

NAEP 2007 NONRESPONSE BIAS ANALYSIS REPORT

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1. NONRESPONSE BIAS ANALYSIS IN THE 2007 NAEP

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 2007 NAEP indicate a need for a school nonresponse bias analysis for private school samples in grades 4, 8, and 12. A student nonresponse bias analysis is necessary for the grade 12 public school student sample. Response rates for schools and students are shown in tables 1 and 2, respectively.

Table 1. Weighted school response rates, before substitution

	National non-private	Private
Grade 4	99.7	77.5
Grade 8	99.7	73.8
Grade 12	91.6	62.5

Table 2. Weighted student response rates

	Subjects	National non-private	Private
Grade 4	Reading	94.6	96.3
	Math	94.6	96.3
Grade 8	Writing	92.0	95.0
	Reading	91.9	95.8
Grade 12	Math	91.9	95.1
	Writing	79.1	86.3

2. SCHOOL NONRESPONSE BIAS ANALYSIS

The school analysis, required for private schools, for 2007 NAEP 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. 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.
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 indicates the potential for bias after accounting for the mitigating effects of both substitution and nonresponse weight adjustments. Both the second and third parts, 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;
- Reporting subgroup for private schools;
- Metro-centric locale;
- Urban-centric locale; and
- Estimated grade 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 race/ethnicity percentages and enrollment for responding and nonresponding schools were compared. Two measures of the mean size of enrollment in the respective grades 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 grade 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 for grades 4, 8, and 12 private schools are presented in the tables in appendix A, and summarized in tables 3, 4, and 5, respectively.

Table 3. Characteristics with p-values less than 0.05, grade 4 private

Analysis	Characteristics with p-values less than 0.05
Original sample	Private school reporting group, estimated grade enrollment, race/ethnicity
Sample with substitutes	Private school reporting group, estimated grade enrollment
Nonresponse adjusted	None

Table 4. Characteristics with p-values less than 0.05, grade 8 private

Analysis	Characteristics with p-values less than 0.05
Original sample	Private school reporting group, estimated grade enrollment, race/ethnicity
Sample with substitutes	Private school reporting group, estimated grade enrollment, race/ethnicity
Nonresponse adjusted	None

Table 5. Characteristics with p-values less than 0.05, grade 12 private

Analysis	Characteristics with p-values less than 0.05
Original sample	Private school reporting group, urban-centric locale, race/ethnicity
Sample with substitutes	Private school reporting group, race/ethnicity
Nonresponse adjusted	Race/ethnicity

Overall, nonresponse adjustments decreased the number of variables with significant differences. For grades 4 and 8 private, substitution and nonresponse adjustments appear to have been at least partially effective in reducing the nonresponse bias, as there are no significant results for these samples after substitution and nonresponse adjustment. For grade 12 private, the significant race/ethnicity result is for the percent Hispanic estimate. The absolute bias is small (1.5 percent on estimates of about 8 percent), but the relative bias is large (18.3 percent).

3. STUDENT NONRESPONSE BIAS ANALYSIS

The analysis of student nonresponse bias, required for grade 12 public schools, for the 2007 NAEP was conducted in two parts:

1. The distribution of the responding student sample was compared with that of the entire eligible sample of students, using student base weights; and
2. The distribution of the responding student sample was compared to the entire eligible sample of students. This time, when analyzing the responding students alone, student nonresponse adjustments were applied to the weights.

The first part of the analysis indicates the potential for nonresponse bias that was introduced through student nonresponse. The second part of the analysis indicates the potential for bias after accounting for the effects of nonresponse weight adjustments. The second part, however, may provide an overly optimistic scenario, since even though 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.

The following student characteristics were used in the comparisons:

- Sex;
- Race/ethnicity;
- Relative age;
- Free or reduced price lunch eligibility;
- SD status; and
- ELL status.

For these analyses, chi-square tests (RS2) of the association between student response status and the particular variable under consideration were conducted. These tests were carried out using procedures that appropriately account for the complex sample design used in NAEP, and the weighting procedures.

The results of these analyses are presented in the tables in appendix B, and are summarized in table 6 below.

Table 6. Characteristics with p-values less than 0.05, grade 12 public

Analysis	Characteristics with p-values less than 0.05
Student base weights	None
Nonresponse adjusted student weights	ELL

Among over 15 domains analyzed, a statistically significant difference resulted for the percentage of students who are ELL. The significant ELL result is associated with a small absolute bias (0.2 percent on estimates of about 3.4 percent), and a moderate level of relative bias (5.2 percent). Bias at this level has a potential for a very minimal effect on estimates.

