 2, respectively.

Table 1. School and Student Response Rates for the LTT Samples

Sample	Age	School Response Rate	Student Response Rate- Mathematics	Student Response Rate- Reading
Public	9	98.28	94.52	94.85
Public	13	96.84	93.44	93.69
Public	17	92.5	87.83	87.55
Private	9	72.01	95.35	95.52
Private	13	79.36	95.39	95.11
Private	17	60.94	90.40	90.45

## 2. SCHOOL NONRESPONSE BIAS ANALYSIS

The school analysis, required for private schools, for the 2008 NAEP LTT sample was conducted in three parts.

1. The distribution of the responding original school sample was compared with that of the entire eligible original school sample. In each case, schools were weighted by their school base weights and their enrollment, referred to as a size-adjusted weight. The original sample is the sample before substitution. Various characteristics of the schools were considered.
2. The distribution of the responding sample, including participating substitutes was compared to the full sample (but in this case, substitutes were included in place of those nonrespondents that they replaced). Again, the size-adjusted school base weights were used for both the full sample and the respondents.
3. The same sets of schools were compared as in the second analysis, but this time when analyzing the responding schools alone, school nonresponse adjustments were applied to the size adjusted weights.

The first part of the analysis indicates the potential for nonresponse bias that was introduced through school nonresponse. The second part of the analysis suggests the remaining potential for nonresponse bias after the mitigating effects of substitution have been accounted for. The third part of the analysis indicates the potential for bias after accounting for the mitigating effects of both substitution and nonresponse weight adjustments. Both the second and third analyses, however, may provide an overly optimistic scenario, since even though substitution and nonresponse adjustments may correct somewhat for deficiencies in the few characteristics examined here, there is no guarantee that they are equally as effective for other characteristics, and in particular for student achievement.

In each analysis, chi-square tests of association were conducted between school response status and each of the following five categorical variables:

- Census region;
- Private school subgroup;
- Metro-centric locale;

- Urban-centric locale; and
- Estimated age enrollment divided into three equally sized categories.

The chi-square tests were carried out using procedures that appropriately account for the complex sample design used in NAEP, and the weighting procedures. The Rao-Scott (RS2) chi-square test (Rao and Scott 1981) was computed using WesVar (Westat 2002).

In addition, mean values of enrollment for responding and nonresponding schools and race/ethnicity enrollment percentages were compared. Two measures of the mean size of enrollment were considered, one using the size adjusted school weight (mean size of school attended by an average student), and the other using the school weight without the size adjustment (mean estimated age enrollment). Differences between the means for the respondents and full sample were tested using t-tests. These tests also took account of the complex sample design, as well as the fact that the respondents are a subset of the full sample (thus in that sense the first two sets of comparisons, using only school base weights, are equivalent to testing whether the mean for respondents is significantly different from the mean for nonrespondents).

The results of these analyses are presented in the tables in Appendix A, and summarized in Table 2 below.

Table 2. LTT Private School Sample, Characteristics with p-values less than 0.05

Age	Analysis	Characteristics with p-values less than 0.05
9	Original Sample	Census region, Private school subgroup, Race/ethnicity
	Sample with Substitutes	Private school subgroup, Race/ethnicity
	Nonresponse Adjusted	Race/ethnicity
13	Original Sample	Private school subgroup
	Sample with Substitutes	Private school subgroup, Metro-centric locale
	Nonresponse Adjusted	None
17	Original Sample	Census region, Private school subgroup, Race/ethnicity
	Sample with Substitutes	Census region, Private school subgroup, Race/ethnicity
	Nonresponse Adjusted	Size, Race/ethnicity

Overall, nonresponse adjustment and substitution did decrease the number of variables with significant differences, and for age 13, no variables remain significant after adjustments. For age 9, Race/ethnicity remains significant, specifically for the percentage White, non-Hispanic. The bias is small, 2.3 percent on an estimate of about 77 percent. For age 17, Race/ethnicity remains significant, specifically for the percentage Asian/Pacific Islander. The bias is fairly large, 2.3 percent on a 5.6 percent estimate, with a relative bias of 41.6 percent.

