



> SASS Sample Design, Weights, Variance, and Missing Data



SASS Sample Design, Weights, Variance, and Missing Data

 [Download Transcript](#)  [Download Slides](#)  [Download Glossary](#)

> SASS Sample Design, Weights, Variance, and Missing Data > Module Objectives

00:01:18

Module Objectives

- Describe the SASS [weights that must be applied](#) to assure data are representative of the target population
- Describe the procedures for [calculating appropriate standard errors](#)

> SASS Sample Design, Weights, Variance, and Missing Data > Sample Design Procedures in SASS

00:02:24

Sample Design Procedures in SASS

- Uses the Common Core of Data (CCD) and Private School Universe Survey (PSS) as the sampling frames from which to select schools
- In the SASS two-stage sampling design the school is the primary sampling unit

Total students, revenues, expenditures, and expenditures per pupil for Philadelphia, Pennsylvania charter schools: Fiscal year 2011										
No. of charter school	Total students (all members)	Revenue by source (in thousands of dollars)				Current expenditures (in thousands of dollars)				Total expenditures per pupil
		Total	Federal	State	Local	Total	Instruction	Current	Other	
Total Charter Schools Reported	40,322	952,122	296,112	526,492	942,244	248,727	526,832	912,876	226,221	512,227
Neo-Confessionary Charter School	1,244	615,006	61,222	9742	613,027	612,451	67,742	610,821	612,932	611,229
Commonwealth Academy of Philadelphia Co	1,213	15,362	1,225	938	18,173	16,234	6,438	12,297	15,555	12,854
Independence Academy Co	1,189	27,701	2,296	839	25,492	16,739	10,309	14,299	17,419	16,652
Markham Preparatory Academy Co	1,125	14,262	2,744	891	11,306	14,222	7,500	12,780	14,593	15,254
Franklin Township Co	921	12,543	1,554	891	10,298	6,517	5,199	6,932	11,147	11,534
Math Focus And Science Co	910	10,140	1,353	559	8,239	16,313	5,371	11,299	16,437	11,361
Wilson D Palmer Leadership Learning Network Co	852	11,028	1,222	574	9,106	11,544	3,227	12,422	11,776	12,852
...

National Catholic Educational Association	5,740	1,682,048	128,513
National Christian School Association	141	33,637	3,181
National Society of Hebrew Day Schools	262	76,865	10,193
Oral Roberts University Educational Fellowship	53	10,403	1,053
The Jewish Community Day School Network	108	20,589	3,662
Solomon Schechter Day School Association	44	9,762	1,645
Southern Baptist Association of Christian Schools	119	25,112	2,555
Other religious school associations	1,945	340,521	33,626
Special emphasis			
American Montessori Society	1,334	61,729	11,567
Association Montessori International	587	25,151	3,340
Other Montessori associations	693	28,638	5,335
Association of Military Colleges and Schools	21	4,335	583
Association of Waldorf Schools of North America	112	16,491	2,536
National Association of Private Special Education Centers	247	27,435	4,036
Other associations for exceptional children	291	27,750	4,567
European Council for International Schools	†	†	†
National Association for the Education of Young Children	1,378	106,953	13,158
National Association of Laboratory Schools	21	2,613	378
National Coalition of Girls' Schools	89	33,907	4,830
Other special emphasis school associations	796	108,296	12,632
Other school associations or organizations			
Alternative School Network	25	2,317	448
National Association of Independent Schools	1,472	601,970	79,874
State or regional independent school association	2,259	656,934	77,852
National Coalition of Alternative Community Schools	32	1,968	333
National Independent Private School Association	201	34,374	4,269
The Association of Boarding Schools	238	77,704	11,404
Other school associations	3,587	707,505	74,208

> SASS Sample Design, Weights, Variance, and Missing Data > Sample Design Procedures in SASS (Continued)

00:01:36

Sample Design Procedures in SASS (Continued)

- The second stage of sampling is selecting a sample of teachers within the sampled school
 - A roster of all teachers is requested that includes information on subject matter taught, grade level taught, full- or part-time status, and years of teaching experience
- Stratifying schools or teachers makes sampling more efficient
 - Achieving a geographically-balanced sample within a stratum is possible by sorting all of the schools on one or more characteristics, such as community size, within the direct sampling strata
- Once teachers were sorted into various groups within the school, the probabilities of selecting any teacher within a given group were set at an equal level
 - Clustering helps achieve the sampling goals of representing all types of teachers while minimizing how many teachers are selected at any particular school

> SASS Sample Design, Weights, Variance, and Missing Data > The SASS Final Weight

00:01:45

The SASS Final Weight

- Weights bring the sample estimate into the correct proportion for the target population
- Each data file in SASS has a specific final weight that reflects all stages of sampling, plus sampling adjustments that occur after the sample was selected, and also for unit-level nonresponse
- Each SASS component final weight has its own alphabetic prefix plus the letters FNLWGT
 - School (SFNLWGT)
 - District (DFNLWGT)
 - Principal (AFNLWGT)
 - Teacher (TFNLWGT)
 - School library media center (MFNLWGT)

> SASS Sample Design, Weights, Variance, and Missing Data > The SASS Final Weight (Continued)

00:00:51

The SASS Final Weight (Continued)

- For every respondent in SASS, the final weight is provided for analysis using data from all applicable stages of sampling and nonresponse adjustment
- SASS 2011-12 weights sum across the sample cases to the population of that component type
- Every SASS weight is adjusted for nonresponse
- Estimates produced using these nonresponse-adjusted weights are representative of the characteristics of the population of the particular component in SASS – districts, principals, schools, teachers, or library media centers even though some of the sampled potential respondents did not participate in the survey.

> SASS Sample Design, Weights, Variance, and Missing Data > The SASS Final Weight (Continued)

00:01:4

The SASS Final Weight (Continued)

- Development of the SASS final weight reflects the cross-sectional design of the SASS survey system
- As SASS does not use an equal probability of selection, the final weight value varies from one respondent record to another
- Unweighted data do not take into account the unequal probabilities of selection used in SASS

> SASS Sample Design, Weights, Variance, and Missing Data > SE Calculation in SASS – Replication Techniques

00:01:41

Standard Error Calculation in SASS – Replication Techniques

- This method calculates appropriate standard errors based on differences between estimates from the full sample and a series of created subsamples (replicates)
- Select replicate weights that are associated with your final weight (e.g., for TFNLWGT, select TREPWT1 through TREPWT88)
- SASS replication weights use the BRR method, preferably the bootstrap option
- This is the only accurate method for calculating standard errors in SASS, as no PSU or strata variables are provided in the data file

> SASS Sample Design, Weights, Variance, and Missing Data > Example of Standard Error Calculation

00:01:02

Example of Standard Error Calculation

- The [SUDAAN Code Resource Document](#) provides examples of code to calculate standard errors for different types of SASS data
 - Continuous data estimates require PROC DESCRIP
 - Percentage estimates require PROC RATIO
- Using this code for your own research purposes will necessitate substituting your variables of interest

> SASS Sample Design, Weights, Variance, and Missing Data > Summary and Resources

00:00:47

Summary and Resources

This module has described:

- The SASS weights that must be applied to ensure data are representative of the target population
- The procedures for calculating appropriate standard errors

Resources

- [Analyzing NCES Complex Survey Data](#)
- [Statistical Analysis of NCES Datasets Employing a Complex Sample Design](#)
- [SUDAAN Code Resource Document](#)