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 A-1. 2007 NAEP grade 4 original sample - weighted percentages of full sample and responding schools by various subgroups - all private schools (sample size = 351)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi-square p-value
Census region					
Northeast	22.97	20.43	-2.5	-0.111	0.149
Midwest	27.39	29.77	2.4	0.087	
South	30.29	30.43	0.1	0.005	
West	19.34	19.37	0.0	0.002	
Private school reporting subgroup					
Roman Catholic	49.22	59.10	9.9	0.201	0.000
Non-Catholic private	50.78	40.90	-9.9	-0.195	
Metro-centric locale					
Central city	40.49	38.25	-2.2	-0.055	0.146
Urban fringe/large city	46.45	49.00	2.5	0.055	
Small town/rural	13.06	12.75	-0.3	-0.024	
Urban-centric locale					
City	42.53	41.01	-1.5	-0.036	0.352
Suburban	39.43	41.95	2.5	0.064	
Town	8.96	8.42	-0.5	-0.060	
Rural	9.09	8.62	-0.5	-0.052	
Size					
Large (≥ 29)	54.72	55.77	1.0	0.019	0.100
Medium (16-28)	28.35	29.35	1.0	0.035	
Small (≤ 15)	16.93	14.89	-2.0	-0.121	

NOTE: Size-adjusted school weights were used.

Table A-2. 2007 NAEP grade 4 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
Size of school attended by average student	37.75	38.01	0.3	0.007	0.814
Estimated grade enrollment	20.67	22.67	2.0	0.097	0.002
Race/ethnicity					
Percentage White, not Hispanic	77.01	76.47	-0.5	-0.007	0.485
Percentage Black, not Hispanic	7.47	7.33	-0.1	-0.019	0.781
Percentage Hispanic heritage	9.69	10.77	1.1	0.112	0.041
Percentage Asian/Pacific Islander	4.91	4.39	-0.5	-0.105	0.325
Percentage American Indian/Alaskan Native	0.92	1.04	0.1	0.129	0.204

*Estimate rounds to zero.

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 enrollment, school weights were used.

Table A-3. 2007 NAEP grade 8 original sample - weighted percentages of full sample and responding schools by various subgroups - all private schools (sample size = 468)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi-square p-value
Census region					
Northeast	24.35	24.73	0.4	0.016	0.311
Midwest	25.01	26.89	1.9	0.075	
South	31.64	30.02	-1.6	-0.051	
West	19.00	18.37	-0.6	-0.033	
Private school reporting subgroup					
Roman Catholic	47.73	58.20	10.5	0.219	0.000
Non-Catholic private	52.27	41.80	-10.5	-0.200	
Metro-centric locale					
Central city	42.81	45.00	2.2	0.051	0.300
Urban fringe/large city	44.67	42.75	-1.9	-0.043	
Small town/rural	12.52	12.25	-0.3	-0.022	
Urban-Centric Locale					
City	44.86	46.78	1.9	0.043	0.376
Suburban	39.51	39.41	-0.1	-0.003	
Town	5.49	4.74	-0.7	-0.136	
Rural	10.14	9.06	-1.1	-0.106	
Size					
Large (≥ 31)	57.25	58.55	1.3	0.023	0.295
Medium (18-30)	27.01	27.09	0.1	0.003	
Small (≤ 17)	15.74	14.36	-1.4	-0.088	

NOTE: Size-adjusted school weights were used.

Table A-4. 2007 NAEP grade 8 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
Size of school attended by average student	44.88	44.79	-0.1	-0.002	0.947
Estimated grade enrollment	22.85	24.90	2.1	0.090	0.009
Race/ethnicity					
Percentage White, not Hispanic	76.93	75.93	-1.0	-0.013	0.137
Percentage Black, not Hispanic	8.67	8.95	0.3	0.032	0.439
Percentage Hispanic heritage	8.17	9.04	0.9	0.107	0.021
Percentage Asian/Pacific Islander	5.42	5.05	-0.4	-0.067	0.498
Percentage American Indian/Alaskan Native	0.83	1.03	0.2	0.248	0.000

*Estimate rounds to zero.

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 enrollment, school weights were used.