Additionally for age 17, school size becomes significant after the nonresponse adjustment though it has a large p-value before the nonresponse adjustment. In the Northeast non-Catholic schools, there was an unusually low response rate, specifically 6 schools out of 40 responded (16 were ineligible, 18 nonresponding). The largest eligible sampled school in this group had 163 students and 9 others were larger than 40, while the largest responding school of only 40 students. Non-Catholic private schools in the northeast were grouped as a nonresponse class and the 6 responding schools in this group were given a large adjustment factor (6.3316) so that they could represent the 18 nonresponding schools. Since all of the responding schools were small, this means that small non-Catholic private schools in the Northeast are overrepresented in the final weights. We accepted this bias in order to preserve other factors that were considered more related to achievement, in particular, affiliation.

## REFERENCES

Rao, J.N.K., and Scott, A.J. (1981). The Analysis of Categorical Data from Complex Sample Surveys: Chi-Squared Tests for Goodness of Fit and Independence in Two-Way Tables. *Journal of the American Statistical Association*, 76, 221-230.

Westat (2002). *WesVar 4.2 User's Guide*. Rockville, MD: Westat, Inc.



## **Appendix A**

Table 1. 2008 NAEP LTT Age 9 original sample - weighted percentages of full sample and responding schools by various subgroups weighted by school base weight - All Private Schools (sample size = 300)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi- square p-value
<b>Census Region</b>					<b>0.034</b>
Northeast	22.82	17.78	5.0	0.221	
Midwest	29.35	35.69	-6.3	-0.216	
South	31.97	32.35	-0.4	-0.012	
West	15.86	14.19	1.7	0.105	
<b>Private School Subgroup</b>					<b>0.000</b>
Roman Catholic	52.09	62.69	-10.6	-0.203	
Non-Catholic Private	47.91	37.31	10.6	0.221	
<b>Metro-centric Locale</b>					0.641
Central City	34.74	33.47	1.3	0.037	
Urban Fringe/Large City	47.02	46.56	0.5	0.010	
Small Town/Rural	18.24	19.96	-1.7	-0.094	
<b>Urban-centric Locale</b>					0.989
City	38.68	37.94	0.7	0.019	
Suburban	41.66	41.72	-0.1	-0.001	
Town	9.76	10.06	-0.3	-0.031	
Rural	9.89	10.29	-0.4	-0.040	
<b>Size</b>					0.374
Large ( $\geq 30$ )	52.40	50.14	2.3	0.043	
Medium (17-30)	28.02	30.88	-2.9	-0.102	
Small ( $\leq 17$ )	19.58	18.98	0.6	0.031	

NOTE: Size adjusted school weights were used.

Table 2. 2008 NAEP LTT original sample - weighted mean values of various characteristics for full sample and responding schools - All Private Schools

	Full Sample mean	Respondent mean	Bias	Relative bias	T-test p-value
<b>Size of school attended by average student</b>	37.87	35.39	2.5	0.065	0.320
<b>Estimated Age Enrollment</b>	20.54	21.00	-0.5	-0.022	0.681
<b>Race/Ethnicity</b>					
Percentage White, not Hispanic	77.14	74.86	2.3	0.030	0.133
Percentage Black, not Hispanic	8.90	10.55	-1.7	-0.185	0.065
Percentage Hispanic Heritage	7.76	9.23	-1.5	-0.189	<b>0.010</b>
Percentage Asian/Pacific Islander	5.90	5.07	0.8	0.141	0.427
Percentage American Indian/Alaskan Native	0.30	0.28	0.0	0.067	0.711

NOTE: For the mean of school size attended by average student and the race/ethnicity percents, size-adjusted school based weights were used. For the mean of the enrollment, school weights were used.

