2004 National Youth Tobacco Survey

Methodology Report

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CHAPTER 1. INTRODUCTION

The objective of the sampling design was to support estimation of tobacco use, attitudes towards tobacco use, cessation attempts, exposure to second-hand smoke, and environmental factors in a national population of students in grades 6 through 12. The study was designed to produce national estimates of these characteristics as measured by the NYTS questionnaire by school grade level (middle, high), by specific grade (6, 7, . . .12), by gender, and by race/ethnicity (African American, Hispanic, and Asian).

The sampling frame encompasses all public, Catholic and other private schools in the United States. A stratified, three-stage sampling design involved selection of Primary Sampling Units (or PSUs), schools within PSUs, and intact classrooms within schools. Stratification was by Census Region and Metropolitan Statistical Area (MSA) status; in addition, the frame was stratified implicitly by state (i.e., the frame was sorted by state). Within each stratum, a PSU (a county, or a group of small counties, or portions of large counties) was chosen without replacement. In the subsequent sampling stages, schools and intact classrooms were selected probabilistically from sampled PSUs.

At the first stage, 91 PSUs were selected. At the second stage, three schools were selected from each sampled PSU. In addition, in a randomly selected subset of the 91 PSUs, one "small" school was selected (16 small schools in 16 sampled PSUs).

Students in three racial/ethnic groups— African American, Hispanic and Asian—were oversampled by using a modified measure of size that increases the probability of selection of PSUs and schools with disproportionately high minority student enrollments. The measure of size was adjusted to equalize the expected sample size by grade.

Chapter 2 provides a description of the 2004 NYTS sampling design. Chapter 3 describes the sampling methods. Chapter 4 describes data collection methods. Chapter 5 summarizes the methods used to weight the response data. This report also includes an appendix providing additional tabulations representing the weighting process (Appendix A).

CHAPTER 2. NYTS SAMPLING DESIGN

2.1 Study Objectives and Population

The objective of the sampling design was to support estimation of tobacco use, attitudes towards tobacco use, cessation attempts, exposure to second-hand smoke, and environmental factors in a national population of students in grades 6 through 12. The study was designed to produce national estimates of these characteristics as measured by the NYTS questionnaire by school grade level (middle, high), by specific grade (6, 7, . . ., 12), by gender, and by race/ethnicity (African American, Hispanic, and Asian). It was also expected to produce additional estimates, such as by grade/gender and by race/ethnicity by school grade level.

The universe for the study consisted of all public, Catholic, and other private school students enrolled in regular middle schools and high schools in grades 6 through 12 in the 50 states and the District of Columbia. Excluded are students enrolled in regular schools who are unable to complete the questionnaire without special assistance. Also excluded are students enrolled in alternative schools, special education schools, Department of Defense operated schools, and vocational schools that only serve students who are enrolled at another school.

2.2 Designed Sample Sizes

The sample was designed to satisfy the following requirements:

1. 10,500 middle school students @ 3,500 per grade (grades 6-8)
2. 14,000 high school students @ 3,500 per grade (grades 9-12)
3. The sample design and size should be large enough to yield reliable estimates for the following:

    a. Individual grades (6, 7, 8, 9, 10, 11, and 12)
    b. Individual grades by gender (male/female)
    c. Race/ethnicity (African American, Hispanic, Asian, White) by middle school (grades 6-8) and high school (grades 9-12)

To satisfy these precision requirements, the study required a final yield of approximately 24,500 students. It was necessary to draw an initial sample that is considerably larger than this target number to compensate for school and student non-participation. While recognizing response rates attained in prior cycles of the NYTS (83% to 90% for schools and 91% to 93% for students), we assumed for sampling purposes more conservative rates of 82% for schools and 85.5% for students, or a combined rate of approximately 70%.

The sampling design specifies approximately equal sample sizes for each grade, so that grade-specific estimates may be made that meet the criteria above. Note that estimates for combined high-school grades are necessarily more precise than those for middle school grades because the sample sizes are larger for the combined high-school grades.

The large projected sample size permits analysis by gender without any special considerations in the sampling plan. Gender subgroups cut across schools (usually) and across grades, and each gender group constitutes about half of the student sample, or an anticipated 12,250 students per

group.[1] Estimates by gender and grade have slightly larger standard errors than those for other key analysis groupings. While 95% confidence intervals will be within 3 percentage points for all other estimates, estimates by grade and gender will be within 5 percentage points.

Another critical design parameter is the sample size per school. This requires striking a balance between the size distributions of schools and the burden that would be placed on schools if substantially larger student samples were drawn in larger schools. For consistency with prior cycles of NYTS, we maintained a target sample size of 125 students per school, which ordinarily amounts to random selection of 4 to 6 class sections (most typically 5). The actual number of classes selected depended on the average number of students per class section in the required subject selected as a frame from which to select classes. This approach generated approximately equal numbers of students selected across targeted grades.

About 6.5 percent of U.S. students attend small schools defined as those having fewer than 125 students across targeted grades. Proportional representation of these schools would yield approximately 18 small schools into the sample. The design ensured sufficient sample representation of small schools by creating separate strata for small schools, and allocating a specified number of units to these strata.

The design was based on an average yield of 103.8 students per school across both small and large schools. (In small schools, all eligible students were selected into the sample.) This anticipated average yield was similar to the student yield attained in the 2002 NYTS, and conservatively, it was substantially lower than the student yield attained in the NYTS 1999 and 2000.

The sample design was constructed to support separate analysis for subsets of students, including high school and middle school students; 6th through 12th graders as separate groups; males and females, in total, by level, and by specific grade; and African American, Hispanics, and Asian students in total and by level.

High School and Middle School Estimates

Estimates by school level are required to support separate analysis of students across senior high school grades (9, 10, 11, and 12) and across middle school grades (6, 7, 8). The problem presented by this requirement was that schools do not have consistent grade structures, so it is impossible to divide a sample of schools in a manner that also uniformly divides students by grade. For example, 9th grade students are served by both 7-9 junior high schools and by 9-12 high schools. We also sought a simple sampling approach in order to be able to draw the sample in a concentrated time period. As a result, we rejected approaches that would require artificially slicing and melding schools (e.g., removing a 9th grade from a junior high school and attaching it to a high school for sampling purposes).

Another approach would have been to create a rule that would classify all schools as either "Middle" or "High" and select one of each from every PSU. However, after an examination of the

[1] As shown in Kish (1965, Chapter 5), for example, design effects will be relatively small for subgroups that cut across clusters (i.e., schools); therefore, gender group estimates will have better precision than other groups than are less evenly dispersed across schools (e.g., racial/ethnic groups).

grade structure of schools by level in the sampling frame, it became apparent that any grouping of schools would result in certain grades being found frequently in both groupings.

Further analysis revealed that the sample size requirements for the two grade-based domains of study (high/middle) could be satisfied through the use of an implicit stratification scheme. We therefore chose an approach based on implicit stratification. Implicit stratification is a technique used in systematic sampling. Implicit stratification by grade was achieved by sorting the sampling frame (or list of schools) by grade (see Section 3.3).

Gender Group Estimates

The large sample size permitted analysis by gender without any special considerations in the sampling plan. During the class selection process we avoided wherever possible, all-male or all-female classes (unless it was a single-gender school).

Racial Group Estimates

In order to support the analysis of the data for African American, Hispanics, and Asian students separately, and by grade level (middle and high), adequate sample sizes were required for subgroups defined by a) grade level by racial grouping, or b) gender by racial grouping.

Sample sizes were not designed to support detailed analyses by gender and grade level within racial/ethnic subgroups (e.g., middle school Hispanic males).

The design used selection with probabilities proportional to size (PPS) sampling methods with a weighted measure of size that increased the chances of selecting PSUs and schools with relatively high minority enrollments, thereby increasing the likelihood of selecting classrooms with relatively high concentrations of targeted minority students.

