

2010 NATIONAL SURVEY ON DRUG USE AND HEALTH

PERSON-LEVEL SAMPLING WEIGHT CALIBRATION

Prepared for the 2010 Methodological Resource Book

Contract No. HHSS283200800004C

RTI Project No. 0211838.107.004

Phase I, Deliverable No. 39

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Note on the Revision

This report was originally completed in January 2012. It has been revised to reflect updates to the data collection. During regular data collection and processing checks for the 2011 National Survey on Drug Use and Health (NSDUH), data errors were identified. These errors affected the data for Pennsylvania in the 2010 NSDUH. For further information about the erroneous cases, see Section B.3 in Appendix B of the *Results from the 2011 National Survey on Drug Use and Health: Summary of National Findings* (Center for Behavioral Health Statistics and Quality, 2012). The person-level analysis weights were recalibrated for Pennsylvania, and all five weight adjustments via the generalized exponential model (GEM)—screener dwelling unit (SDU) nonresponse, SDU poststratification, selected person poststratification, person nonresponse, and person poststratification—were recalculated.

The falsified screening cases were treated as incomplete with unknown eligibility. The screening eligibility status was imputed. An imputed screening eligibility variable was created using a proportion stochastic imputation method for the affected SDUs in each year. Those cases that were imputed to be eligible were treated as dwelling unit (DU) nonrespondents for weighting purposes. For more information on screening eligibility imputation, see the 2011 NSDUH Sample Design Report (Morton, Martin, Shook-Sa, Chromy, & Hirsch, 2012).

The reason that the reweighting of the person-level analysis weights (ANALWT) was performed for the affected State (Pennsylvania) only was to keep ANALWT unchanged for other States. Furthermore, in the person-level poststratification adjustment, the nonresponse adjusted weights were further poststratified to the ANALWT sums from the original respondents, including falsified cases in Pennsylvania, instead of census population estimates for Pennsylvania. The purpose was to preserve the same weight distribution of race and other two-way interactions as the original ANALWT at the census division level.

The original weights were calibrated for each census division. For example, data for Pennsylvania, New York, and New Jersey were grouped together as the Middle Atlantic division, while the reweighting was conducted for Pennsylvania only. Thus, in the appendix tables, only weights and their statistics related to the United States and Pennsylvania were changed; weights and statistics for other States remained the same.

Appendix D summarizes the GEM for each census division. [Table D.2a](#) (Person Weight GEM Modeling Summary), the Model Group 2 Overview, and [Exhibits D2.1 to D2.5](#) (covariates for all weight calibration steps) were related to the Middle Atlantic census division. They were not updated because they were based on the whole census division. Tables in Chapter 6 were created based on information from the whole census division and also were not changed.

Preface

This report contains a brief review of the sampling weight calibration methodology used for the 2010 National Survey on Drug Use and Health (NSDUH), which was known as the National Household Survey on Drug Abuse (NHSDA) prior to 2002. This report also lists detailed documentation on the implementation steps and evaluation results from the weight calibration application. The constrained exponential modeling (CEM) method used in the surveys prior to 1999 (referred to in this report as the generalized exponential model [GEM]) was modified to provide more flexibility in dealing internally with the extreme weights and for setting bounds directly on the weight adjustment factors so they can become suitable for nonresponse (nr) and poststratification (ps) adjustments. The highlights of the method are summarized below.

- The inherent two-phase nature of the NSDUH design (viewing the large screener sample as the first phase and the actual questionnaire sample as the second phase) allows for the additional step of poststratifying the selected persons to estimated controls from the large first-phase sample of persons. This additional step results in stable controls for the later step of nonresponse adjustment at the respondent-person level. These two steps had been combined as one step in surveys prior to 1999, but they have been kept separate from 1999 onward.
- A poststratification step at the respondent-household level in the first phase of the screening interview reduced coverage bias resulting from the first-phase sampling and produced controls for use in poststratification at the selected-person level, respondent person-pair level, and respondent-household level in the second phase of the drug use interview. This step again takes advantage of the inherent two-phase design of the study.
- The built-in control on extreme weights in GEM was supplemented by a separate step of extreme value adjustment after the final poststratification whenever the extreme weight percentage in the initial unadjusted weights was considered to be too large. This was accomplished by using GEM so that the sample demographic distribution was preserved. This method represents an improvement over the trimming method implemented before the nonresponse adjustment in surveys prior to 1999 and the extreme value adjustment before the nonresponse adjustment used for the 1999 NHSDA. For the 2010 NSDUH, this final extreme value adjustment was judged to be unnecessary.

The GEM calibration method provides a unified approach to handling problems of extreme weights, nonresponse, and poststratification, and it uses current state-of-the-art technology. The implementation of GEM under a tight project schedule was a challenge, but it was met successfully by the diligence and perseverance of the members of the weighting team consisting of Patrick Chen, Devon Cribb, Lanting Dai, Harper Gordek, Jeff Laufenberg, Neeraja Sathe, and Matthew Westlake.

This report consists of several chapters describing the implementation and evaluation of GEM and of appendices composed mainly of tables. In the interest of reducing the size of the report, detailed domain-specific evaluation results are presented in the supplement to this report, which is available upon request. This work was completed for the Substance Abuse and Mental

Health Services Administration (SAMHSA), Center for Behavioral Health Statistics and Quality (CBHSQ), by RTI International,¹ North Carolina, under Contract No. HHSS283200800004C. The authors are grateful to Art Hughes and Michael Jones of SAMHSA for their useful comments and suggestions.

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¹ RTI International is a trade name of Research Triangle Institute.

Table of Contents

Chapter	Page
1. Introduction.....	1
2. Generalized Exponential Model for Weight Calibration.....	5
3. Predictor Variables in GEM for the 2010 NSDUH.....	7
4. Practical Aspects of Implementing GEM for the NSDUH.....	11
4.1 Definition of Extreme Weights of Sampling Weights.....	11
4.2 Definition of Lower and Upper Bounds for Weight Adjustment Factors.....	11
4.3 Definition of Control Totals.....	13
4.4 Efficient Computation Using Grouped Data.....	13
4.5 Steps in GEM Fitting.....	14
4.6 Quality Control Checks.....	14
4.7 Practical Guidelines in Using GEM.....	15
4.8 Variable Collapsing Guide.....	17
5. Weight Calibration at Phase I Dwelling Unit and Phase II Person Levels.....	19
5.1 Phase I Household-Level Weight Components.....	22
5.1.1 Weight Components #1 to #7: Selection of a Dwelling Unit.....	22
5.1.2 Weight Component #8: Dwelling Unit–Level Nonresponse Adjustment.....	23
5.1.3 Weight Component #9: Dwelling Unit–Level Poststratification Adjustment.....	23
5.1.4 Weight Component #10: Dwelling Unit–Level Extreme Weight Adjustment.....	25
5.2 Phase II Person-Level Weight Components.....	25
5.2.1 Weight Component #11: Selection of a Person within a Dwelling Unit.....	25
5.2.2 Weight Component #12: Selected Person-Level Poststratification Adjustment.....	26
5.2.3 Weight Component #13: Respondent Person-Level Nonresponse Adjustment.....	26
5.2.4 Weight Component #14: Respondent Person-Level Poststratification Adjustment.....	27
5.2.5 Weight Component #15: Respondent Person-Level Extreme Weight Adjustment.....	27
6. Evaluation of Calibration Weights.....	29
6.1 Response Rates.....	29
6.2 Percentages of Extreme Weights and Outwinsors.....	29
6.3 Slippage Rates.....	30
6.4 Weight Adjustment Summary Statistics.....	31
6.5 Sensitivity Analysis of Drug Use Estimates to Baseline Models.....	31
References.....	45