Table 3. 2008 NAEP LTT Age 9 sample with substitutes - weighted percentages of full sample and responding schools by various subgroups weighted by school baseweight - All Private schools (sample size = 300)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi- square p-value
<b>Census Region</b>					0.060
Northeast	22.82	19.61	3.2	0.141	
Midwest	29.35	35.07	-5.7	-0.195	
South	31.97	30.53	1.4	0.045	
West	15.86	14.80	1.1	0.067	
<b>Private School Subgroup</b>					<b>0.000</b>
Roman Catholic	52.09	61.03	-8.9	-0.172	
Non-Catholic Private	47.91	38.97	8.9	0.187	
<b>Metro-centric Locale</b>					0.675
Central City	34.74	32.84	1.9	0.055	
Urban Fringe/Large City	47.02	48.37	-1.3	-0.029	
Small Town/Rural	18.24	18.79	-0.6	-0.030	
<b>Urban-centric Locale</b>					0.792
City	38.68	36.86	1.8	0.047	
Suburban	41.66	43.78	-2.1	-0.051	
Town	9.76	10.10	-0.3	-0.035	
Rural	9.89	9.26	0.6	0.064	
<b>Size</b>					0.255
Large ( $\geq 30$ )	52.40	50.95	1.5	0.028	
Medium (17-30)	28.02	30.72	-2.7	-0.096	
Small ( $\leq 17$ )	19.58	18.33	1.3	0.064	

NOTE: Size adjusted school weights were used.

Table 4. 2008 NAEP LTT sample with substitutes - weighted mean values of various characteristics for full sample and responding schools - All Private Schools

	Full sample mean with substitutes	Respondent mean	Bias	Relative bias	T-test p-value
<b>Size of school attended by average student</b>	37.87	35.79	2.1	0.055	0.376
<b>Estimated Age Enrollment</b>	20.54	21.39	-0.9	-0.041	0.449
<b>Race/Ethnicity</b>					
Percentage White, not Hispanic	77.14	74.83	2.3	0.030	<b>0.027</b>
Percentage Black, not Hispanic	8.90	9.93	-1.0	-0.116	0.122
Percentage Hispanic Heritage	7.76	8.88	-1.1	-0.144	<b>0.006</b>
Percentage Asian/Pacific Islander	5.90	6.07	-0.2	-0.029	0.630
Percentage American Indian/Alaskan Native	0.30	0.28	0.0	0.067	0.730

NOTE: For the mean of school size attended by average student and the race/ethnicity percents, size-adjusted school based weights were used. For the mean of the enrollment, school weights were used.

Table 5. 2008 NAEP LTT Age 9 nonresponse adjusted sample - weighted percentages of full sample and responding schools with substitutes by various subgroups - All Private schools (sample size = 300)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi- square p-value
<b>Census Region</b>					0.677
Northeast	22.82	21.54	1.3	0.056	
Midwest	29.35	29.93	-0.6	-0.020	
South	31.97	31.96	0.0	0.000	
West	15.86	16.58	-0.7	-0.045	
<b>Private School Subgroup</b>					0.600
Roman Catholic	52.09	52.76	-0.7	-0.013	
Non-Catholic Private	47.91	47.24	0.7	0.014	
<b>Metro-centric Locale</b>					0.520
Central City	34.74	32.35	2.4	0.069	
Urban Fringe/Large City	47.02	49.31	-2.3	-0.049	
Small Town/Rural	18.24	18.35	-0.1	-0.006	
<b>Urban-centric Locale</b>					0.618
City	38.68	36.94	1.7	0.045	
Suburban	41.66	44.75	-3.1	-0.074	
Town	9.76	9.56	0.2	0.020	
Rural	9.89	8.75	1.1	0.115	
<b>Size</b>					0.271
Large ( $\geq 30$ )	52.40	48.96	3.4	0.066	
Medium (17-30)	28.02	30.39	-2.4	-0.085	
Small ( $\leq 17$ )	19.58	20.65	-1.1	-0.055	

NOTE: Size-adjusted school weights were used

Table 6. 2008 NAEP LTT nonresponse adjusted sample - weighted mean values of various characteristics for full sample and responding schools with substitutes - All Private Schools