Table A-5. 2007 NAEP grade 12 original sample - weighted percentages of full sample and responding schools by various subgroups - all private schools (sample size = 206)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi-square p-value
Census region					
Northeast	27.57	23.27	-4.3	-0.156	0.329
Midwest	23.70	26.86	3.2	0.133	
South	30.78	31.65	0.9	0.028	
West	17.96	18.23	0.3	0.015	
Private school reporting subgroup					
Roman Catholic	50.79	69.77	19.0	0.374	0.000
Non-Catholic private	49.21	30.24	-19.0	-0.386	
Metro-centric locale					
Central city	44.15	45.77	1.6	0.037	0.051
Urban fringe/large city	45.57	48.03	2.5	0.054	
Small town/rural	10.29	6.20	-4.1	-0.397	
Urban-centric locale					
City	46.93	49.05	2.1	0.045	0.005
Suburban	35.44	37.82	2.4	0.067	
Town	7.71	8.89	1.2	0.153	
Rural	9.92	4.24	-5.7	-0.572	
Size					
Large (≥ 98)	53.05	58.14	5.1	0.096	0.126
Medium (23-97)	30.86	29.18	-1.7	-0.054	
Small (≤ 22)	16.09	12.68	-3.4	-0.212	

NOTE: Size-adjusted school weights were used.

Table A-6. 2007 NAEP grade 12 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
Size of school attended by average student	130.23	133.61	3.4	0.026	0.671
Estimated grade enrollment	42.62	47.55	4.9	0.116	0.176
Race/ethnicity					
Percentage White, not Hispanic	78.04	74.58	-3.5	-0.044	0.011
Percentage Black, not Hispanic	8.86	9.47	0.6	0.069	0.511
Percentage Hispanic heritage	8.30	10.52	2.2	0.267	0.003
Percentage Asian/Pacific Islander	4.42	5.00	0.6	0.133	0.073
Percentage American Indian/Alaskan Native	0.39	0.43	0.0	0.101	0.346

*Estimate rounds to zero.

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 enrollment, school weights were used.

Table A-7. 2007 NAEP grade 4 sample with substitutes - weighted percentages of full sample and responding schools by various subgroups - all private schools (sample size = 351)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi-square p-value
Census region					
Northeast	22.97	21.05	-1.9	-0.084	0.175
Midwest	27.39	28.01	0.6	0.022	
South	30.29	30.82	0.5	0.017	
West	19.34	20.12	0.8	0.040	
Private school reporting subgroup					
Roman Catholic	49.22	55.27	6.0	0.123	0.000
Non-Catholic private	50.78	44.73	-6.0	-0.119	
Metro-centric locale					
Central city	40.49	39.62	-0.9	-0.021	0.603
Urban fringe/large city	46.45	47.34	0.9	0.019	
Small town/rural	13.06	13.04	0.0	-0.002	
Urban-centric locale					
City	42.53	41.82	-0.7	-0.017	0.835
Suburban	39.43	40.57	1.1	0.029	
Town	8.96	8.77	-0.2	-0.020	
Rural	9.09	8.84	-0.3	-0.028	
Size					
Large (≥ 29)	54.72	55.90	1.2	0.021	0.111
Medium (16-28)	28.35	28.75	0.4	0.014	
Small (≤ 15)	16.93	15.36	-1.6	-0.093	

NOTE: Size-adjusted school weights were used.

Table A-8. 2007 NAEP grade 4 sample with substitutes - 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
Size of school attended by average student	37.75	37.39	-0.4	-0.010	0.701
Estimated grade enrollment	20.67	22.29	1.6	0.079	0.001
Race/ethnicity					
Percentage White, not Hispanic	77.01	77.26	0.2	0.003	0.674
Percentage Black, not Hispanic	7.47	7.18	-0.3	-0.038	0.472
Percentage Hispanic heritage	9.69	10.20	0.5	0.053	0.187
Percentage Asian/Pacific Islander	4.91	4.42	-0.5	-0.101	0.265
Percentage American Indian/Alaskan Native	0.92	0.95	0.0	0.026	0.658

*Estimate rounds to zero.

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 enrollment, school weights were used.