Appendix	Page
A	Technical Details about the Generalized Exponential Model..... A-1
B	Poststratification Control Totals B-1
C	Imputation Methodology C-1
D	Generalized Exponential Model Summary..... D-1
D1	Model Group 1: New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont) D-17
D2	Model Group 2: Middle Atlantic (New Jersey, New York, and Pennsylvania)..... D-29
D3	Model Group 3: East North Central (Illinois, Indiana, Michigan, Ohio, and Wisconsin) D-41
D4	Model Group 4: West North Central (Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota)..... D-53
D5	Model Group 5: South Atlantic (Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia)..... D-65
D6	Model Group 6: East South Central (Alabama, Kentucky, Mississippi, and Tennessee)..... D-77
D7	Model Group 7: West South Central (Arkansas, Louisiana, Oklahoma, and Texas)..... D-89
D8	Model Group 8: Mountain (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming)..... D-101
D9	Model Group 9: Pacific (Alaska, California, Hawaii, Oregon, and Washington)..... D-113
E	Evaluation of Calibration Weights: Response Rates E-1
F	Evaluation of Calibration Weights: Dwelling Unit–Level Percentages of Extreme Weights and Outwinsors..... F-1
G	Evaluation of Calibration Weights: Person-Level Percentages of Extreme Weights and Outwinsors G-1
H	Evaluation of Calibration Weights: Slippage Rates..... H-1
I	Evaluation of Calibration Weights: Weight Summary Statistics..... I-1

List of Tables

Table	Page
5.1 Sample Size, by Model Group for Each Stage of Sampling.....	21
5.2 Weight Distribution for Design-Based Weight and Weight after DU-Level Adjustments	25
5.3 Weight Distribution for Weight before Any Person-Level Adjustment and after Person-Level Adjustments	27
6.1 Summary Statistics of Overall Weighted Response Rates across Individual States	29
6.2 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Lifetime Licit Drug Estimates, Cigarettes and Alcohol: 2010 NSDUH.....	33
6.3 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Lifetime Illicit Drug Estimates, Marijuana and Cocaine: 2010 NSDUH.....	35
6.4 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Year Licit Drug Estimates, Cigarettes and Alcohol: 2010 NSDUH.....	37
6.5 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Year Illicit Drug Estimates, Marijuana and Cocaine: 2010 NSDUH.....	39
6.6 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Month Licit Drug Estimates, Cigarettes and Alcohol: 2010 NSDUH.....	41
6.7 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Month Illicit Drug Estimates, Marijuana and Cocaine: 2010 NSDUH.....	43
D Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (United States).....	D-4
D.1a 2010 NSDUH Person Weight GEM Modeling Summary (Model Group 1: New England).....	D-19
D.1b Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (Model Group 1: New England).....	D-20

List of Tables (continued)

Table	Page
D.2a 2010 NSDUH Person Weight GEM Modeling Summary (Model Group 2: Middle Atlantic)	D-31
D.2b Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (Model Group 2: Middle Atlantic)	D-32
D.3a 2010 NSDUH Person Weight GEM Modeling Summary (Model Group 3: East North Central)	D-43
D.3b Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (Model Group 3: East North Central).....	D-44
D.4a 2010 NSDUH Person Weight GEM Modeling Summary (Model Group 4: West North Central)	D-55
D.4b Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (Model Group 4: West North Central)	D-56
D.5a 2010 NSDUH Person Weight GEM Modeling Summary (Model Group 5: South Atlantic)	D-67
D.5b Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (Model Group 5: South Atlantic)	D-68
D.6a 2010 NSDUH Person Weight GEM Modeling Summary (Model Group 6: East South Central)	D-79
D.6b Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (Model Group 6: East South Central).....	D-80
D.7a 2010 NSDUH Person Weight GEM Modeling Summary (Model Group 7: West South Central)	D-91
D.7b Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (Model Group 7: West South Central)	D-92
D.8a 2010 NSDUH Person Weight GEM Modeling Summary (Model Group 8: Mountain).....	D-103
D.8b Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (Model Group 8: Mountain)	D-104
D.9a 2010 NSDUH Person Weight GEM Modeling Summary (Model Group 9: Pacific). D-115	
D.9b Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (Model Group 9: Pacific).....	D-116
E.1 2010 NSDUH Weighted Response Rates: United States, District of Columbia, and the 50 States	E-3
F.1 2010 NSDUH Dwelling Unit–Level Percentages of Extreme Weights and Outwinors: United States, District of Columbia, and the 50 States	F-3

List of Tables (continued)

Table	Page
G.1 2010 NSDUH Selected Person-Level Percentages of Extreme Weights and Outwinsors: United States, District of Columbia, and the 50 States	G-3
G.2 2010 NSDUH Respondent Person-Level Percentages of Extreme Weights and Outwinsors: United States, District of Columbia, and the 50 States	G-5
H.1 2010 NSDUH Slippage Rates: UNITED STATES	H-3
H.2 2010 NSDUH Slippage Rates: ALABAMA.....	H-3
H.3 2010 NSDUH Slippage Rates: ALASKA.....	H-4
H.4 2010 NSDUH Slippage Rates: ARIZONA.....	H-4
H.5 2010 NSDUH Slippage Rates: ARKANSAS	H-5
H.6 2010 NSDUH Slippage Rates: CALIFORNIA.....	H-5
H.7 2010 NSDUH Slippage Rates: COLORADO.....	H-6
H.8 2010 NSDUH Slippage Rates: CONNECTICUT.....	H-6
H.9 2010 NSDUH Slippage Rates: DELAWARE	H-7
H.10 2010 NSDUH Slippage Rates: DISTRICT OF COLUMBIA	H-7
H.11 2010 NSDUH Slippage Rates: FLORIDA	H-8
H.12 2010 NSDUH Slippage Rates: GEORGIA.....	H-8
H.13 2010 NSDUH Slippage Rates: HAWAII.....	H-9
H.14 2010 NSDUH Slippage Rates: IDAHO	H-9
H.15 2010 NSDUH Slippage Rates: ILLINOIS.....	H-10
H.16 2010 NSDUH Slippage Rates: INDIANA.....	H-10
H.17 2010 NSDUH Slippage Rates: IOWA.....	H-11
H.18 2010 NSDUH Slippage Rates: KANSAS.....	H-11
H.19 2010 NSDUH Slippage Rates: KENTUCKY.....	H-12
H.20 2010 NSDUH Slippage Rates: LOUISIANA.....	H-12
H.21 2010 NSDUH Slippage Rates: MAINE.....	H-13
H.22 2010 NSDUH Slippage Rates: MARYLAND.....	H-13
H.23 2010 NSDUH Slippage Rates: MASSACHUSETTS.....	H-14
H.24 2010 NSDUH Slippage Rates: MICHIGAN	H-14
H.25 2010 NSDUH Slippage Rates: MINNESOTA	H-15
H.26 2010 NSDUH Slippage Rates: MISSISSIPPI.....	H-15
H.27 2010 NSDUH Slippage Rates: MISSOURI.....	H-16

List of Tables (continued)