	Full sample mean with substitutes	Respondent mean	Bias	Relative bias	T-test p-value
<b>Size of school attended by average student</b>	37.87	34.82	3.1	0.081	0.205
<b>Estimated Age Enrollment</b>	20.54	20.23	0.3	0.015	0.790
<b>Race/Ethnicity</b>					
Percentage White, not Hispanic	77.14	74.81	2.3	0.030	<b>0.030</b>
Percentage Black, not Hispanic	8.90	10.32	-1.4	-0.160	0.082
Percentage Hispanic Heritage	7.76	8.47	-0.7	-0.091	0.121
Percentage Asian/Pacific Islander	5.90	6.11	-0.2	-0.036	0.614
Percentage American Indian/Alaskan Native	0.30	0.28	0.0	0.067	0.741

NOTE: For the mean of school size attended by average student and the race/ethnicity percents, size-adjusted school based weights were used. For the mean of the enrollment, school weights were used.

Table 7. 2008 NAEP LTT Age 13 original sample - weighted percentages of full sample and responding schools by various subgroups weighted by school base weight - All Private Schools (sample size = 256)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi- square p-value
<b>Census Region</b>					0.258
Northeast	22.77	19.68	3.1	0.136	
Midwest	28.51	32.41	-3.9	-0.137	
South	32.67	31.57	1.1	0.034	
West	16.05	16.34	-0.3	-0.018	
<b>Private School Subgroup</b>					<b>0.000</b>
Roman Catholic	49.28	58.48	-9.2	-0.187	
Non-Catholic Private	50.72	41.52	9.2	0.181	
<b>Metro-centric Locale</b>					0.143
Central City	50.02	46.64	3.4	0.068	
Urban Fringe/Large City	36.48	37.17	-0.7	-0.019	
Small Town/Rural	13.50	16.19	-2.7	-0.199	
<b>Urban-centric Locale</b>					0.491
City	49.92	46.51	3.4	0.068	
Suburban	32.23	34.93	-2.7	-0.084	
Town	10.49	10.74	-0.3	-0.024	
Rural	7.36	7.82	-0.5	-0.063	
<b>Size</b>					0.415
Large ( $\geq 31$ )	55.52	53.76	1.8	0.032	
Medium (17-31)	27.04	29.33	-2.3	-0.085	
Small ( $\leq 17$ )	17.45	16.91	0.5	0.031	

NOTE: Size adjusted school weights were used.

Table 8. 2008 NAEP LTT original sample - weighted mean values of various characteristics for full sample and responding schools - All Private Schools

	Full Sample mean	Respondent mean	Bias	Relative bias	T-test p-value
<b>Size of school attended by average student</b>	50.22	48.70	1.5	0.030	0.561
<b>Estimated Age Enrollment</b>	21.82	22.35	-0.5	-0.024	0.632
<b>Race/Ethnicity</b>					
Percentage White, not Hispanic	77.48	77.65	-0.2	-0.002	0.909
Percentage Black, not Hispanic	6.99	6.79	0.2	0.029	0.773
Percentage Hispanic Heritage	10.79	10.69	0.1	0.009	0.934
Percentage Asian/Pacific Islander	4.42	4.60	-0.2	-0.041	0.662
Percentage American Indian/Alaskan Native	0.32	0.27	0.1	0.156	0.275

NOTE: For the mean of school size attended by average student and the race/ethnicity percents, size-adjusted school based weights were used. For the mean of the enrollment, school weights were used.

Table 9. 2008 NAEP LTT Age 13 sample with substitutes - weighted percentages of full sample and responding schools by various subgroups weighted by school baseweight - All Private schools (sample size = 256)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative Chi- square bias	p-value
<b>Census Region</b>					0.647
Northeast	22.77	22.24	0.5	0.023	
Midwest	28.51	31.20	-2.7	-0.094	
South	32.67	30.72	2.0	0.060	
West	16.05	15.84	0.2	0.013	
<b>Private School Subgroup</b>					<b>0.003</b>
Roman Catholic	49.28	56.47	-7.2	-0.146	
Non-Catholic Private	50.72	43.53	7.2	0.142	
<b>Metro-centric Locale</b>					<b>0.044</b>
Central City	50.02	45.09	4.9	0.099	
Urban Fringe/Large City	36.48	39.19	-2.7	-0.074	
Small Town/Rural	13.50	15.72	-2.2	-0.164	
<b>Urban-centric Locale</b>					0.149
City	49.92	45.22	4.7	0.094	
Suburban	32.23	36.80	-4.6	-0.142	
Town	10.49	10.25	0.2	0.023	
Rural	7.36	7.73	-0.4	-0.050	
<b>Size</b>					0.353
Large ( $\geq 31$ )	55.52	52.89	2.6	0.047	
Medium (17-31)	27.04	29.30	-2.3	-0.084	
Small ( $\leq 17$ )	17.45	17.81	-0.4	-0.021	