Table A-9. 2007 NAEP grade 8 sample with substitutes - weighted percentages of full sample and responding schools by various subgroups - all private schools (sample size = 468)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi-square p-value
Census region					
Northeast	24.35	23.09	-1.3	-0.052	0.229
Midwest	25.01	26.66	1.6	0.066	
South	31.64	30.84	-0.8	-0.026	
West	19.00	19.42	0.4	0.022	
Private school reporting subgroup					
Roman Catholic	47.73	56.65	8.9	0.187	0.000
Non-Catholic private	52.27	43.35	-8.9	-0.171	
Metro-centric locale					
Central city	42.81	44.47	1.7	0.039	0.348
Urban fringe/large city	44.67	43.00	-1.7	-0.037	
Small town/rural	12.52	12.53	0.0	0.000	
Urban-centric locale					
City	44.86	45.46	0.6	0.013	0.745
Suburban	39.51	38.49	-1.0	-0.026	
Town	5.49	6.21	0.7	0.131	
Rural	10.14	9.85	-0.3	-0.029	
Size					
Large (≥ 31)	57.25	57.88	0.6	0.011	0.664
Medium (18-30)	27.01	27.02	0.0	0.000	
Small (≤ 17)	15.74	15.11	-0.6	-0.041	

NOTE: Size-adjusted school weights were used.

Table A-10. 2007 NAEP grade 8 sample with substitutes - 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
Size of school attended by average student	44.88	44.56	-0.3	-0.007	0.741
Estimated grade enrollment	22.85	24.28	1.4	0.062	0.021
Race/ethnicity					
Percentage White, not Hispanic	76.93	76.46	-0.5	-0.006	0.459
Percentage Black, not Hispanic	8.67	8.72	0.1	0.006	0.848
Percentage Hispanic heritage	8.17	8.61	0.4	0.055	0.219
Percentage Asian/Pacific Islander	5.42	5.25	-0.2	-0.031	0.744
Percentage American Indian/Alaskan Native	0.83	0.95	0.1	0.155	0.000

*Estimate rounds to zero.

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 enrollment, school weights were used.

Table A-11. 2007 NAEP grade 12 sample with substitutes - weighted percentages of full sample and responding schools by various subgroups - all private schools (sample size = 206)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi-square p-value
Census region					
Northeast	27.57	22.55	-5.0	-0.182	0.076
Midwest	23.70	25.49	1.8	0.075	
South	30.78	34.73	4.0	0.128	
West	17.96	17.23	-0.7	-0.040	
Private school reporting subgroup					
Roman Catholic	50.79	66.09	15.3	0.301	0.000
Non-Catholic private	49.21	33.91	-15.3	-0.311	
Metro-centric locale					
Central city	44.15	42.68	-1.5	-0.033	0.134
Urban fringe/large city	45.57	49.47	3.9	0.086	
Small town/rural	10.29	7.86	-2.4	-0.236	
Urban-centric locale					
City	46.93	46.40	-0.5	-0.011	0.073
Suburban	35.44	39.51	4.1	0.115	
Town	7.71	7.86	0.1	0.019	
Rural	9.92	6.23	-3.7	-0.372	
Size					
Large (≥ 98)	53.05	57.51	4.5	0.084	0.070
Medium (23-97)	30.86	29.65	-1.2	-0.039	
Small (≤ 22)	16.09	12.84	-3.3	-0.202	

NOTE: Size-adjusted school weights were used.

Table A-12. 2007 NAEP grade 12 sample with substitutes - 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
Size of school attended by average student	130.23	131.70	1.5	0.011	0.835
Estimated grade enrollment	42.62	47.19	4.6	0.107	0.133
Race/ethnicity					
Percentage White, not Hispanic	78.04	75.26	-2.8	-0.036	0.034
Percentage Black, not Hispanic	8.86	8.82	0.0	-0.005	0.954
Percentage Hispanic heritage	8.30	10.69	2.4	0.288	0.012
Percentage Asian/Pacific Islander	4.42	4.79	0.4	0.085	0.179
Percentage American Indian/Alaskan Native	0.39	0.45	0.1	0.153	0.308

*Estimate rounds to zero.

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 enrollment, school weights were used.