Table	Page
H.28 2010 NSDUH Slippage Rates: MONTANA	H-16
H.29 2010 NSDUH Slippage Rates: NEBRASKA	H-17
H.30 2010 NSDUH Slippage Rates: NEVADA	H-17
H.31 2010 NSDUH Slippage Rates: NEW HAMPSHIRE.....	H-18
H.32 2010 NSDUH Slippage Rates: NEW JERSEY	H-18
H.33 2010 NSDUH Slippage Rates: NEW MEXICO.....	H-19
H.34 2010 NSDUH Slippage Rates: NEW YORK	H-19
H.35 2010 NSDUH Slippage Rates: NORTH CAROLINA	H-20
H.36 2010 NSDUH Slippage Rates: NORTH DAKOTA.....	H-20
H.37 2010 NSDUH Slippage Rates: OHIO.....	H-21
H.38 2010 NSDUH Slippage Rates: OKLAHOMA	H-21
H.39 2010 NSDUH Slippage Rates: OREGON	H-22
H.40 2010 NSDUH Slippage Rates: PENNSYLVANIA	H-22
H.41 2010 NSDUH Slippage Rates: RHODE ISLAND	H-23
H.42 2010 NSDUH Slippage Rates: SOUTH CAROLINA.....	H-23
H.43 2010 NSDUH Slippage Rates: SOUTH DAKOTA.....	H-24
H.44 2010 NSDUH Slippage Rates: TENNESSEE	H-24
H.45 2010 NSDUH Slippage Rates: TEXAS	H-25
H.46 2010 NSDUH Slippage Rates: UTAH.....	H-25
H.47 2010 NSDUH Slippage Rates: VERMONT.....	H-26
H.48 2010 NSDUH Slippage Rates: VIRGINIA.....	H-26
H.49 2010 NSDUH Slippage Rates: WASHINGTON.....	H-27
H.50 2010 NSDUH Slippage Rates: WEST VIRGINIA.....	H-27
H.51 2010 NSDUH Slippage Rates: WISCONSIN.....	H-28
H.52 2010 NSDUH Slippage Rates: WYOMING.....	H-28
I.1 2010 NSDUH Dwelling Unit–Level Weight Summary Statistics: United States, District of Columbia, and the 50 States	I-3
I.2 2010 NSDUH Selected Person-Level Weight Summary Statistics: United States, District of Columbia, and the 50 States	I-5
I.3 2010 NSDUH Respondent Person-Level Weight Summary Statistics: United States, District of Columbia, and the 50 States.....	I-7

List of Exhibits

Exhibit	Page
1.1 Sampling Weight Calibration Steps.....	3
3.1 Definition of Levels for Variables	8
4.1 Generalized Exponential Model Steps.....	12
5.1 Summary of 2010 NSDUH Sample Weight Components.....	20
5.2 U.S. Census Bureau Divisions/Model Groups.....	21
5.3 Imputed Demographic Variables and Corresponding Explanatory or Auxiliary Sort Variables.....	24
B.1 Definition of Levels for Variables	B-3
D.1 Definition of Levels for Variables	D-6
D.2 Covariates for 2010 NSDUH Person Weights (res.sdu.nr).....	D-12
D.3 Covariates for 2010 NSDUH Person Weights (res.sdu.ps)	D-13
D.4 Covariates for 2010 NSDUH Person Weights (sel.per.ps and res.per.nr)	D-14
D.5 Covariates for 2010 NSDUH Person Weights (res.per.ps and res.per.ev)	D-15
D1.1 Covariates for 2010 NSDUH Person Weights (res.sdu.nr), Model Group 1: New England	D-23
D1.2 Covariates for 2010 NSDUH Person Weights (res.sdu.ps), Model Group 1: New England	D-24
D1.3 Covariates for 2010 NSDUH Person Weights (sel.per.ps), Model Group 1: New England	D-25
D1.4 Covariates for 2010 NSDUH Person Weights (res.per.nr), Model Group 1: New England	D-26
D1.5 Covariates for 2010 NSDUH Person Weights (res.per.ps), Model Group 1: New England	D-27
D2.1 Covariates for 2010 NSDUH Person Weights (res.sdu.nr), Model Group 2: Middle Atlantic	D-35
D2.2 Covariates for 2010 NSDUH Person Weights (res.sdu.ps), Model Group 2: Middle Atlantic	D-36
D2.3 Covariates for 2010 NSDUH Person Weights (sel.per.ps), Model Group 2: Middle Atlantic	D-37
D2.4 Covariates for 2010 NSDUH Person Weights (res.per.nr), Model Group 2: Middle Atlantic	D-38
D2.5 Covariates for 2010 NSDUH Person Weights (res.per.ps), Model Group 2: Middle Atlantic	D-39

List of Exhibits (continued)

Exhibit	Page
D3.1 Covariates for 2010 NSDUH Person Weights (res.sdu.nr), Model Group 3: East North Central	D-47
D3.2 Covariates for 2010 NSDUH Person Weights (res.sdu.ps), Model Group 3: East North Central	D-48
D3.3 Covariates for 2010 NSDUH Person Weights (sel.per.ps), Model Group 3: East North Central	D-49
D3.4 Covariates for 2010 NSDUH Person Weights (res.per.nr), Model Group 3: East North Central	D-50
D3.5 Covariates for 2010 NSDUH Person Weights (res.per.ps), Model Group 3: East North Central	D-51
D4.1 Covariates for 2010 NSDUH Person Weights (res.sdu.nr), Model Group 4: West North Central	D-59
D4.2 Covariates for 2010 NSDUH Person Weights (res.sdu.ps), Model Group 4: West North Central	D-60
D4.3 Covariates for 2010 NSDUH Person Weights (sel.per.ps), Model Group 4: West North Central	D-61
D4.4 Covariates for 2010 NSDUH Person Weights (res.per.nr), Model Group 4: West North Central	D-62
D4.5 Covariates for 2010 NSDUH Person Weights (res.per.ps), Model Group 4: West North Central	D-63
D5.1 Covariates for 2010 NSDUH Person Weights (res.sdu.nr), Model Group 5: South Atlantic.....	D-71
D5.2 Covariates for 2010 NSDUH Person Weights (res.sdu.ps), Model Group 5: South Atlantic.....	D-72
D5.3 Covariates for 2010 NSDUH Person Weights (sel.per.ps), Model Group 5: South Atlantic.....	D-73
D5.4 Covariates for 2010 NSDUH Person Weights (res.per.nr), Model Group 5: South Atlantic.....	D-74
D5.5 Covariates for 2010 NSDUH Person Weights (res.per.ps), Model Group 5: South Atlantic.....	D-75
D6.1 Covariates for 2010 NSDUH Person Weights (res.sdu.nr), Model Group 6: East South Central	D-83
D6.2 Covariates for 2010 NSDUH Person Weights (res.sdu.ps), Model Group 6: East South Central	D-84
D6.3 Covariates for 2010 NSDUH Person Weights (sel.per.ps), Model Group 6: East South Central	D-85

List of Exhibits (continued)

Exhibit	Page
D6.4 Covariates for 2010 NSDUH Person Weights (res.per.nr), Model Group 6: East South Central	D-86
D6.5 Covariates for 2010 NSDUH Person Weights (res.per.ps), Model Group 6: East South Central	D-87
D7.1 Covariates for 2010 NSDUH Person Weights (res.sdu.nr), Model Group 7: West South Central	D-95
D7.2 Covariates for 2010 NSDUH Person Weights (res.sdu.ps), Model Group 7: West South Central	D-96
D7.3 Covariates for 2010 NSDUH Person Weights (sel.per.ps), Model Group 7: West South Central	D-97
D7.4 Covariates for 2010 NSDUH Person Weights (res.per.nr), Model Group 7: West South Central	D-98
D7.5 Covariates for 2010 NSDUH Person Weights (res.per.ps), Model Group 7: West South Central	D-99
D8.1 Covariates for 2010 NSDUH Person Weights (res.sdu.nr), Model Group 8: Mountain.....	D-107
D8.2 Covariates for 2010 NSDUH Person Weights (res.sdu.ps), Model Group 8: Mountain.....	D-108
D8.3 Covariates for 2010 NSDUH Person Weights (sel.per.ps), Model Group 8: Mountain.....	D-109
D8.4 Covariates for 2010 NSDUH Person Weights (res.per.nr), Model Group 8: Mountain.....	D-110
D8.5 Covariates for 2010 NSDUH Person Weights (res.per.ps), Model Group 8: Mountain.....	D-111
D9.1 Covariates for 2010 NSDUH Person Weights (res.sdu.nr), Model Group 9: Pacific	D-119
D9.2 Covariates for 2010 NSDUH Person Weights (res.sdu.ps), Model Group 9: Pacific	D-120
D9.3 Covariates for 2010 NSDUH Person Weights (sel.per.ps), Model Group 9: Pacific	D-121
D9.4 Covariates for 2010 NSDUH Person Weights (res.per.nr), Model Group 9: Pacific	D-122
D9.5 Covariates for 2010 NSDUH Person Weights (res.per.ps), Model Group 9: Pacific	D-123