An analysis of precision levels for these racial/ethnic group estimates from prior cycles of the NYTS indicated that this approach would produce estimates with a Confidence Interval (CI) of $\pm$3% in all but one case, and $\pm$5% in all cases. Table 1 presents the number of cases underlying these estimates for the prior cycles of the NYTS, as well as our target sample sizes by subgroup for this cycle. Even for Asians at the middle school and high school levels, 95% confidence intervals (CIs) were projected to be within plus or minus 3 percentage points, with the exception of one estimate that yields CIs within 5 percentage points.

Table 1. Expected Racial/Ethnic Group Sample Sizes

Key Racial/ Ethnic Subgroup	**2000 NYTS Sample**		**2002 NYTS Sample**		**2004 NYTS (expected) Sample**	
	Group Size	**% of Sample**	**Group Size**	**% of Sample**	**Group Size**	**% of Sample**
Asian	2,158	6.07%	1,698	6.49%	1,593	6.50%
Hispanics	7,445	20.96%	5,647	22.12%	5,420	22.12%
African Americans	5,750	16.18%	5,051	19.69%	4,826	19.67%
Total student sample size	35,828		26,108		24,500	

Small Schools

In small schools, defined as schools with fewer than 125 students across the targeted grades for which the school was selected, it was not possible to select the targeted 125 students per school. Although there are a large number of these schools, they account for a small proportion of the student universe. Further, they are more expensive per student survey as they incur all of the costs involved with recruiting a school and dispatching a field data collector, but produce somewhat smaller samples.

Our strategy treated the small schools as a stratum to be sampled and surveyed in addition to the "main" survey sample. We computed a sample allocation to the small school stratum that would result in proportional representation of students enrolled in small schools as part of the national sample. This created a target number of schools that were selected from the same PSUs used in the main sample draw. Our coverage of the middle and high strata was guaranteed by the main sample draw; the supplemental draw guaranteed coverage of the small school segment of the population.

2.3 Actual Sample Yield and Participation Rates

Participation rates for this survey were high: 93% of the selected schools and 88% of selected students participated. Detailed numbers are provided below in Table 2.

Table 2. Participation Rates and Number of Participants

	Initial Sample Sizes	No. Participants	Participation Rate
Schools	**288**	**267**	**93%**
Students	**31,774**	**27,933**	**88%**

CHAPTER 3. SAMPLING METHODS

The sampling frame included public, Catholic, and other private schools in the 50 states and the District of Columbia with at least one grade in the 6 through 12th grade range. The sampling process employed a three-stage cluster design stratified explicitly by geography and MSA status. Within each stratum, a PSU (a county or a group of small counties or part of a very large county) was chosen without replacement from which a probabilistic selection of schools and students was subsequently made. Schools within each PSU were implicitly stratified by the highest and lowest eligible grade present, geographic location, and eligible enrollment.

3.1 Measure of Size

The sampling approach utilized probability proportional to size (pps) sampling methods, in which the probability of a PSU being selected was proportional to the "size" of the PSU. This section describes the measure of size used.

One way of accomplishing oversampling of African American, Hispanic, and Asian students was to use a modified measure of population size during the pps sample selection steps. A function of the form $r_aA + r_bB + r_hH + r_oO$ is sought where the r's are the weighting factors for the Asian, African American, Hispanic and Other populations (A, B, H, and O, respectively). This function can increase the chances of schools with relatively large minority enrollments entering the sample.

The effectiveness of a weighted measure of size in achieving oversampling is dependent upon the distributions of African American, Hispanic, and Asian students in schools. For example, if U.S. schools had identical percentages of minorities in every school, then the sample of students from any sample of schools would mirror the national percentages and use of a weighted measure of size would fail to oversample minority students. We know this is not the case, however, and a weighted measure of size has been used in the national YRBS since its inception and also in prior cycles of NYTS.

The weighted measure of size also was modified by the ratio of a given grade's enrollment to the 12th grade enrollment. This had the effect of equalizing the size of the grade level enrollment so as to more equally distribute the sample across grades.

The weighting function used was.

$$Size = \sum_{i \in grades} ER_i (1.0O_i + 9.0H_i + 5.0B_i + 16.0A_i)$$

where i denotes the grade, ER denotes the enrollment ratio for the ith grade, and A_i, B_i ,H_i , and O_i denote the minority enrollment for that grade as described above.

This weighted measure of size for large schools was summed to compute stratum and PSU sizes. Disproportionate weighting had the effect of increasing the allocation of the sample to high-minority strata and increasing the chances of PSUs with high minority concentrations in these strata being included in the sample.

3.2 Stage 1 – Selection of PSUs

PSU Definition

In defining PSUs, several issues were considered:

- Each PSU should be large enough to contain the requisite number of schools and students by grade.
- Each PSU should not be so large as to be selected with certainty
- Each PSU should be compact geographically so that field staff can go from school to school easily.
- There should be recent data available to characterize the PSUs.
- PSU definitions should be consistent with secondary sampling unit (school) definitions.

Generally, counties were equivalent to PSUs, except where low population counties were combined in order to provide sufficient numbers of schools and students. In addition, very large counties were sub-divided to minimize certainty PSUs.

County population figures were aggregated from school enrollment data for the grades of interest. Enrollment data were obtained from the most recent Common Core of Data from the National Center for Education Statistics and the current school and school district data files of Quality Education Data, Inc. (QED).

The NYTS 2004 PSU definitions were consistent with those used in previous NYTS cycles. PSUs were created using special software developed by Macro that ensures that each PSU has the correct number of schools and students; map data were also used to ensure that each PSU was compact geographically.

Stratification and Selection of PSUs

The PSUs were organized into 8 strata, based on urban/rural location and regional division. PSUs were classified as "urban" if they were in one of the 54 largest MSAs in the U.S.; otherwise, they were considered "rural."

At the first stage, 91 sample PSUs were selected. The sample PSUs were allocated to the strata in proportion to weighted enrollments (measures of size). At the second stage, three schools were selected from each sampled PSU. In addition, in a subset of the PSUs, one "small" school was selected (16 small schools in 16 sub-sample PSUs).

In each stratum, the PSUs were sorted by five-digit zip code (an implicit geographic stratification) and selected with probability proportional to size as follows:

- A sampling interval was computed by dividing the sum of the measures of size for the PSUs in a stratum by the number of PSUs to be selected.

Any PSUs larger than the 80% of the sampling interval was split into sub-PSU using a process that assigned schools randomly to equally sized groups. These sub-PSU were then sampled.

- The PSU sample was drawn using a systematic pps sampling method.

3.3 Stage 2 – Selection of Schools

Schools in selected PSUs were assigned to one of the two school strata if they had at least one eligible grade. Schools were classified as "large" if they had 125 or more students across all targeted grades for which the school was selected; otherwise, schools were classified as small.

Refusing schools were not replaced. The sample sizes anticipated a certain amount of non-participation by allowing for refusals in calculating the number of schools initially drawn. Schools in a PSU were sorted by highest grade, lowest grade, zip code and enrollment; a systematic, random sample of three schools was then taken from this sorted school frame. Sorting the frame is a form of implicit stratification that helps ensure that the sample represents different geographic areas and the full range of eligible grades available in the schools in each PSU. We attempted to select approximately equal sample sizes for each grade, so that grade-specific estimates may be made.

Large Schools

Three large schools were selected per PSU with probability proportional to the weighted measure of size of the school, using a systematic sampling procedure with a random start. Prior to sampling, schools were sorted by the highest eligible grade, then lowest eligible grade, then geographic location, and finally by eligible enrollment. This sort implicitly stratified the sample by high school/middle school grades.

Small Schools

In the small school stratum, we calculated the percentage of students that should come from small schools to reflect the representation of students from small schools as a proportion of all students. The small school sample had approximately the same number of students as their proportion in the population. We randomly selected a sub-sample of the selected PSUs equal in number to the number of small schools to be selected. One small school per sub-sampled PSU was selected with probability proportional to size, using the weighted measure of size.