NOTE: Size adjusted school weights were used.

Table 10. 2008 NAEP LTT sample with substitutes - weighted mean values of various characteristics for full sample and responding schools - All Private Schools

	Full sample mean with substitutes	Respondent mean	Bias	Relative bias	T-test p-value
<b>Size of school attended by average student</b>	50.22	47.72	2.5	0.050	0.317
<b>Estimated Age Enrollment</b>	21.82	22.09	-0.3	-0.012	0.809
<b>Race/Ethnicity</b>					
Percentage White, not Hispanic	77.48	77.98	-0.5	-0.006	0.708
Percentage Black, not Hispanic	6.99	6.83	0.2	0.023	0.783
Percentage Hispanic Heritage	10.79	10.39	0.4	0.037	0.722
Percentage Asian/Pacific Islander	4.42	4.53	-0.1	-0.025	0.777
Percentage American Indian/Alaskan Native	0.32	0.26	0.1	0.188	0.236

NOTE: For the mean of school size attended by average student and the race/ethnicity percents, size-adjusted school based weights were used. For the mean of the enrollment, school weights were used.

Table 11. 2008 NAEP LTT Age 13 nonresponse adjusted sample - weighted percentages of full sample and responding schools with substitutes by various subgroups - All Private schools (sample size = 256)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi- square p-value
<b>Census Region</b>					0.460
Northeast	22.77	24.02	-1.3	-0.055	
Midwest	28.51	26.61	1.9	0.067	
South	32.67	30.68	2.0	0.061	
West	16.05	18.69	-2.6	-0.164	
<b>Private School Subgroup</b>					0.121
Roman Catholic	49.28	46.09	3.2	0.065	
Non-Catholic Private	50.72	53.91	-3.2	-0.063	
<b>Metro-centric Locale</b>					
Central City	50.02	44.82	5.2	0.104	
Urban Fringe/Large City	36.48	39.14	-2.7	-0.073	
Small Town/Rural	13.50	16.04	-2.5	-0.188	
<b>Urban-centric Locale</b>					0.110
City	49.92	44.46	5.5	0.109	
Suburban	32.23	37.52	-5.3	-0.164	
Town	10.49	10.39	0.1	0.010	
Rural	7.36	7.63	-0.3	-0.037	
<b>Size</b>					0.358
Large ( $\geq 31$ )	55.52	51.78	3.7	0.067	
Medium (17-31)	27.04	28.80	-1.8	-0.065	
Small ( $\leq 17$ )	17.45	19.42	-2.0	-0.113	

NOTE: Size-adjusted school weights were used.

Table 12. 2008 NAEP LTT nonresponse adjusted sample - weighted mean values of various characteristics for full sample and responding schools with substitutes - All Private Schools

	Full sample mean with substitutes	Respondent mean	Bias	Relative bias	T-test p-value
<b>Size of school attended by average student</b>	50.22	46.38	3.8	0.076	0.153
<b>Estimated Age Enrollment</b>	21.82	21.35	0.5	0.022	0.722
<b>Race/Ethnicity</b>					
Percentage White, not Hispanic	77.48	78.16	-0.7	-0.009	0.636
Percentage Black, not Hispanic	6.99	7.14	-0.1	-0.021	0.783
Percentage Hispanic Heritage	10.79	9.74	1.1	0.097	0.380
Percentage Asian/Pacific Islander	4.42	4.69	-0.3	-0.061	0.519
Percentage American Indian/Alaskan Native	0.32	0.27	0.1	0.156	0.331

NOTE: For the mean of school size attended by average student and the race/ethnicity percents, size-adjusted school based weights were used. For the mean of the enrollment, school weights were used.