List of Terms and Abbreviations

<i>C</i>	Center point.
<i>CAI</i>	Computer-assisted interviewing.
<i>DU</i>	Dwelling unit.
<i>ev</i>	Extreme weight adjustment. See Section 4.1 for more detail.
<i>FI</i>	Field interviewer.
<i>GEM</i>	Generalized exponential model. See Chapter 2 for more detail.
<i>half-step</i>	This refers to halving the increment in the Newton-Raphson iterative process for fitting GEM.
<i>IQR</i>	Interquartile range.
<i>L</i>	Lower bound on adjustment factor.
<i>MPMN</i>	Multivariate predictive mean neighbor.
<i>nr</i>	Nonresponse adjustment.
<i>Outwinsor</i>	Signifies the percentages of weights trimmed after extreme weight adjustment via winsorization.
<i>PMN</i>	Predictive mean neighborhood.
<i>ps</i>	Poststratification adjustment.
<i>res.sdu.nr</i>	Respondent screener dwelling unit nonresponse adjustment step. See Section 5.1.2 for more detail.
<i>res.sdu.ps</i>	Respondent screener dwelling unit poststratification adjustment step. See Section 5.1.3 for more detail.
<i>res.sdu.ev</i>	Respondent screener dwelling unit extreme weight adjustment step. See Section 5.1.4 for more detail.
<i>sel.per.ps</i>	Selected person poststratification adjustment step. See Section 5.2.2 for more detail.
<i>res.per.nr</i>	Respondent person nonresponse adjustment step. See Section 5.2.3 for more detail.
<i>res.per.ps</i>	Respondent person poststratification adjustment step. See Section 5.2.4 for more detail.
<i>res.per.ev</i>	Respondent person extreme weight adjustment step. See Section 5.2.5 for more detail.
<i>SAE</i>	Small area estimate.
<i>SDU</i>	Screener dwelling unit.
<i>SE</i>	Standard error.
<i>SES</i>	Socioeconomic status indicator. See Exhibit 3.1 for more detail.
<i>SS</i>	State sampling.
<i>U</i>	Upper bound on adjustment factor.
<i>UPMN</i>	Univariate predictive mean neighbor.
<i>UWE</i>	Unequal weighting effect. It refers to the contribution in the design effect due to unequal selection probability and is defined as $1 + [(n - 1)/n] * CV^2$ where CV = coefficient of variation of weights, and n is the sample size.
<i>VESTR</i>	Variance estimation stratum.
<i>VEREP</i>	Variance estimation replicates.
<i>Winsorization</i>	A method of extreme weight adjustment that replaces extreme weights with the critical values used for defining low and high extreme weights.

1. Introduction

The target population for the 2010 National Survey on Drug Use and Health (NSDUH) was the civilian, noninstitutionalized population aged 12 years or older residing within the United States and the District of Columbia. A coordinated sample design was developed for the 2005 through 2009 NSDUHs. The 2010 and 2011 samples are extensions of the 5-year sample. Although there is no planned overlap with the 1999 to 2004 samples, a coordinated design for 2005 through 2009 facilitated 50 percent overlap in second-stage units (area segments) within each successive 2-year period from 2005 through 2009. This design was intended to increase the precision of estimates in year-to-year trend analyses, using the expected positive correlation resulting from the overlapping sample between successive NSDUH years. The 2010 and 2011 NSDUHs continue the 50 percent overlap by retaining half of the second-stage units from the previous year.

The 2010 design provides for estimates by State in all 50 States plus the District of Columbia. States may therefore be viewed as the first level of stratification as well as a reporting variable. Eight States (California, Florida, Illinois, Michigan, New York, Ohio, Pennsylvania, and Texas), referred to as the "large" States, had a sample designed to yield 3,600 respondents per State, while the remaining 43 "small" States (which include the District of Columbia) had a sample designed to yield 900 respondents per State. In these 43 States, adequate data were available to support reliable State estimates based on small area estimation (SAE) methodology. For the 2010 NSDUH, which followed the 2010 design plan, the total realized sample size was 67,804 persons (corresponding to 48,113 responding dwelling units [DUs] selected at the second phase out of 146,999 DUs screened at the first phase), with a low of 868 for Alaska to a high of 974 for Hawaii among small States, and a low of 2,985 for Pennsylvania to a high of 3,731 for Ohio among large States.

In the 2010 NSDUH design, States served as the primary strata; within each State, State sampling (SS) regions were formed and served as the secondary strata. Based on a composite size measure, States were geographically partitioned into roughly equal-sized regions according to population. The smaller States were partitioned into 12 SS regions, whereas the 8 large States were divided into 48 SS regions. Therefore, the partitioning of the United States resulted in the formation of a total of 900 SS regions.

Unlike previous NSDUHs, the first stage of selection for the 2005 through 2010 NSDUHs was census tracts selected from SS regions. This stage was included to contain sample segments within a single census tract to the extent possible. Prior to the 2005 NSDUH, segments that crossed census tract boundaries made merging to external data sources difficult.

The first stage of selection began with the construction of an area sample frame that contained one record for each census tract in the United States. If necessary, census tracts were aggregated within SS regions until each tract had, at a minimum, 150 DUs in urban areas and 100 DUs in rural areas. There were 48 census tracts per SS region selected with probabilities proportionate to a composite size measure and with minimum replacement (Chromy, 1979).

Because census tracts generally exceed the minimum DU requirement, one smaller geographic region was selected within each sampled census tract. For this second stage of sampling, each selected census tract was partitioned into compact clusters² of DUs by aggregating adjacent census blocks. Consistent with the terminology used in previous NSDUHs, these geographic clusters of blocks are referred to as "segments." A sample DU in NSDUH refers to either a housing unit or a group-quarters listing unit, such as a dormitory room or a shelter bed. Similar to census tracts, segments were formed to contain a minimum of 150 DUs in urban areas and 100 DUs in rural areas. This minimum DU requirement will support the overlapping sample design and any special supplemental samples or field tests that SAMHSA may wish to conduct.

One segment was selected within each sampled census tract with probability proportionate to size. The 48 selected segments then were randomly assigned to a survey year and quarter of data collection.

After sample segments for the 2010 NSDUH were selected, specially trained field household listers visited the areas and obtained complete and accurate lists of all eligible DUs within the sample segment boundaries. These lists served as the frames for the third stage of sample selection. Using a random start point and interval-based (systematic) selection, the actual listing units were selected from the segment frame.

After DU selections were made, an interviewer visited each selected DU to obtain a roster of all persons residing in the DU. Using the roster information obtained from an eligible member of the selected DU, zero, one, or two persons were selected for the survey. Sampling rates were preset by age group and State. Roster information was entered directly into the electronic screening instrument, which automatically implemented this fourth stage of selection based on the State and age group sampling parameters.