3.4 Stage 3 – Selection of Classes

The method of selecting students varied somewhat from school to school, depending upon the organization of that school. To ensure that all students had one and only one chance of being selected to participate, classes ordinarily were chosen from required core courses such as English, social studies, math, or science. Among middle school students (and in a few states from among high school students), physical education and/or health also were considered core courses. In some schools, it was extremely difficult to develop an appropriate frame. Therefore, in small number of schools, classes were selected by using a time of day when all students had class, and randomly selecting from all classes held at this time (usually second period). As a variation on this approach, in some schools homerooms were used as the frame for class selection. Homerooms are particularly good choices because the homeroom teacher usually has a strong relationship with students and can be particularly helpful in securing parental consent and student cooperation. However, relatively few schools have homerooms meeting of sufficient duration to conduct the survey.

The target number of students to be selected within a given school remained constant at 125; this number was smaller in schools with fewer than 125 students across the grades of interest. The number of classes to be selected varied slightly depending on the average class size. The number of students to be selected was calculated by dividing the total enrollment at the grades of interest by the number of class sections available in the chosen core subject area or at the selected time period. This resulted in the number of sections to be selected. An Excel program was used to select class sections using systematic sampling procedures. Using the average classroom size, this process consistently targeted the number of classes needed to meet or exceed the 125 student requirement. Of course, in practice, because average class sizes were employed, the number of students actually selected in each school varied from this 125 student target. Ordinarily, 4 to 6 class sections were selected in large schools, with 5 class sections being the norm.

All students in a selected classroom who could complete the survey without special assistance were considered eligible and offered the opportunity to participate in the survey. Refusing students were not replaced. Non-response at the student level was accounted for in the sample size using an average per class yield that assumed student response rates derived from historical experience with the NYTS.

3.5 Probabilities of Selection

This section describes the probabilities of selection associated with the various sampling stages. These probabilities will provide the basis for the sampling weights discussed in Chapter 5.

If n_i is the number of PSUs to be selected from stratum i, S_i is the size of stratum i, and S_{ij} is the size of *PSU j* in stratum i (in all cases "size" refers to our measure of size), then the probability of selection of *PSU i* is $n_i S_{ij}/S_i$. For the two schools to be selected in stratum i, S_{ijk} is the size of school *k* in *PSU j* in stratum i, and then the conditional probability of selection of the school given the selection of the PSU is $3S_{ijk}/S_{ij}$. If C_{ijk} is the number of classes in school *ijk* and *m* is the number of classes to be selected, then the conditional probability of selection of a class is m/C_{ijk}. Since all

students were selected, the conditional probability of selection of a student given the selection of the class is unity.

The overall probability of selection of a student in stratum i is the product of the conditional probabilities of selection:

Equation 1:

$$\left(\frac{n_i S_{ij}}{S_i}\right)\frac{3S_{ijk}}{S_{ij}}\left(\frac{m}{C_{ijk}}\right)$$

We note that if the number of classes were exactly proportional to the size of the school, then the probability of selection for a student would be constant throughout each stratum. This sort of "self-weighting" sample tends to be statistically efficient. The probabilities of selection were the same for all students in a given school, regardless of their ethnicity, but varied across schools depending upon the racial/ethnic mix of the schools and their surrounding regions.

CHAPTER 4: DATA COLLECTION

The management of the NYTS 2004 data collection process combined recruitment and scheduling of schools for data collectors all over the country with ongoing cycles of mailings to schools in preparation for data collection. In addition, Macro hired and trained field staff and provided careful, supportive management over the course of the project.

4.1 Recruitment and Scheduling Schools

Schools representing 35 states were selected to participate in the NYTS 2004 (not all states are represented because the design did not control for this). Recruitment began in August of 2003 with calls to State Departments of Education and Health. Letters of support were obtained from State agencies and used in mailings to districts and schools. District and school recruitment began in September of 2003. Once schools agreed to participate, approximately 5 classes (typically 125 students) were randomly selected along with a date for data collection. The date was selected to optimize the efficiency of data collection while accommodating school schedules. In selecting a date, Macro considered convenience to the school and its calendar while also trying to group schools from the same school district or PSU together. Recruiters used an electronic calendar on a secure, shared drive to facilitate communication and avoid scheduling two schools for the same data collector on the same day.

4.2 Mailings to Schools

Once schools had been recruited, classes selected, and a date scheduled, each school received a packet of pre-survey materials. These materials included all the information necessary to prepare the school for data collection. Most importantly the teacher's packets contained the parental permission forms that had to be given out to all students in the selected classes prior to data collection. The timing of these pre-survey packet mailings was determined in part by the type of permission form selected by the school. If a school selected passive parental permission forms, or forms returned only if the parents do not want their child to participate, these would be sent approximately one week prior to the scheduled date of data collection. If the school selected active parental permission forms, or forms that must be returned with the parent's signature in order for the child to participate, these packets were sent out at least two weeks prior to the scheduled date of data collection. Macro followed up with the schools to answer questions and make sure materials were received and distributed to selected classes and students.

4.3 Hiring and Training Data Collectors

Data collectors were recruited from a pool of previously trained data collectors as well as from retired teachers associations, school health networks, and a variety of health education electronic lists. Of the 12 data collectors hired, six were returning to work on their third, fourth, or even seventh Macro school-based survey. Data collector training was conducted on March 4 through 6, 2004.

4.4 Management and Support of Data Collectors in the Field

On a weekly basis, data collectors received mailings containing their assignments for the coming week, travel and logistics to get them where they needed to be, and delivered their must read weekly bulletin. Weekly bulletins underlined key performance issues, corrected misconceptions, provided consistent direction on any procedural changes, and kept everyone abreast of the latest must have information among the NYTS group (data collectors, Macro, and CDC/OSH staff). In addition to these mailings, boxes of survey supplies were sent to data collectors at their next week's site. These boxes contained all supplies necessary for completing the data collection: questionnaires, envelopes, field forms, and pencils.

In addition to receiving multiple mailings, supervisors remained in close contact with the data collectors by phone and email, including daily contact during the first week and no less than twice-weekly contact thereafter. These contacts also reviewed performance, provided reminders, and gave emotional support. In addition, these phone calls gave data collectors the opportunities to ask questions, provided feedback from schools, and discussed difficult or rewarding data collection experiences.

4.5 Survey Administration

Survey administration in the schools began immediately after data collector training on March 8 and continued until June 22, 2004. Each data collector visited an average of 3 schools per week. While the details of each data collection varied, there were 6 steps followed in every school including: (1) Precontact call with the principal or lead contact prior to arrival at the school; (2) Entry meeting with the principal or lead contact; (3) Entry meeting with teacher or group of teachers prior to survey administration; (4) Survey administration; (5) Post-survey meeting with the teacher or teachers; and (6) Post-survey meeting with the principal or lead contact prior to leaving the school. Most survey administrations could be completed in one day, while at other times, due to the number of classes selected or alternating block schedules, the data collector needed to return for a second day. Procedures were designed to protect students' privacy by assuring that student participation was anonymous and voluntary. Students completed a self administered, scannable questionnaire.

4.6 Makeup Sessions

Macro followed essentially the same make-up procedures followed on previous cycles of the NYTS. In each class, if students were eligible to participate but were absent on the day of the survey, a Make Up List was completed. Copies of the Make Up List were given to the applicable teacher and to the principal/lead contact; one also was kept by the data collector. Every effort was made to have the data collector return at least once to each visited school to conduct a make-up session if necessary. However, sometimes there was no opportunity for the data collector to return to a school prior to leaving for the next site; or, coming back while the data collector was still in the area was too soon for a make-up session. In these and other similar situations, teachers were asked to administer makeup surveys and send them back to Macro in business reply envelopes. These supplementary makeups closely followed the national YRBS model for teacher-administered make-up sessions. This ensured comparability of data and protected respondent anonymity while at the same time maximizing response rates.