Table 13. 2008 NAEP LTT Age 17 original sample - weighted percentages of full sample and responding schools by various subgroups weighted by school base weight - All Private Schools (sample size = 230)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi- square p-value
<b>Census Region</b>					<b>0.029</b>
Northeast	26.80	21.71	5.1	0.190	
Midwest	25.40	32.93	-7.5	-0.296	
South	27.65	32.02	-4.4	-0.158	
West	20.16	13.35	6.8	0.338	
<b>Private School Subgroup</b>					<b>0.000</b>
Roman Catholic	53.46	67.03	-13.6	-0.254	
Non-Catholic Private	46.54	32.97	13.6	0.292	
<b>Metro-centric Locale</b>					0.088
Central City	43.47	35.56	7.9	0.182	
Urban Fringe/Large City	40.68	48.25	-7.6	-0.186	
Small Town/Rural	15.85	16.19	-0.3	-0.021	
<b>Urban-centric Locale</b>					0.667
City	47.76	43.02	4.7	0.099	
Suburban	36.09	39.40	-3.3	-0.092	
Town	8.58	9.33	-0.8	-0.087	
Rural	7.57	8.25	-0.7	-0.090	
<b>Size</b>					0.317
Large ( $\geq 121$ )	47.92	44.61	3.3	0.069	
Medium (31-121)	38.64	42.81	-4.2	-0.108	
Small ( $\leq 31$ )	13.44	12.58	0.9	0.064	

NOTE: Size adjusted school weights were used.

Table 14. 2008 NAEP LTT original sample - weighted mean values of various characteristics for full sample and responding schools - All Private Schools

	Full Sample mean	Respondent mean	Bias	Relative bias	T-test p-value
<b>Size of school attended by average student</b>	139.12	133.00	6.1	0.044	0.519
<b>Estimated Age Enrollment</b>	43.58	44.70	-1.1	-0.026	0.786
<b>Race/Ethnicity</b>					
Percentage White, not Hispanic	78.12	80.26	-2.1	-0.027	0.224
Percentage Black, not Hispanic	8.17	9.19	-1.0	-0.125	0.254
Percentage Hispanic Heritage	7.65	7.62	0.0	0.004	0.985
Percentage Asian/Pacific Islander	5.60	2.52	3.1	0.550	<b>0.002</b>
Percentage American Indian/Alaskan Native	0.46	0.41	0.1	0.109	0.557

NOTE: For the mean of school size attended by average student and the race/ethnicity percents, size-adjusted school based weights were used. For the mean of the enrollment, school weights were used.



Table 15. 2008 NAEP LTT Age 17 sample with substitutes - weighted percentages of full sample and responding schools by various subgroups weighted by school baseweight - All Private schools (sample size = 230)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi- square p-value
<b>Census Region</b>					<b>0.038</b>
Northeast	26.80	22.05	4.8	0.177	
Midwest	25.40	31.20	-5.8	-0.228	
South	27.65	30.96	-3.3	-0.120	
West	20.16	15.78	4.4	0.217	
<b>Private School Subgroup</b>					<b>0.000</b>
Roman Catholic	53.46	65.89	-12.4	-0.233	
Non-Catholic Private	46.54	34.11	12.4	0.267	
<b>Metro-centric Locale</b>					0.205
Central City	43.47	37.55	5.9	0.136	
Urban Fringe/Large City	40.68	47.36	-6.7	-0.164	
Small Town/Rural	15.85	15.09	0.8	0.048	
<b>Urban-centric Locale</b>					0.802
City	47.76	44.46	3.3	0.069	
Suburban	36.09	39.25	-3.2	-0.088	
Town	8.58	8.87	-0.3	-0.034	
Rural	7.57	7.42	0.2	0.020	
<b>Size</b>					0.371
Large ( $\geq 121$ )	47.92	45.23	2.7	0.056	
Medium (31-121)	38.64	41.92	-3.3	-0.085	
Small ( $\leq 31$ )	13.44	12.84	0.6	0.045	

NOTE: Size adjusted school weights were used.