As in previous years of the survey,³ the 2010 NSDUH sample weighting posed challenges because of the sheer magnitude of the number of State-specific predictors used for nonresponse (nr) and poststratification (ps) adjustments. With the 51-State survey, using a single model for each of the adjustments was not practical; however, treating each State separately was not desirable because individual State sample sizes were not large enough to support reliable estimation of a number of parameters. Therefore, the 51 States were grouped into nine model groups corresponding to the nine U.S. Census Bureau divisions. This helped to keep a substantial number of predictor variables in each model and reduced the computing time that would be associated with fitting a larger model.

As with each survey after 1999, an important feature of the 2010 NSDUH sample weighting was to capitalize on the inherent two-phase nature of the NSDUH design (although the design was primarily viewed as multistage) by adding a step to poststratify the household weights in the first phase of the screening interview (see [Exhibit 1.1](#)). This reduced coverage bias

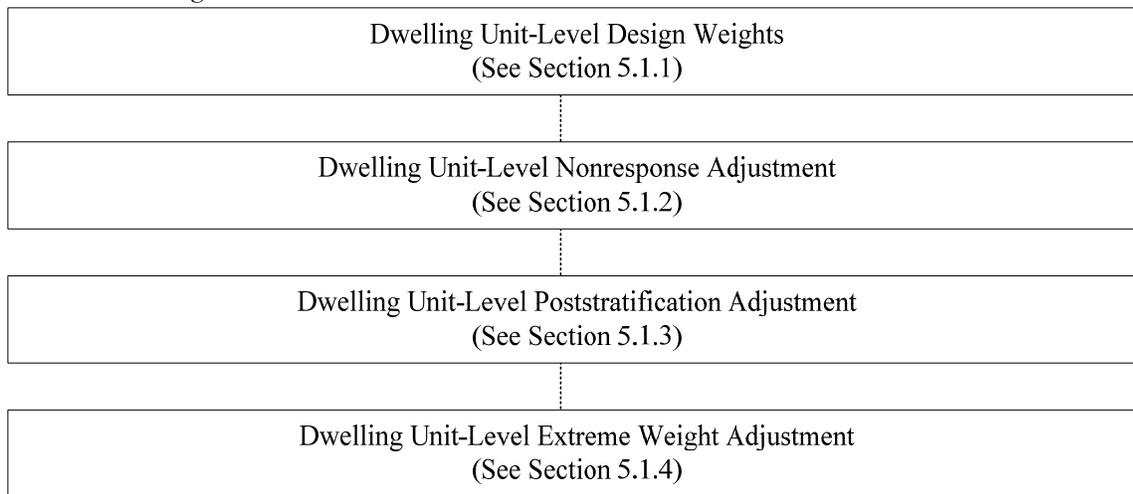
² Although the entire cluster is compact, the final sample of DUs represents a noncompact cluster. Noncompact clusters (selection from a list) differ from compact clusters in that not all units within the cluster are included in the sample. Although compact cluster designs are less costly and more stable, a noncompact cluster design was used because it provides for greater heterogeneity of dwellings within the sample. Also, social interaction (contagion) among neighboring dwellings is sometimes introduced with compact clusters (Kish, 1965).

³ The survey was known as the National Household Surveys on Drug Abuse (NHSDA) prior to 2002.

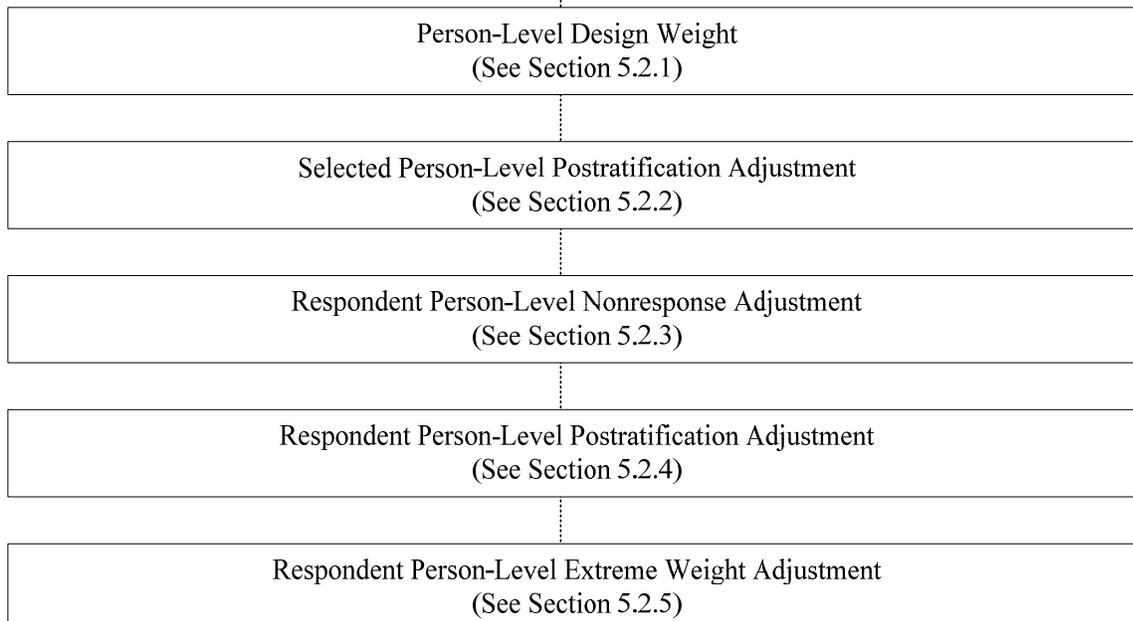
resulting from the first phase of sampling and produced estimated controls for use in poststratification of person-pair weights and household weights in the second phase of the drug use interview. No other suitable source was available for obtaining these controls for poststratification. Note also that screener DU weights were poststratified to population counts by adjusting the DU's weighted contribution of person counts to various demographic domains. The second important feature was to add a step to poststratify selected persons (including respondents and nonrespondents) to estimated controls from the large first-phase sample of persons for various predictor variables at the segment, DU, and person levels. This provided stable controls for the step involving the nonresponse adjustment of respondent weights. Incorporating this important feature would not have been possible without screener data on the sociodemographics of members of the selected households.

Exhibit 1.1 Sampling Weight Calibration Steps

Phase I Dwelling Unit Level



Phase II Person Level



As in previous NSDUHs, a modification of the earlier methodology of scaled constrained exponential modeling (CEM) (Folsom & Witt, 1994) was used to meet the new demands on the weighting mentioned previously (i.e., the two-phase design and large number of available predictors). The modified methodology, called the generalized exponential model (GEM) (Folsom & Singh, 2000), has several features:

- Like CEM, GEM can use a large number of predictor variables, such as those obtained from the first-phase screener sample for the 50 States plus the District of Columbia, and some of their interactions.
- GEM allows unit-specific bounds for the weights initially identified as extreme, which provide tight controls on the extreme weights. This built-in control is often adequate, in that the frequency of extreme weights, after the nonresponse and poststratification adjustments, is not usually high. However, if this is not the case, GEM can be used for a separate extreme weight adjustment after poststratification. This extra adjustment, which uses tighter bounds, will preserve the demographic population controls used in the poststratification step.
- GEM provides a unified approach to nonresponse, poststratification, and extreme weight adjustments. The differences are only in terms of the bounds and control totals that are used.
- GEM can be implemented efficiently using software developed at RTI.
- GEM is a generalization of the commonly used raking-ratio method in which a distance function is minimized such that (1) the initial weights are perturbed only a little and lie within certain bounds, and (2) control totals are met. It is also a generalization of Deville and Särndal's (1992) logit method in that the bounds on weights are not required to be uniform. Moreover, the lower bound can be set to one, which is desirable for the nonresponse adjustment. Like the previously mentioned methods, fitting GEM requires iterations (such as Newton-Raphson).