After data collection was completed in a school, data collectors sent thank you letters to each of the participating teachers and the principal/lead contact. This allowed the data collector an opportunity to connect once more with the staff at the school, inquire as to the status of makeups expected, and encourage further participation.

4.7 School and Student Participation Rates

Participation rates for this survey were high and generally comparable to participation rates achieved in the 1999 and 2000 cycles of NYTS. Of the 288 eligible schools, 267 (93%) participated in the 2004 NYTS. Among the 31,744 sampled youths enrolled at the 267 participating schools, 27,933 (88%) participated. This resulted in a combined overall response rate of 82%.

CHAPTER 5. WEIGHTING

This section describes the procedures used to weight the data collected in NYTS 2004. The process involved the steps outlined below:

- Sampling Weights
- Non-response Adjustments
- Adjusting Weights for National Estimates
- Weight Trimming
- Post-stratification to National Estimates of Racial Percentages by Grade

This section focuses on the development of the weights for the student response data. The school profile data was weighted using the sampling weight for the corresponding school. The final data set was weighted to reflect the initial probabilities of selection and non-response patterns, to mitigate large variations in sampling weights, and to post-stratify the data to known control characteristics.

5.1 Sampling Weights

The basic weights were computed on a case-by-case basis as the reciprocal of the probability of selection of that case. A base weight, or sampling weight, incorporating adjustments for non-response and scaling to total school enrollment at the student level, was computed in three stages.

PSU-level Probabilities

The PSU component of the sampling weight was computed by the sampling program as part of the sampling process, with certainty PSU handled as described in section 3.2. The resulting weight is:

Equation 2: $$W_{ij}^{P} = \frac{S_i}{n_i S_{ij}}$$

For small schools, the PSU component of the weight was multiplied by the ratio of the number of PSUs to the number of PSUs selected to have a small school drawn, or 16.

Table A-1 in Appendix A shows the number of PSUs formed in each stratum and the number of PSUs sampled in each stratum. Table A-2 (Appendix A) gives, for each sampled PSU, the total large school size measure for the stratum and for the PSU, the PSU-level sampling weight after removal of certainty PSUs, and the number of times the PSU was taken into the sample.

School-level Probabilities

The school level component of the sampling weight also was computed by the sampling program, accounting for schools selected with certainty as described in section 3.3. The weight was computed as in Equation 3 with Table A-3 (Appendix A) giving the school measure of size and the school

component of the sampling weight. Note that for schools identified as small schools, only one school was selected per PSU.

Equation 3:

$$W^{S}_{ijk} = \frac{S_{ij}}{3S_{ijk}}$$

Student-level Probabilities

The student level component of the sampling weight was computed to include a post-stratification adjustment to total school enrollment. If r_{ijk} is the number of responding students in the school *k*, PSU *j*, stratum *i*, and E_{ijk} is the school enrollment in eligible grades, then the weight of student *l* adjusted for non-response is:

Equation 4:

$$W^{R}_{ijkl} = \frac{E_{ijk}}{r_{ijk}}$$

5.2 Non-response Adjustments

An overall adjustment for school non-response was made by stratum, adjusting the sum of the student weights to the weighted measure of size of that stratum. This adjustment was made separately for large and small schools.

Equation 5:

$$F_{i,large} = \left(\frac{\sum_{k} W^{S}_{ijk} W^{P}_{ij} S_{ijk}}{\sum_{k \in Stratum\ i\ respondents} W^{S}_{ijk} W^{P}_{ij} S_{ijk}} \right)$$

The final weight of student *l* is $F_{i,large} W^{S}_{ijk} W^{P}_{ij} W^{R}_{ijkl}$. School response rates by strata and PSU, and the resulting non-response adjustment factors, are detailed in Table 3. For small schools, a similar adjustment was computed using the entire small school sample as the adjusting class as shown in Equation 6 below.

Equation 6:

$$F_{small} = \frac{\sum_{i,j,k} W^{S}_{ijk} W^{P}_{ij} S_{ijk}}{\sum_{k \in small\ sample\ respondents} W^{S}_{ijk} W^{P}_{ij} S_{ijk}}$$

5.3 Adjusting Weights for National Estimates

The results of the weighting steps just described were a set of weights useful for producing accurate estimates by stratum. However, because weighted measures of size were used, development of national estimates required a re-weighting of the strata to total enrollment. This provides two benefits – the weights are adjusted to represent strata in the correct proportions, and simultaneously adjusted to control totals. The adjustment for strata i was computed as:

Equation 7:

$$Af_i = \frac{E_i}{\sum_i W_i}$$

where E_i = enrollment totals for grades 6 - 12 and W_i is the sum of all adjusted weights for respondents in stratum i.

Table 4 gives the enrollment, weight and adjustment for each stratum. Adjustments were made based on the total enrollment in all eligible grades.

5.4 Weight Trimming

Extreme variation in sampling weights can cause inflated sampling variances and offset the precision gained from a well-designed sampling plan. This variation can occur, for example, if the number of respondents in a particular school is very low, causing a large non-response adjustment factor to be computed. One strategy to compensate for this is to trim extreme weights and distribute the trimmed weight among the untrimmed weights. The method we used is based on a similar procedure done for the National Assessment of Educational Progress (NAEP)[2]. The trimming was an iterative procedure. In each iteration an optimal weight, W_o, was calculated from the sum of the squared weights in the sample. Then, each weight, W_i, was marked and trimmed if it exceeded that optimal weight. The trimmed weight was summed within grade and spread out proportionally over the unmarked cases in the grade. The process was allowed to iterate until trimming produced a change in the design effect due to weighting of less than one percent. Weight trimming was done within stratum.

W_{ok} is determined by the following:

Equation 8:

$$W_{ok} = \left(c \sum_{k=1}^{n} \frac{w_k^2}{n} \right)^{\frac{1}{2}}$$

The constant c was set so that a maximum of three percent of the weight would be trimmed on the first iteration of the trimming process in each stratum.

[2] Potter, F. "A Study of Procedures to Identify and Trim Extreme Sample Weights", Proceedings of the Section on Survey Research Methods, American Statistical Association, pp. 225-230. , 1990.

Let W_{ik} and W_{ok} be the weight for the ith case and the optimum weight for the kth iteration, respectively, and define T_{ik} as 1 if W_{ik} is greater than or equal to W_{ok}, and zero otherwise. Then the trimmed weight for the k + 1 iteration is defined as follows:

Equation 9:

$$W_{i,k+1} = \left\{ \begin{array}{c} W_{ok} \; if \; W_{ik} \geq W_{ok} \\ \left[\dfrac{\sum_{i=1}^{n} \left(1 - t_{ik} \left(\dfrac{W_{ok}}{W_{ik}} \right) \right) W_{ik}}{\sum_{i=1}^{n} W_{ik} (1 - t_{ik})} \right] if \; W_{ik} < W_{ok} \end{array} \right\}$$

Table 5 presents the results of the weight trimming.

5.5 Post-stratification

National estimates of the racial/ethnic student distribution by race/ethnicity and grade within stratum were obtained from the QED database, which has five racial/ethnic categories: White, African American, Hispanic, Asian and Pacific Islander, and Native American. Weights were post-stratified to national estimates of enrollment obtained from the QED database within the cross-classification of grade and race/ethnicity.

Given a national estimate of R_a and a weighted population estimate of P_a for race/grade combination a, the simple post-stratification factor would be the ratio of R_a to P_a for each race and grade. However, this process sets weights for the respondents giving "Other" and "Missing" responses to either the grade or race questions to zero. Missing responses were imputed using a hot-deck method, with adjustable imputation classes prior to the post-stratification step.

Table 6 gives for each post-stratification cell, the percentage of weight, the percentage of enrollment, and the post-stratification adjustment.