Table 16. 2008 NAEP LTT sample with substitutes - weighted mean values of various characteristics for full sample and responding schools - All Private Schools

	Full sample mean with substitutes	Respondent mean	Bias	Relative bias	T-test p-value
<b>Size of school attended by average student</b>	139.12	135.98	3.1	0.023	0.708
<b>Estimated Age Enrollment</b>	43.58	44.68	-1.1	-0.025	0.667
<b>Race/Ethnicity</b>					
Percentage White, not Hispanic	78.12	79.03	-0.9	-0.012	0.468
Percentage Black, not Hispanic	8.17	9.01	-0.8	-0.103	0.264
Percentage Hispanic Heritage	7.65	8.63	-1.0	-0.128	0.257
Percentage Asian/Pacific Islander	5.60	2.91	2.7	0.480	<b>0.008</b>
Percentage American Indian/Alaskan Native	0.46	0.42	0.0	0.087	0.605

NOTE: For the mean of school size attended by average student and the race/ethnicity percents, size-adjusted school based weights were used. For the mean of the enrollment, school weights were used.

Table 17. 2008 NAEP LTT Age 17 nonresponse adjusted sample - weighted percentages of full sample and responding schools with substitutes by various subgroups - All Private schools (sample size = 230)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi- square p-value
<b>Census Region</b>					0.933
Northeast	26.80	26.21	0.6	0.022	
Midwest	25.40	25.85	-0.5	-0.018	
South	27.65	27.20	0.4	0.016	
West	20.16	20.74	-0.6	-0.029	
<b>Private School Subgroup</b>					0.525
Roman Catholic	53.46	54.66	-1.2	-0.022	
Non-Catholic Private	46.54	45.34	1.2	0.026	
<b>Metro-centric Locale</b>					0.394
Central City	43.47	37.34	6.1	0.141	
Urban Fringe/Large City	40.68	46.48	-5.8	-0.143	
Small Town/Rural	15.85	16.19	-0.3	-0.021	
<b>Urban-centric Locale</b>					0.519
City	47.76	42.65	5.1	0.107	
Suburban	36.09	40.07	-4.0	-0.110	
Town	8.58	11.15	-2.6	-0.300	
Rural	7.57	6.12	1.5	0.192	
<b>Size</b>					<b>0.035</b>
Large ( $\geq 121$ )	47.92	38.62	9.3	0.194	
Medium (31-121)	38.64	42.78	-4.1	-0.107	
Small ( $\leq 31$ )	13.44	18.60	-5.2	-0.384	

NOTE: Size-adjusted school weights were used.

\* For Census Region, the Pearson chi-square p-value is shown since the RS2 approach was untestable due to a design effect close to zero.

Table 18. 2008 NAEP LTT nonresponse adjusted sample - weighted mean values of various characteristics for full sample and responding schools with substitutes - All Private Schools

	Full sample mean with substitutes	Respondent mean	Bias	Relative bias	T-test p-value
<b>Size of school attended by average student</b>	139.12	120.78	18.3	0.132	<b>0.029</b>
<b>Estimated Age Enrollment</b>	43.58	35.16	8.4	0.193	<b>0.043</b>
<b>Race/Ethnicity</b>					
Percentage White, not Hispanic	78.12	78.95	-0.8	-0.011	0.513
Percentage Black, not Hispanic	8.17	8.33	-0.2	-0.020	0.789
Percentage Hispanic Heritage	7.65	9.02	-1.4	-0.179	0.120
Percentage Asian/Pacific Islander	5.60	3.27	2.3	0.416	<b>0.013</b>
Percentage American Indian/Alaskan Native	0.46	0.43	0.0	0.065	0.758

NOTE: For the mean of school size attended by average student and the race/ethnicity percents, size-adjusted school based weights were used. For the mean of the enrollment, school weights were used.

\*Estimate rounds to zero.