The report is organized as follows. In Chapter 2, GEM is reviewed, and a heuristic description outlines how GEM provides a unified approach to all three procedures' adjustments for nonresponse, poststratification, and extreme weight adjustment. In Chapter 3, potential predictor variables for use with nonresponse, poststratification, and extreme weight are discussed, and the strategy for dealing with many predictors via modeling groups of States is reviewed. In Chapter 4, practical steps for implementing GEM for the 2010 NSDUH are presented, and in Chapter 5, details of the weight calibrations, including all weight components corresponding to Phases I and II, are given. Chapter 6 presents the evaluation measures of calibrated weights and a sensitivity analysis of point estimates and standard errors (adjusted for calibration) of selected drug prevalence estimates. The sensitivity analysis compares the estimates and standard errors from final models to those of the baseline models (which consist of only main effects). Nine appendices also are included. Appendix A presents technical details about GEM; Appendix B documents the creation and source of the poststratification control totals; and Appendix C contains information on the imputation methodology. Appendix D summarizes the GEM modeling, and the remaining five appendices contain various tables on weighted response rates, percentages of extreme weights and outwinners, slippage rates, and weight adjustment summary statistics.

2. Generalized Exponential Model for Weight Calibration

In survey practice, design weights are typically adjusted in three steps via the following methods: (1) weighting class adjustments for nonresponse, (2) raking-ratio adjustments for poststratification, and (3) winsorization for extreme weights. The bias introduced by winsorization is alleviated to some extent through poststratification. The nonresponse (nr) adjustment is a correction for bias that is introduced when estimates are based only on responding units; poststratification is an adjustment for coverage (typically undercoverage) bias, as well as for variance reduction (which is possibly due to correlation between the study and control, usually demographic, variables). If weights are not treated for extreme weight adjustment, the resulting estimates, although unbiased, will tend to have low precision.

There are limitations in the existing methods of weight adjustment for nonresponse, poststratification, and extreme weight. For the nonresponse step, there are general raking-type methods, such as the scaled constrained exponential model developed by Folsom and Witt (1994), where the lower and upper bounds can be suitably chosen by using a separate scaling factor. The factor is set as the inverse of the overall response propensity. It would be beneficial to have a model for the nonresponse adjustment factor that incorporates the desired lower and upper bounds on the factor as part of the model. Note that the lower bound on the nonresponse adjustment factor should be 1 because it is interpreted as the inverse of the probability of response for a particular unit. For the poststratification step, the general calibration methods of Deville and Särndal (1992), such as the logit method, allow for built-in lower (L) and upper (U) bounds (for poststratification, typically $L < 1 < U$). However, it would be useful to have nonuniform bounds (L_k, U_k) depending on the unit k , such that the final adjusted weights, w_k , could be controlled within certain limits. An important application of this feature would be weight adjustments to allow the user to have some control over the final adjustment of weights initially identified as extreme weights. It would be advantageous to adjust for bias introduced in the extreme weight adjustment step (such as when extreme weights are treated via winsorization) so that the sample distribution for various demographic characteristics is preserved.

A modification of the earlier method of the scaled constrained exponential model of Folsom and Witt (1994), termed the generalized exponential model (GEM) and proposed by Folsom and Singh (2000), provides a unified approach to the three weight adjustments for nonresponse, poststratification, and extreme weight, and it has the valuable features mentioned previously. The functional form of the GEM adjustment factor is given in Appendix A. It generalizes the logit model of Deville and Särndal (1992), typically used for poststratification, such that the bounds (L, U) may depend on k . Thus, it provides a built-in control on extreme weights, during both nonresponse adjustments and poststratification. In addition, the bounds are internal to the model and can be set to chosen values (e.g., $L_k = 1$ in the nonresponse step). If the frequency of extreme weights is low after the final poststratification, a separate extreme weight adjustment step may not be necessary.

Note that in view of the nonresponse adjustment factor being defined as the inverse of response propensity, GEM requires it to be greater than 1. However, the built-in extreme weight

control feature of GEM essentially defines adjustment factors with regard to the critical value under winsorization. Therefore, although the adjustment factor with regard to the cutoff point is always greater than 1, with regard to the original weight, it can be less than 1.

In fitting GEM to a particular problem, choosing a large number of predictor variables along with tight bounds will have an impact on the resulting unequal weighting effect (UWE) and the percentage of extreme weights. In practice, this leads to somewhat subjective evaluations of trade-offs between the target set of bounds for a given set of factor effects, the target UWE, and the target proportions of extreme weights. The percentage of "outwinsors" (a term coined to signify the extent of residual weights after extreme weight adjustment via winsorization) is probably a more realistic benchmark in determining the robustness of estimates in the presence of extreme weights. Chapter 4 provides details about the GEM process and some practical guidelines about fitting such a model. In particular, an adaptive method based on realized minimum and maximum bounds after setting loose initial bounds is recommended for choosing bounds more objectively.

A large increase in the number of predictor variables in GEM typically would result in a higher UWE, indicating a possible loss in precision. By looking at the change in variance calculated for a model run with the minimal number of predictor variables versus the final model we reached during the weighting process, a more precise measure of loss (or gain) in precision can be obtained for variance of selected study variables. The results are presented in Chapter 6.

3. Predictor Variables in GEM for the 2010 NSDUH

For the 2010 National Survey on Drug Use and Health (NSDUH), the initial set of predictor variables was identical to the set used for the 2009 NSDUH. [Exhibit 3.1](#) shows the definitions and levels of these predictor variables. Typical predictors used for the screener dwelling unit (DU) nonresponse adjustment were State, Quarter, Group-Quarters Indicator, Population Density, Percentage Hispanic or Latino in Segment, Percentage Black or African American in Segment, Percentage Owner-Occupied DUs in Segment, and Segment-Combined Median Rent and Housing Value, which is also called the Socioeconomic Status (SES) indicator. The SES indicator was a composite measure based on (standardized) median rent, median housing value, and the percentage of dwellings that are owner occupied. Typical predictors for the person-level nonresponse adjustments were, in addition to those stated previously, Age, Gender, Race, Hispanicity, and Relation to Householder (i.e., the head of the household). For poststratification, predictors typically used were State, Age, Race, Gender, Hispanicity, and Quarter. In all cases, the model consisted of main effects and some interactions of these predictors. For a separate extreme weight adjustment with the generalized exponential model (GEM) after poststratification, the predictors were the same as those used in the poststratification (ps) adjustment.

Generally, it is desirable to include, whenever possible, poststratification predictors (correlated with the outcome variable) as part of nonresponse predictors (correlated with the response variable) because of the potential variance reduction; this works to offset the variance inflation, which is due to the random controls used in the nonresponse (nr) adjustment. In general, this is not possible because demographic information (often used for poststratification) is not available for nonrespondents. However, with a two-phase design, such as NSDUH's, this problem does not exist because the screener data contain the necessary information. There is, of course, the cost in time and effort required to edit and impute the screener-based predictors in advance of this nonresponse adjustment. Many times, the need to edit, impute, or both edit and impute nonresponse predictors for the full sample, which consists of respondents and nonrespondents, is eliminated because the poststratification and nonresponse adjustments are combined into a single poststratification step. However, the processes leading to nonresponse and coverage errors are likely to be different enough to benefit from separate modeling. The nonresponse-adjustment models also can benefit from bias reduction when segment-level variables, such as the percentage of owner-occupied DUs, are included in the model. Population totals for these segment-level variables have not been developed for use as poststratification controls.