Table 3. School Response Rate by Stratum

Table 3							
School Size	**Stratum**	**Responding Schools**		**Sampled Schools**		**Percent Responding**	**Non-Response Adjustment**
		Weighted Size Measure	**Count**	**Weighted Size Measure**	**Count**		
Large	1N	2,712,926.62	20	2,851,884.61	21	95.238	1.05122
	1U	7,167,044.95	27	7,954,082.93	30	90.000	1.10981
	2N	4,196,430.27	34	4,328,590.76	35	97.143	1.03149
	2U	5,116,443.67	24	5,749,268.20	27	88.889	1.12368
	3N	13,412,088.64	60	13,412,088.64	60	100.000	1.00000
	3U	9,361,456.11	32	10,535,059.82	36	88.889	1.12537
	4N	6,452,981.18	24	7,307,078.27	27	88.889	1.13236
	4U	12,670,485.30	31	14,707,580.86	36	86.111	1.16077
	Overall	61,089,856.74	252	66,845,634.10	272		
Small		3,879,402.21	15	4,097,141.18	16	93.75	1.05613

Table 4. Enrollment Weight Adjustment

Table 4			
Stratum	**Enrollments**		**Adjustment**
	Frame (Control)	**Estimated (Weighted Responses)**	
1N	1,817,515.66	2,246,092.51	0.80919
1U	2,827,559.08	2,691,499.92	1.05055
2N	3,419,268.25	2,804,530.28	1.21919
2U	2,585,788.29	3,223,772.03	0.80210
3N	5,600,778.96	4,397,780.00	1.27355
3U	3,446,121.09	3,019,407.35	1.14132
4N	2,412,222.41	2,146,928.16	1.12357
4U	3,422,019.51	3,667,373.52	0.93310
Total	25,531,273.24	24,197.383.77	

Table 5. Trimming

Table 5								
Stratum	**Trim Factor**	**Number Cases**	**Trim Iteration**	**Weight Optimal**	**Adjusting Factor**	**Weight Trimmed**	**Variance Weight**	**Design Effect**
1N	10.9	2,506	Initial	5507.49	1.00000	2159.45	1398534.11	3.6577
			Final	4155.16	1.00161	2380.18	1053750.67	3.0025
1U	3.0	2,638	Initial	4107.47	1.00000	2332.38	743374.61	1.6468
			Final	2200.84	1.00281	2200.84	461641.31	1.4017
2N	10.0	3,976	Initial	144049.88	1.00000	1688.49	36730994.75	50.6535
			Final	4038.61	1.00413	2499.55	875981.59	2.1842
2U	10.0	2,780	Initial	11731.91	1.00000	1564.27	2635417.64	4.0451
			Final	4375.79	1.00139	1905.52	1043976.76	2.2063
3N	5.5	6,319	Initial	5368.46	1.00000	1511.10	610737.58	1.7773
			Final	2467.31	1.00245	1626.44	315902.26	1.4021
3U	3.1	3,506	Initial	2916.31	1.00000	2111.44	663054.60	1.6861
			Final	2140.74	1.00199	2140.74	509817.43	1.5275
4N	7.5	2,596	Initial	5944.09	1.00000	3049.97	1877514.12	3.1737
			Final	4268.11	1.00119	3277.82	1562386.90	2.8088
4U	10.0	3,612	Initial	25503.59	1.00000	973.84	10380038.98	12.5614
			Final	3952.07	1.00325	1655.41	650089.61	1.7241

Table 6					
Adjusting Class		**Percent Students**		**Number Cases**	**Post-stratification Adjustment**
Race/Ethnicity	**Grade**	**Control (Population)**	**Estimate (Weighted Responses)**		
African American	06th	2.5473	2.7876	808	0.9138
African American	07th	2.4936	3.2555	952	0.7660
African American	08th	2.3976	3.2577	925	0.7360
African American	09th	2.6177	2.6356	802	0.9932
African American	10th	2.0809	2.0394	585	1.0203
African American	11th	1.7338	2.2713	658	0.7633
African American	12th	1.5340	1.9567	569	0.7840
Native American	06th	0.1625	0.6548	165	0.2482
Native American	07th	0.1632	0.5845	147	0.2792
Native American	08th	0.1563	0.4832	126	0.3236
Native American	09th	0.1621	0.3478	94	0.4660
Native American	10th	0.1416	0.2362	65	0.6089
Native American	11th	0.1243	0.1670	44	0.7445
Native American	12th	0.1142	0.1592	37	0.7175
Asian	06th	0.6335	0.8012	252	0.7907
Asian	07th	0.6317	0.7378	282	0.8562
Asian	08th	0.6121	0.7023	249	0.8715
Asian	09th	0.7136	0.7903	311	0.9029
Asian	10th	0.6381	0.6866	243	0.9293
Asian	11th	0.5705	0.5568	193	1.0245
Asian	12th	0.5130	0.4649	167	1.1034
White	06th	9.8013	9.1639	2239	1.0695
White	07th	9.8177	8.8543	2163	1.1088
White	08th	9.6656	8.6892	2093	1.1124
White	09th	10.3459	8.0674	1782	1.2824
White	10th	9.3866	7.2399	1718	1.2965
White	11th	8.5246	6.1781	1383	1.3798
White	12th	2.5869	4.8374	1106	1.6334
Hispanic	06th	2.3315	3.4715	1276	0.6716
Hispanic	07th	2.2585	3.5978	1255	0.6278
Hispanic	08th	2.1730	3.3606	1181	0.6466
Hispanic	09th	2.2630	3.5118	1395	0.6443
Hispanic	10th	1.8526	2.8814	1029	0.6429
Hispanic	11th	1.5704	2.3899	833	0.6571
Hispanic	12th	1.3663	2.1838	806	0.6256

APPENDIX A. Additional Tables

Table A-1 Stratum Summary

Table A-1			
Stratum	**Stratum Size Measure**	**PSU Count**	
		Frame	**Sampled**
1N	3,084,333.96	118	7
1U	8,530,082.18	54	10
2N	4,890,946.31	376	12
2U	6,119,821.02	61	9
3N	14,009,471.54	454	20
3U	10,961,113.52	85	12
4N	8,102,645.44	133	9
4U	15,701,018.14	35	12

Table A-2 PSU Sampling

Table A-2					
Stratum	**PSU**	**Size Measure**	**Expected Number Draws**	**Sampling Weight**	**Sub-sampled For Small Schools**
1U	421010	520345.37	0.61001	1.6393	Yes
1U	360050	585249.47	0.68610	1.4575	No
1U	360470	445998.78	0.52285	1.9126	Yes
1U	360610	567580.70	0.66539	1.5029	No
1U	250230	81894.92	0.09601	10.416	No
1U	250270	131831.96	0.15455	6.470	No
1U	340070	125509.23	0.14714	6.7964	No
1U	340130	249173.71	0.29211	3.4233	No
1U	360810	441411.63	0.51748	1.9325	No
1U	361030	290960.13	0.34110	2.9317	No
1N	340170	245836.86	0.55794	1.7923	Yes
1N	420490	37692.99	0.08555	11.6897	No
1N	420770	74237.53	0.16848	5.9353	No
1N	090090	168940.49	0.38342	2.608	Yes
1N	330110	53597.00	0.12164	8.2210	No
1N	360650	28086.87	0.06374	15.6877	No
1N	360830	17899.70	0.04062	24.6160	Yes
2U	170311	452197.48	0.66502	1.504	No
2U	170312	464639.64	0.68331	1.463	Yes
2U	170313	442519.16	0.65078	1.537	No
2U	170890	120245.44	0.17684	5.655	No
2U	180970	161442.34	0.23742	4.212	No
2U	261630	469842.10	0.69096	1.447	No
2U	270030	41818.46	0.06150	16.260	No
2U	291830	33919.60	0.04988	20.0468	No
2U	390350	281240.38	0.41360	2.4178	No
2N	550730	30918.43	0.07586	13.1824	No
2N	390950	86986.37	0.21342	4.6855	Yes
2N	391390	14708.76	0.03609	27.7099	Yes
2N	171230	7761.18	0.01904	52.515	No
2N	180350	12649.27	0.03104	32.222	No
2N	180890	125874.20	0.30883	3.238	No
2N	190190	3926.67	0.00963	103.798	No
2N	201350	5153.60	0.01264	79.086	No
2N	260210	31538.21	0.07738	12.923	No
2N	260810	112157.51	0.27518	3.634	No
2N	290190	17035.75	0.04180	23.9249	No
2N	270670	8714.34	0.02138	46.7711	No
3U	120110	489983.25	0.53642	1.864	No
3U	120970	359560.45	0.39364	2.540	No
3U	132550	101681.48	0.11132	8.983	No
3U	240050	150770.45	0.16506	6.058	No
3U	240330	296833.36	0.32497	3.077	No
3U	370590	26915.08	0.02947	33.9373	No
3N	280510	14186.34	0.02025	49.3766	No
3N	010110	73441.07	0.10484	9.538	No