Table A-13. 2007 NAEP grade 4 nonresponse-adjusted sample - weighted percentages of full sample and responding schools by various subgroups - all private schools (sample size = 351)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi-square p-value
Census region					
Northeast	22.97	22.94	0.0	-0.001	1.000*
Midwest	27.39	27.49	0.1	0.004	
South	30.29	30.14	-0.2	-0.005	
West	19.34	19.43	0.1	0.004	
Private school reporting subgroup					
Roman Catholic	49.22	49.40	0.2	0.004	0.965*
Non-Catholic private	50.78	50.60	-0.2	-0.003	
Metro-centric locale					
Central city	40.49	40.37	-0.1	-0.003	0.763
Urban fringe/large city	46.45	46.27	-0.2	-0.004	
Small town/rural	13.06	13.36	0.3	0.023	
Urban-centric locale					
City	42.53	42.25	-0.3	-0.007	0.925
Suburban	39.43	39.84	0.4	0.010	
Town	8.96	8.60	-0.4	-0.040	
Rural	9.09	9.31	0.2	0.025	
Size					
Large (≥29)	54.72	54.05	-0.7	-0.012	0.856
Medium (16-28)	28.35	28.89	0.5	0.019	
Small (≤15)	16.93	17.07	0.1	0.008	

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

NOTE: Size-adjusted school weights were used.

Table A-14. 2007 NAEP grade 4 nonresponse-adjusted 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
Size of school attended by average student	37.75	36.90	-0.9	-0.023	0.491
Estimated grade enrollment	20.67	21.34	0.7	0.032	0.263
Race/ethnicity					
Percentage White, not Hispanic	77.01	77.46	0.4	0.006	0.478
Percentage Black, not Hispanic	7.47	7.51	0.0	0.004	0.937
Percentage Hispanic heritage	9.69	9.82	0.1	0.014	0.779
Percentage Asian/Pacific Islander	4.91	4.32	-0.6	-0.120	0.214
Percentage American Indian/Alaskan Native	0.92	0.90	0.0	-0.022	0.637

*Estimate rounds to zero.

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 enrollment, school weights were used.

Table A-15. 2007 NAEP grade 8 nonresponse-adjusted sample - weighted percentages of full sample and responding schools by various subgroups - all private schools (sample size = 468)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi-square p-value
Census region					
Northeast	24.35	23.74	-0.6	-0.025	0.321
Midwest	25.01	25.43	0.4	0.017	
South	31.64	31.72	0.1	0.003	
West	19.00	19.10	0.1	0.005	
Private school reporting subgroup					
Roman Catholic	47.73	48.09	0.4	0.008	0.298
Non-Catholic private	52.27	51.91	-0.4	-0.007	
Metro-centric locale					
Central city	42.81	42.77	0.0	-0.001	0.954
Urban fringe/large city	44.67	44.62	0.0	-0.001	
Small town/rural	12.52	12.61	0.1	0.007	
Urban-centric locale					
City	44.86	44.12	-0.7	-0.016	0.972
Suburban	39.51	39.84	0.3	0.008	
Town	5.49	5.62	0.1	0.024	
Rural	10.14	10.42	0.3	0.027	
Size					
Large (≥ 31)	57.25	55.79	-1.5	-0.025	0.600
Medium (18-30)	27.01	27.68	0.7	0.025	
Small (≤ 17)	15.74	16.53	0.8	0.050	

NOTE: Size-adjusted school weights were used.

Table A-16. 2007 NAEP grade 8 nonresponse-adjusted 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
Size of school attended by average student	44.88	43.85	-1.0	-0.023	0.413
Estimated grade enrollment	22.85	23.11	0.3	0.011	0.723
Race/ethnicity					
Percentage White, not Hispanic	76.93	76.80	-0.1	-0.002	0.867
Percentage Black, not Hispanic	8.67	8.91	0.2	0.028	0.616
Percentage Hispanic heritage	8.17	8.34	0.2	0.022	0.665
Percentage Asian/Pacific Islander	5.42	5.05	-0.4	-0.067	0.482
Percentage American Indian/Alaskan Native	0.83	0.89	0.1	0.083	0.261

*Estimate rounds to zero.

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 enrollment, school weights were used.

Table A-17. 2007 NAEP grade 12 nonresponse-adjusted sample - weighted percentages of full sample and responding schools by various subgroups - all private schools (sample size = 206)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi-square p-value
Census region					
Northeast	27.57	24.12	-3.5	-0.125	0.256
Midwest	23.70	24.54	0.8	0.036	
South	30.78	30.66	-0.1	-0.004	
West	17.96	20.68	2.7	0.152	
Private school reporting subgroup					
Roman Catholic	50.79	53.50	2.7	0.053	0.066
Non-Catholic private	49.21	46.50	-2.7	-0.055	
Metro-centric locale					
Central city	44.15	39.87	-4.3	-0.097	0.172
Urban fringe/large city	45.57	51.17	5.6	0.123	
Small town/rural	10.29	8.96	-1.3	-0.129	
Urban-centric locale					
City	46.93	43.76	-3.2	-0.067	0.174
Suburban	35.44	41.09	5.6	0.159	
Town	7.71	7.96	0.2	0.032	
Rural	9.92	7.19	-2.7	-0.275	
Size					
Large (≥ 98)	53.05	50.27	-2.8	-0.053	0.624
Medium (23-97)	30.86	32.94	2.1	0.067	
Small (≤ 22)	16.09	16.80	0.7	0.044	

NOTE: Size-adjusted school weights were used.