Exhibit 3.1 Definition of Levels for Variables

Age (years)

1: 12-17, 2: 18-25, 3: 26-34, 4: 35-49, 5: 50+^{1,4}

Gender

1: Male, 2: Female¹

Group Quarters Indicator

1: College Dorm, 2: Other Group Quarter, 3: Non-Group Quarter¹

Hispanicity

1: Hispanic or Latino, 2: Non-Hispanic or Latino¹

Percent of Owner-Occupied Dwelling Units in Segment (% Owner-Occupied)

1: 50% - 100%,¹ 2: 10% - 50%, 3: <10%

Percent of Segments That Are Black or African American

1: 50% - 100%, 2: 10% - 50%, 3: <10%¹

Percent of Segments That Are Hispanic or Latino

1: 50% - 100%, 2: 10% - 50%, 3: <10%¹

Population Density

1: MSA 1,000,000 or More, 2: MSA Less than 1,000,000, 3: Non-MSA Urban, 4: Non-MSA Rural¹

Quarter

1: Quarter 1, 2: Quarter 2, 3: Quarter 3, 4: Quarter 4¹

Race (3 level)

1: White,¹ 2: Black or African American, 3: Other

Race (5 level)

1: White,¹ 2: Black or African American, 3: American Indian or Alaska Native, 4: Asian, 5: Two or More Races

Relation to Householder

1: Householder or Spouse,¹ 2: Child, 3: Other Relative, 4: Nonrelative

Segment-Combined Median Rent and Housing Value (Rent/Housing)²

1: First Quintile, 2: Second Quintile, 3: Third Quintile, 4: Fourth Quintile, 5: Fifth Quintile¹

States³

Model Group 1: 1: Connecticut, 2: Maine, 3: New Hampshire, 4: Rhode Island, 5: Vermont, 6: Massachusetts¹

Model Group 2: 1: New Jersey,¹ 2: New York, 3: Pennsylvania

Model Group 3: 1: Illinois, 2: Indiana,¹ 3: Michigan, 4: Wisconsin, 5: Ohio

Model Group 4: 1: Iowa, 2: Kansas, 3: Minnesota, 4: Missouri,¹ 5: Nebraska, 6: South Dakota, 7: North Dakota

Model Group 5: 1: Delaware, 2: District of Columbia, 3: Georgia,¹ 4: Maryland, 5: North Carolina, 6: South Carolina, 7: Virginia, 8: West Virginia, 9: Florida

Model Group 6: 1: Alabama, 2: Kentucky, 3: Mississippi, 4: Tennessee¹

Model Group 7: 1: Arkansas,¹ 2: Louisiana, 3: Oklahoma, 4: Texas

Model Group 8: 1: Colorado, 2: Idaho, 3: Montana, 4: Nevada, 5: New Mexico, 6: Utah, 7: Wyoming, 8: Arizona¹

Model Group 9: 1: Alaska, 2: Hawaii, 3: Oregon, 4: Washington,¹ 5: California

MSA = metropolitan statistical area.

¹The reference level for this variable. This is the level against which effects of other factor levels are measured.

²Segment-Combined Median Rent and Housing Value (also known as the Socioeconomic Status [SES] indicator) is a composite measure based on rent, housing value, and percent owner occupied.

³The States assigned to a particular model are based on census divisions.

⁴The age group 50+ was further broken down into 50-64 and 65+ for Person-Level Poststratification Adjustment, for which 65+ was used as the reference level.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Heuristically, the suitable number of State-specific controls should depend on the size of the realized sample in each State; because of this, the nature of the problem of too many controls in nonresponse- and poststratification-adjustment models is State specific. Therefore, for the 2010 NSDUH, the strategy proposed by Singh, Penne, and Gordek (1999) was followed and is discussed in the following paragraphs. Also using Singh et al. (1999), some general guidelines were used to choose an initial set of State-specific controls, and the initial set was modified iteratively as problems in maintaining them arose. The process began with the baseline model of one-factor effects and then proceeded with the addition of second- and third-order effects; collapsing was performed as necessary, depending on the individual State sample sizes. To obtain more precise State-level estimates, every effort was made to include as many important State-specific covariates as possible in models for nonresponse and poststratification weight adjustments. These covariates typically were defined by sociodemographic domains. However, keeping a multitude of State-specific covariates, especially higher order interactions, was not possible because individual State sample sizes were not large enough to support stable estimation of an adequate number of model parameters. Therefore, a hierarchical order was used for including covariates in the model; the order started with covariates at the national level, followed by covariates at the census division level within the Nation, then covariates at the combined State level within the census division, and finally, whenever possible, covariates at the State level within the combined States.

When adding certain covariates to the model resulted in parameters that could not be estimated or were unstable, the hierarchy strategy mentioned previously was used to combine States within a census division so that covariates at the combined level could be included. However, this problem typically arose with State-specific higher order interactions, and States were collapsed only when combining levels of covariates within a State was not a reasonable alternative. This was thought to be beneficial in obtaining more reliable State-level estimates using small area estimation (SAE) techniques. The eight large States were not combined with other smaller States, to the extent possible, so that direct State-level estimates could be obtained without relying on SAE.

As an objective check for the suitability of the number of factors, once a satisfactory convergent model was obtained (see Section 6.5 for details), the relative efficiency of a more complex model (with many effects) versus a simpler model (with fewer effects) was measured. In addition to the relative efficiency, the increase in the unequal weighting effect (UWE) was checked.

For the 2010 NSDUH data, as for the previous years' data, it became apparent that the number of controls could be very high (in excess of 1,000). This many controls would be computationally prohibitive because the implementation of GEM involves iterative steps, and a matrix (whose dimension corresponds to the number of controls) must be inverted in each of these iterations. A solution would be to use separate models within groups of States rather than a single overall model. It can be shown that, if effects (two-factor or higher order) are always collapsed within a group of States, then fitting an overall model of GEM is equivalent to fitting separate models for each group. In this way, the computational problems associated with too many controls could be reduced. Therefore, in the 2010 NSDUH, as in the 1999 through 2009 surveys, nine model groups corresponding to the nine census divisions were used.

4. Practical Aspects of Implementing GEM for the NSDUH

As explained in Chapter 2, the generalized exponential model (GEM) can be used for nonresponse (nr) adjustment, poststratification (ps), and extreme weight adjustment (see [Exhibit 4.1](#) for a schematic presentation of the steps). These steps were implemented using the GEM macro developed at RTI. A detailed discussion can be found in Chen, Penne, and Singh (2000).