Table A-2					
3N	100050	25108.04	0.03584	27.898	No
3N	120250	533213.14	0.76122	1.314	No
3N	120251	548576.46	0.78315	1.277	Yes
3N	120870	79604.78	0.11364	8.799	No
3N	120890	189139.68	0.27002	3.703	No
3N	132510	79402.76	0.11336	8.822	No
3N	210670	36289.54	0.05181	19.302	Yes
3N	220730	35389.55	0.05052	19.793	No
3N	371630	27635.89	0.03945	25.3465	No
3N	401090	140312.24	0.20031	4.9922	No
3N	450450	68567.86	0.09789	10.2158	No
3N	470470	334457.16	0.47747	2.0944	No
3N	480050	22193.96	0.03168	31.5614	No
3N	484890	293223.71	0.41861	2.3889	Yes
3N	481630	93773.36	0.13387	7.4699	No
3N	481750	40717.32	0.05813	17.2033	No
3N	483830	109723.53	0.15664	6.3840	No
3N	511430	10695.22	0.01527	65.4941	No
3U	481130	888888.33	0.97314	1.0276	No
3U	482010	482910.46	0.52868	1.8915	No
3U	482011	490164.93	0.53662	1.8635	No
3U	484390	457630.45	0.50100	1.9960	No
3U	484930	750090.45	0.82118	1.2178	Yes
3U	511770	56929.89	0.06233	16.0448	No
4U	040130	887871.70	0.67858	1.474	Yes
4U	060170	80604.77	0.06160	16.233	Yes
4U	060371	885857.36	0.67704	1.477	No
4U	060372	892906.57	0.68243	1.465	No
4U	060373	859110.91	0.65660	1.523	No
4U	060374	866098.07	0.66194	1.511	No
4U	060375	871956.39	0.66642	1.501	No
4U	060591	669999.46	0.51207	1.953	No
4U	060730	1199311.45	0.91661	1.091	No
4U	060810	312855.65	0.23911	4.182	No
4U	060850	865087.36	0.66117	1.512	No
4U	080010	116657.34	0.08916	11.216	No
4N	530530	173317.17	0.19251	5.1945	Yes
4N	040230	298277.69	0.33131	3.018	No
4N	060150	14012.15	0.01556	64.251	No
4N	060190	547942.84	0.60863	1.643	Yes
4N	060310	112116.67	0.12453	8.030	No
4N	060470	138616.63	0.15397	6.495	No
4N	080170	121933.75	0.13544	7.383	No
4N	150031	561845.64	0.62407	1.602	No
4N	350250	110124.87	0.12232	8.1752	No

Table A-3 School Selection

Table A-3						
Stratum	**PSU**	**School ID**	**School Size Class**	**School Size Measure**	**Expected Number of Draws**	**Sampling Weight**
1N	090090	00235859	Small	198.60	0.01914	52.245
1N	090090	00240111	Large	2982.17	0.05642	17.724
1N	090090	00244692	Large	1550.13	0.02933	34.097
1N	090090	00247773	Large	3158.39	0.05976	16.735
1N	330110	00853795	Large	316.79	0.01916	52.194
1N	330110	00856708	Large	4040.54	0.24438	4.092
1N	330110	00860055	Large	207.32	0.01254	79.753
1N	340170	00861616	Small	490.07	0.02183	45.816
1N	340170	00885375	Large	16873.43	0.22661	4.413
1N	340170	00893411	Large	13524.92	0.18164	5.505
1N	340170	00902712	Large	2442.24	0.03280	30.489
1N	360650	00950733	Large	787.44	0.09690	10.320
1N	360650	00991408	Large	309.29	0.03806	26.275
1N	360650	03241430	Large	2194.16	0.27000	3.704
1N	360830	00923583	Large	1014.34	0.17969	5.565
1N	360830	00955527	Large	1777.06	0.31480	3.177
1N	360830	00955571	Large	1170.60	0.20737	4.822
1N	360830	00962793	Small	92.38	0.09577	10.442
1N	420490	01217271	Large	423.81	0.03660	27.325
1N	420490	01218898	Large	800.88	0.06916	14.460
1N	420490	01222204	Large	597.65	0.05161	19.377
1N	420770	01203633	Large	5067.36	0.21245	4.707
1N	420770	01203699	Large	10785.89	0.45220	2.211
1N	420770	01232642	Large	1865.68	0.07822	12.784
1U	250230	00599464	Large	1184.65	0.04689	21.326
1U	250230	00610107	Large	13629.45	0.53948	1.854
1U	250230	00612727	Large	825.50	0.03267	30.605
1U	250270	00612658	Large	1656.27	0.04230	23.639
1U	250270	00617736	Large	3252.62	0.08308	12.037
1U	250270	00623524	Large	1120.40	0.02862	34.945
1U	340070	00872468	Large	3692.74	0.09598	10.418
1U	340070	00874396	Large	1695.53	0.04407	22.690
1U	340070	00875312	Large	6096.72	0.15847	6.310
1U	340130	00863704	Large	2098.97	0.02794	35.796
1U	340130	00893069	Large	4539.35	0.06042	16.552
1U	340130	06113992	Large	1092.52	0.01454	68.772
1U	360050	00922138	Large	827.85	0.00439	227.637
1U	360050	00972622	Large	14954.47	0.07936	12.602
1U	360050	00974175	Large	8015.38	0.04253	23.511
1U	360470	00980429	Large	4678.81	0.03295	30.348
1U	360470	00983587	Large	15852.14	0.11164	8.957
1U	360470	00984412	Small	542.82	0.02712	36.875
1U	360470	05485714	Large	3831.59	0.02698	37.059
1U	360610	00939174	Large	1244.23	0.00715	139.920
1U	360610	00974186	Large	19152.08	0.11001	9.090
1U	360610	00976966	Large	15579.95	0.08949	11.174