Table A-18. 2007 NAEP grade 12 nonresponse-adjusted 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
Size of school attended by average student	130.23	116.12	-14.1	-0.108	0.054
Estimated grade enrollment	42.62	37.64	-5.0	-0.117	0.185
Race/ethnicity					
Percentage White, not Hispanic	78.04	76.37	-1.7	-0.021	0.225
Percentage Black, not Hispanic	8.86	8.22	-0.6	-0.072	0.400
Percentage Hispanic heritage	8.30	9.82	1.5	0.183	0.035
Percentage Asian/Pacific Islander	4.42	5.08	0.7	0.151	0.219
Percentage American Indian/Alaskan Native	0.39	0.50	0.1	0.286	0.215

*Estimate rounds to zero.

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 enrollment, school weights were used.

Appendix B

Table B-1. 2007 NAEP public grade 12 - weighted percentages of full sample and responding students by various subgroups (sample size = 27,930)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi-square p- value
Sex					
Male	49.18	49.39	0.2	0.004	0.299
Female	50.82	50.61	-0.2	-0.004	
Race					
White, not Hispanic	63.51	63.40	-0.1	-0.002	0.796
Black, not Hispanic	15.12	15.21	0.1	0.005	
Hispanic heritage	14.30	14.22	-0.1	-0.006	
Asian/Pacific Islander	5.29	5.38	0.1	0.017	
American Indian/Alaskan Native	1.08	1.13	0.0	0.043	
Other	0.69	0.67	0.0	-0.033	
Relative age					
Old (Born in 9/88 or earlier)	18.89	18.61	-0.3	-0.015	0.087
Not old (Born in 10/88 or later)	81.11	81.39	0.3	0.003	
Free lunch eligibility					
Student not eligible	70.98	70.76	-0.2	-0.003	0.713
Free or reduced lunch	27.03	27.25	0.2	0.008	
Missing	1.99	1.99	0.0	-0.001	
SD					
Yes	8.19	7.91	-0.3	-0.035	0.051
No	91.80	92.08	0.3	0.003	
Information not available	0.01	0.01	0.0	-0.215	
ELL					
Yes	3.43	3.52	0.1	0.028	0.131
No	96.58	96.48	-0.1	-0.001	

Table B-2. 2007 NAEP nonresponse-adjusted public grade 12 - weighted percentages of full sample and responding students by various subgroups (sample size = 27,930)

	Full sample weighted percentage	Respondent weighted percentage	Bias	Relative bias	Chi-square p- value
Sex					
Male	49.18	49.25	0.1	0.001	0.227
Female	50.82	50.75	-0.1	-0.001	
Race					
White, not Hispanic	63.51	63.37	-0.1	-0.002	0.786
Black, not Hispanic	15.12	15.15	0.0	0.002	
Hispanic heritage	14.30	14.27	0.0	-0.002	
Asian/Pacific Islander	5.29	5.42	0.1	0.024	
American Indian/Alaskan Native	1.08	1.09	0.0	0.007	
Other	0.69	0.69	0.0	0.001	
Relative age					
Old (Born in 9/88 or earlier)	18.89	18.93	0.0	0.002	0.414
Not old (Born in 10/88 or later)	81.11	81.08	0.0	0.000	
Free lunch eligibility					
Student not eligible	70.98	70.76	-0.2	-0.003	0.675
Free or reduced lunch	27.03	27.19	0.2	0.006	
Missing	1.99	2.05	0.1	0.028	
SD					
Yes	8.19	8.00	-0.2	-0.024	0.098
No	91.80	91.99	0.2	0.002	
Information not available	0.01	0.01	0.0	-0.232	
ELL					
Yes	3.43	3.60	0.2	0.052	0.003
No	96.58	96.40	-0.2	-0.002	