Table A-3						
Stratum	**PSU**	**School ID**	**School Size Class**	**School Size Measure**	**Expected Number of Draws**	**Sampling Weight**
1U	360810	00973932	Large	25817.02	0.19024	5.257
1U	360810	00980928	Large	4845.67	0.03571	28.006
1U	360810	04043335	Large	6395.88	0.04713	21.218
1U	361030	00964167	Large	1114.55	0.01195	83.693
1U	361030	00964666	Large	1978.40	0.02121	47.149
1U	361030	00970308	Large	4543.56	0.04871	20.530
1U	421010	01188409	Large	2056.58	0.01237	80.857
1U	421010	01236137	Small	480.82	0.02239	44.672
1U	421010	01236181	Large	15424.20	0.09276	10.781
1U	421010	01236942	Large	2992.56	0.01800	55.567
2N	171230	00355337	Large	238.78	0.10225	9.780
2N	171230	00381855	Large	2216.05	0.94895	1.054
2N	171230	00381913	Large	910.58	0.38992	2.565
2N	180350	00443869	Large	2394.13	0.58370	1.713
2N	180350	00443993	Large	1489.28	0.36310	2.754
2N	180350	05750966	Large	465.38	0.11346	8.813
2N	180890	00423376	Large	2277.15	0.05898	16.955
2N	180890	00435927	Large	3088.58	0.08000	12.501
2N	180890	00444104	Large	1644.15	0.04258	23.483
2N	190190	00472663	Large	600.83	0.51345	1.948
2N	190190	00473441	Large	251.62	0.21503	4.651
2N	190190	05949337	Large	170.04	0.14531	6.882
2N	201350	00498014	Large	1678.03	1.37713	0.726
2N	201350	00498025	Large	926.16	0.76009	1.316
2N	260210	00651198	Large	928.21	0.10051	9.949
2N	260210	00652191	Large	848.63	0.09189	10.883
2N	260210	00652952	Large	576.25	0.06240	16.026
2N	260810	00654337	Large	954.19	0.02771	36.090
2N	260810	00666466	Large	1749.36	0.05080	19.685
2N	260810	00672797	Large	1460.55	0.04241	23.578
2N	270670	00712426	Large	363.86	0.12815	7.803
2N	270670	00717989	Large	657.48	0.23156	4.318
2N	270670	00718009	Large	937.70	0.33026	3.028
2N	290190	00757037	Large	4735.84	0.84787	1.179
2N	290190	00783271	Large	455.76	0.08160	12.256
2N	290190	04214879	Large	1830.71	0.32776	3.051
2N	390950	01087637	Large	2395.66	0.09895	10.106
2N	390950	01087976	Large	246.44	0.01018	98.242
2N	390950	01088018	Small	462.67	0.03223	31.024
2N	390950	01088266	Large	2905.69	0.12002	8.332
2N	391390	01080405	Large	1226.66	0.26305	3.802
2N	391390	01113691	Large	1145.03	0.24555	4.073
2N	391390	01113895	Large	1010.09	0.21661	4.617
2N	391390	01905392	Small	39.50	0.05493	18.205
2N	550730	01544786	Large	4261.87	0.45396	2.203
2N	550730	01544888	Large	4349.22	0.46326	2.159
2N	550730	04129654	Large	4224.07	0.44993	2.223
2U	170311	00401567	Large	848.26	0.00618	161.916
2U	170311	00407773	Large	2751.64	0.02003	49.915
2U	170311	00412772	Large	7125.11	0.05188	19.277
2U	170312	00359706	Small	268.73	0.00725	137.943

Table A-3						
Stratum	**PSU**	**School ID**	**School Size Class**	**School Size Measure**	**Expected Number of Draws**	**Sampling Weight**
2U	170312	00366236	Large	3628.99	0.02546	39.274
2U	170312	00398916	Large	5652.57	0.03966	25.214
2U	170312	90173544	Large	6665.57	0.04677	21.382
2U	170313	00365822	Large	978.36	0.00722	138.592
2U	170313	00371257	Large	7768.00	0.05729	17.455
2U	170313	00417486	Large	172.15	0.00127	787.630
2U	170890	00357797	Large	3247.11	0.08823	11.333
2U	170890	00358382	Large	2292.36	0.06229	16.054
2U	170890	00378343	Large	2021.36	0.05493	18.206
2U	180970	00438382	Large	1105.68	0.02139	46.750
2U	180970	00447014	Large	2355.15	0.04556	21.948
2U	180970	00447386	Large	8438.96	0.16326	6.125
2U	261630	00660646	Large	4054.23	0.02777	36.012
2U	261630	00690433	Large	2036.78	0.01395	71.683
2U	261630	00692328	Large	3259.49	0.02232	44.793
2U	270030	00706398	Large	3722.89	0.27354	3.656
2U	270030	00706401	Large	4140.24	0.30420	3.287
2U	270030	05450485	Large	1486.00	0.10918	9.159
2U	291830	00752152	Large	637.66	0.05768	17.338
2U	291830	00760979	Large	1677.16	0.15170	6.592
2U	291830	00784344	Large	1660.24	0.15017	6.659
2U	390350	01058242	Large	343.27	0.00390	256.515
2U	390350	01071751	Large	4855.10	0.05514	18.137
2U	390350	03237172	Large	748.20	0.00850	117.689
3N	010110	00006396	Large	3426.75	0.15605	6.408
3N	010110	00017218	Large	1631.69	0.07431	13.458
3N	010110	00017466	Large	4789.73	0.21812	4.585
3N	100050	00251757	Large	1133.30	0.13871	7.210
3N	100050	00251837	Large	1978.64	0.24217	4.129
3N	100050	00252193	Large	2118.01	0.25922	3.858
3N	120250	00273588	Large	9408.35	0.05414	18.470
3N	120250	00273963	Large	17246.15	0.09924	10.076
3N	120250	00274049	Large	22772.37	0.13105	7.631
3N	120251	00272857	Large	7952.56	0.04449	22.474
3N	120251	00273861	Large	12755.83	0.07137	14.012
3N	120251	00274752	Large	8005.57	0.04479	22.326
3N	120251	04157003	Small	634.18	0.05120	19.533
3N	120870	00271944	Large	6346.11	0.24427	4.094
3N	120870	00278837	Large	4561.95	0.17559	5.695
3N	120870	00278892	Large	2944.30	0.11333	8.824
3N	120890	00275869	Large	2723.10	0.04394	22.757
3N	120890	00277094	Large	5786.49	0.09338	10.709
3N	120890	05743766	Large	4861.99	0.07846	12.746
3N	132510	00320971	Large	1959.75	0.07445	13.433
3N	132510	00321385	Large	1983.53	0.07535	13.272
3N	132510	05448691	Large	4715.60	0.17913	5.582
3N	210670	00515246	Small	156.38	0.37418	2.672
3N	210670	00522956	Large	1561.39	0.13058	7.658
3N	210670	00522967	Large	3217.13	0.26905	3.717
3N	210670	02939591	Large	3847.02	0.32173	3.108
3N	220730	00553113	Large	3830.79	0.37519	2.665

Table A-3						
Stratum	**PSU**	**School ID**	**School Size Class**	**School Size Measure**	**Expected Number of Draws**	**Sampling Weight**
3N	220730	00553135	Large	2117.35	0.20738	4.822
3N	220730	00553168	Large	3300.05	0.32321	3.094
3N	280510	00739481	Large	768.74	0.16908	5.9145
3N	280510	00741413	Large	3528.22	0.77599	1.2887
3N	280510	02040289	Large	163.66	0.03599	27.7819
3N	371630	01015468	Large	800.38	0.08833	11.3214
3N	371630	01033068	Large	555.49	0.06130	16.3126
3N	371630	01035928	Large	1523.62	0.16814	5.9473
3N	401090	01147563	Large	5479.10	0.12231	8.1760
3N	401090	01147803	Large	2790.52	0.06229	16.0534
3N	401090	01148319	Large	3878.66	0.08658	11.5497
3N	450450	01272721	Large	2897.97	0.12864	7.7733
3N	450450	01272925	Large	2385.13	0.10588	9.4447
3N	450450	01932349	Large	607.85	0.02698	37.0599
3N	470470	01310871	Large	2757.28	0.02630	38.0233
3N	470470	01311354	Large	5774.62	0.05508	18.1554
3N	470470	01312201	Large	3469.57	0.03309	30.2172
3N	480050	01377892	Large	7268.17	0.98808	1.0121
3N	480050	01377906	Large	6381.29	0.86751	1.1527
3N	480050	01409634	Large	224.93	0.03058	32.7031
3N	481630	01346853	Large	2038.59	0.07144	13.9983
3N	481630	01352878	Large	22139.56	0.77582	1.2890
3N	481630	01387539	Large	4191.48	0.14688	6.8083
3N	481750	01361077	Large	1512.98	0.11390	8.7796
3N	481750	01404749	Large	8925.79	0.67195	1.4882
3N	481750	01404793	Large	6438.56	0.48471	2.0631
3N	483830	01353419	Large	4308.52	0.14235	7.0251
3N	483830	01353601	Large	11162.30	0.36879	2.7116
3N	483830	01381209	Large	8221.40	0.27162	3.6816
3N	484890	01328517	Small	219.03	0.05054	19.7864
3N	484890	01339766	Large	20107.37	0.20881	4.7891
3N	484890	01378036	Large	2557.26	0.02656	37.6561
3N	484890	01392298	Large	5671.96	0.05890	16.9776
3N	511430	01451132	Large	1198.86	0.34297	2.9157
3N	511430	01451267	Large	1478.56	0.42298	2.3642
3N	511430	01451369	Large	1560.67	0.44647	2.2398
3U	120110	00269254	Large	8863.74	0.05530	18.0825
3U	120110	00269403	Large	10754.27	0.06710	14.9038
3U	120110	00271081	Large	6203.93	0.03871	25.8351
3U	120970	00286586	Large	6299.44	0.05289	18.9064
3U	120970	03267276	Large	18327.97	0.15389	6.4983
3U	120970	05746993	Large	6868.86	0.05767	17.3391
3U	132550	00306469	Large	3548.97	0.10500	9.5240
3U	132550	00306516	Large	7367.87	0.21798	4.5875
3U	132550	00314491	Large	5012.75	0.14830	6.7429
3U	240050	00586943	Large	5528.38	0.11257	8.8832
3U	240050	00587142	Large	1794.58	0.03654	27.3655
3U	240050	00587186	Large	5763.31	0.11736	8.5211
3U	240330	00594502	Large	13888.58	0.16810	5.9487
3U	240330	00594761	Large	2147.43	0.02599	38.4734
3U	240330	00595583	Large	8556.03	0.10356	9.6562

Table A-3						
Stratum	**PSU**	**School ID**	**School Size Class**	**School Size Measure**	**Expected Number of Draws**	**Sampling Weight**
3U	370590	01035076	Large	1196.14	0.13706	7.2963
3U	370590	01035225	Large	2193.92	0.25138	3.978
3U	370590	01035291	Large	2051.64	0.23508	4.254
3U	481130	01348227	Large	8847.26	0.03300	30.304
3U	481130	01350291	Large	9511.48	0.03548	28.187
3U	481130	01408018	Large	3154.35	0.01177	84.995
3U	482010	01366734	Large	8909.93	0.05635	17.745
3U	482010	05492110	Large	2273.06	0.01438	69.556
3U	482010	06115333	Large	32533.73	0.20577	4.860
3U	482011	01331122	Large	13363.65	0.08312	12.031
3U	482011	01367013	Large	11989.05	0.07457	13.410
3U	482011	01399679	Large	13847.89	0.08613	11.610
3U	484390	01333877	Large	4608.56	0.03242	30.842
3U	484390	03260260	Large	2811.98	0.01978	50.547
3U	484390	04140441	Large	1546.62	0.01088	91.902
3U	484930	01322311	Large	2605.10	0.01064	93.977
3U	484930	01399395	Large	9699.25	0.03962	25.241
3U	484930	03270427	Large	16444.87	0.06717	14.887
3U	484930	05510651	Small	467.83	0.02993	33.408
3U	511770	01440517	Large	2862.44	0.15170	6.592
3U	511770	02874896	Large	2443.44	0.12949	7.722
3U	511770	06124031	Large	1622.56	0.08599	11.629
4N	040230	00033783	Large	1839.07	0.01949	51.321
4N	040230	00045868	Large	7844.49	0.08311	12.032
4N	040230	02110601	Large	8858.99	0.09386	10.654
4N	060150	00113987	Large	1651.60	0.46544	2.149
4N	060150	00113998	Large	3031.33	0.85426	1.171
4N	060150	02932439	Large	180.57	0.05089	19.651
4N	060190	00110013	Large	4474.87	0.02768	36.124
4N	060190	00122288	Large	29002.53	0.17941	5.574
4N	060190	00149732	Large	1287.37	0.00796	125.567
4N	060190	00181878	Small	891.00	0.01415	70.695
4N	060310	00100242	Large	3072.59	0.09340	10.706
4N	060310	00108037	Large	1376.12	0.04183	23.904
4N	060310	00163859	Large	5695.18	0.17313	5.776
4N	060470	00150023	Large	13643.63	0.30794	3.247
4N	060470	00150045	Large	18222.84	0.41129	2.431
4N	060470	04139935	Large	6690.94	0.15101	6.622
4N	080170	00214588	Large	3970.35	0.10235	9.770
4N	080170	05739782	Large	3651.55	0.09413	10.623
4N	080170	90070759	Large	1205.31	0.03107	32.184
4N	150031	00326769	Large	11113.88	0.06669	14.994
4N	150031	00327751	Large	25257.52	0.15157	6.598
4N	150031	05956253	Large	13153.61	0.07894	12.669
4N	350250	00917387	Large	5148.49	0.15643	6.393
4N	350250	00917467	Large	7241.23	0.22001	4.545
4N	350250	00917616	Large	1102.41	0.03349	29.856
4N	530530	01478642	Large	819.49	0.01505	66.435
4N	530530	01478711	Large	2495.02	0.04583	21.820
4N	530530	01484951	Large	7566.19	0.13898	7.196
4N	530530	03268145	Small	294.12	0.02944	33.962

Table A-3						
Stratum	**PSU**	**School ID**	**School Size Class**	**School Size Measure**	**Expected Number of Draws**	**Sampling Weight**
4U	040130	00032848	Small	163.98	0.00218	458.892
4U	040130	02868645	Large	353.42	0.00130	766.430
4U	040130	03239170	Large	6706.82	0.02476	40.388
4U	040130	03239216	Large	3596.89	0.01328	75.308
4U	060170	02940654	Small	182.75	0.03127	31.977
4U	060170	04139040	Large	6411.74	0.25729	3.887
4U	060170	05442827	Large	3574.52	0.14344	6.972
4U	060170	90069687	Large	2218.50	0.08902	11.233
4U	060371	00116707	Large	22177.47	0.07908	12.646
4U	060371	00136687	Large	37468.93	0.13360	7.485
4U	060371	00138356	Large	16434.40	0.05860	17.065
4U	060372	00136392	Large	28150.46	0.09946	10.055
4U	060372	00139735	Large	15458.76	0.05462	18.310
4U	060372	01617633	Large	25707.88	0.09083	11.010
4U	060373	00111436	Large	3714.67	0.01371	72.940
4U	060373	00141835	Large	18691.52	0.06899	14.496
4U	060373	00144643	Large	15860.41	0.05854	17.083
4U	060374	00103979	Large	6157.12	0.02245	44.548
4U	060374	00139305	Large	8604.77	0.03137	31.876
4U	060374	00167718	Large	3330.21	0.01214	82.363
4U	060375	00111425	Large	8106.42	0.02944	33.965
4U	060375	00139666	Large	26016.40	0.09449	10.583
4U	060375	00141675	Large	30214.99	0.10974	9.112
4U	060591	00099246	Large	10484.13	0.05189	19.271
4U	060591	00123565	Large	5154.44	0.02551	39.198
4U	060591	00160483	Large	8312.88	0.04114	24.305
4U	060730	00175398	Large	19373.77	0.05198	19.236
4U	060730	00175456	Large	30242.23	0.08115	12.323
4U	060730	00180783	Large	7395.23	0.01984	50.395
4U	060810	00105207	Large	3719.18	0.03871	25.835
4U	060810	00130051	Large	19473.43	0.20267	4.934
4U	060810	00181095	Large	9812.63	0.10212	9.792
4U	060850	00120961	Large	7934.66	0.03008	33.240
4U	060850	00153374	Large	6578.03	0.02494	40.096
4U	060850	05957381	Large	1861.99	0.00706	141.650
4U	080010	00210878	Large	6495.45	0.17031	5.872
4U	080010	00227815	Large	2345.70	0.06150	16.259
4U	080010	00228546	Large	7057.09	0.18504	5.404