4.1 Definition of Extreme Weights of Sampling Weights

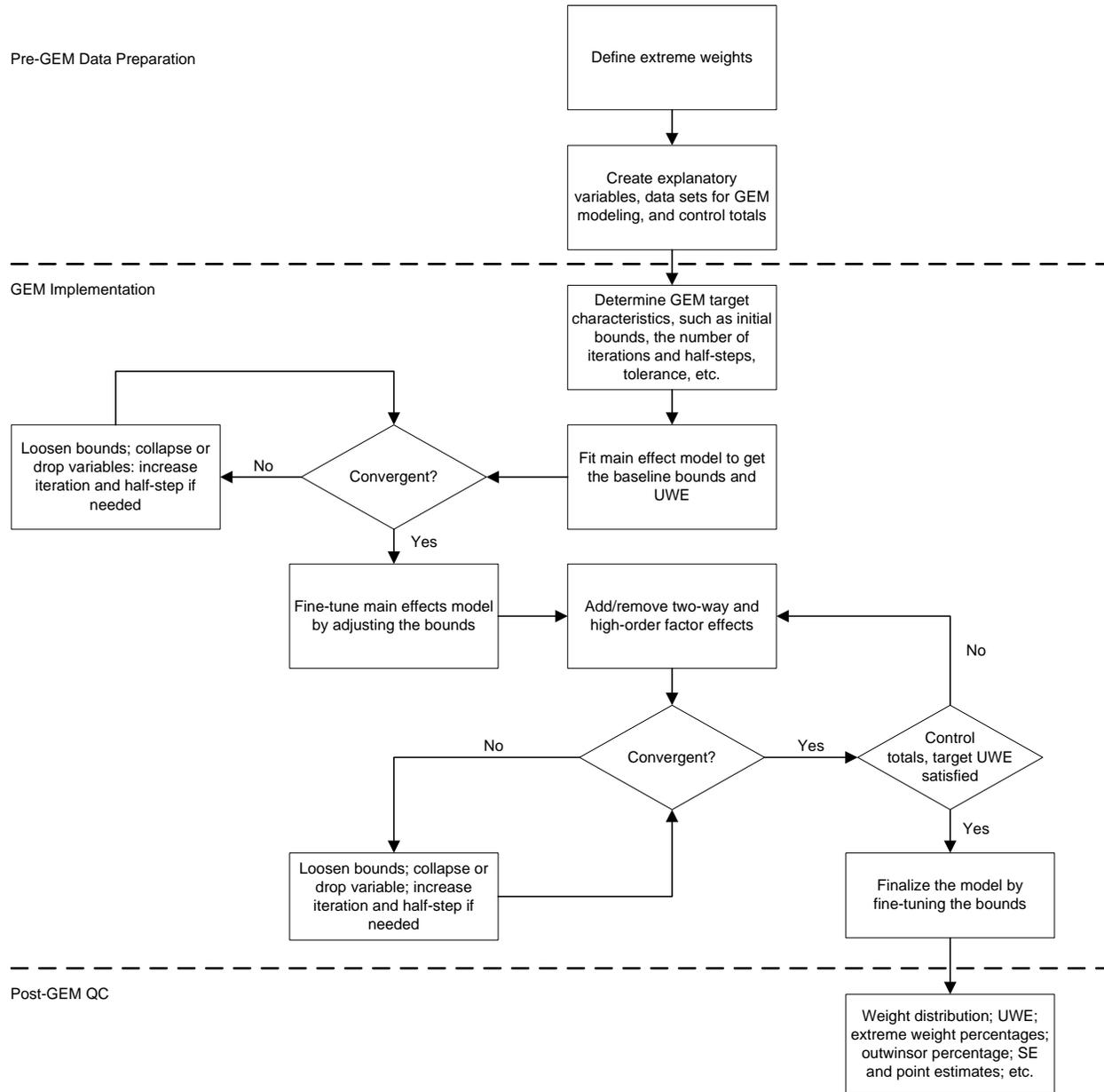
An important aspect of GEM is the built-in provision of extreme weight adjustment. Sampling weights for the survey generally were classified as extreme (high or low) if they fell outside the commonly used interval defined by the median $\pm 3 \times$ interquartile range (IQR) for some prespecified domains; these domains were usually defined by design strata, taking into account deep stratification. For example, the dwelling unit (DU)-level weight for the 2010 National Survey on Drug Use and Health (NSDUH) used the State sampling (SS) region as the domain. The person-level weight adjustments used a hierarchy of four domains: (1) SS region \times Age group, (2) State \times Age group, (3) SS region, and (4) State. A minimum of 30 observations was required for defining the boundaries, or critical values, for extreme weights. If this minimum was not met at the lower level, the next level up in the hierarchy was used.

Although the SS region \times Age group domain corresponded to a deep stratum, it could be unsuitable for defining extreme weights because of insufficient sample sizes. So, collapsing SS regions within a State gave rise to such domains as State \times Age group. Even at this level, sample sizes could be insufficient, so SS regions and, later, States themselves could be used as domains to define extreme weights. The critical values for low and high extreme weights are denoted by $b_{k(l)}$ and $b_{k(u)}$, respectively. The critical points for extreme weights within GEM modeling were defined as the median $\pm 2.5 \times$ IQR, which was conservative when compared with the commonly used standard of the median $\pm 3 \times$ IQR. This is because, to better prevent the adjusted weights from crossing the standard boundary and those at or beyond the boundary, weights near but below it (which have the most potential to become extreme) were treated as extreme by GEM.

4.2 Definition of Lower and Upper Bounds for Weight Adjustment Factors

For implementing extreme weight control via GEM, the variable m_k was defined as $b_{k(u)} / w_k$ for high extreme weights, and $b_{k(l)} / w_k$ for low extreme weights, where w_k represents the sampling weight before adjustment, and $b_{k(u)}, b_{k(l)}$ denote the critical values for the extreme weights. (Note that under this definition, nonextreme weights has a value of 1 for m_k ; for high extreme weights, the more extreme the weight is, the smaller m_k will be; conversely for low extreme weights, the more extreme the weight is, the bigger m_k will be.)

Exhibit 4.1 Generalized Exponential Model Steps



GEM = generalized exponential model; SE = standard error; UWE = unequal weighting effect.

The upper and lower bounds for the adjustment factors were defined, respectively, as the product of m_k and the upper and lower boundary parameters specified in the modeling of GEM.

GEM allows inputs of three different upper (U) and lower (L) boundary parameters (L_1 , and U_1 , L_2 , and U_2 , L_3 , and U_3 , respectively) for high, non-, and low extreme weights. By applying a small upper boundary parameter for high extreme weights and a large lower boundary parameter for low extreme weights, the extreme weights could be controlled in the modeling.

GEM also requires specification of centers (C), such that $L < C < U$. For nonresponse adjustment, it was constructive to require all adjustments to be greater than 1 because the adjustments represented the inverse of response propensities. The value of C in this case was chosen as the inverse of the overall response propensity. For poststratification, centers were set to 1 so the adjusted weights would not be too far away from the original design weights. Here, lower bounds were chosen to be less than 1 and upper bounds were greater than 1 because the control totals could be larger or smaller than the estimated totals based on the design weights. The extreme weight adjustment is analogous to the poststratification adjustment (see Appendix A) in that it is a repeated poststratification with tighter bounds for extreme weights identified after the poststratification step. Section 4.7 gives guidelines for the choice of lower, center, and upper parameters.

4.3 Definition of Control Totals

GEM modeling for nonresponse adjustment, poststratification, and extreme weight adjustment involved estimation of parameters of the adjustment factor model, such that specified control totals were satisfied. There were two types of control totals. For nonresponse adjustment, the control totals were from the full sample (i.e., respondents and nonrespondents), while for poststratification, control totals were obtained from external sources, such as the Census Bureau or a large first-phase screener sample. Specifically, for the 2010 NSDUH, the control totals for various domains for the selected person-level poststratification adjustment (sel.per.ps, see Section 5.2.2) were obtained from the first-phase sample containing roster information, and the control totals for the respondent person-level poststratification (res.per.ps, see Section 5.2.4) were obtained from the Census Bureau's Postcensal Population Estimates for various demographic domains. Controls used for extreme weight adjustment were the same as those for poststratification because they were based on the poststratified weight. (See Appendix B for more information.)

4.4 Efficient Computation Using Grouped Data

Because adjustment factors remained the same for units (DUs or persons) having common values for all explanatory variables used in the model, the size of the sample data was reduced by grouping units having common values of these variables. Also, within the groupings, the units with extreme weights were further grouped such that, in addition to the common values of the explanatory variables, they also had common values of m_k . This significantly saved computation time, especially because the original sample size was large. Modeling GEM with grouped data was implemented by treating each group as a single record, with the associated weight defined as the sum of the individual weights in the group. Note that when using GEM with grouped data, the unequal weighting effect (UWE) and t -test statistics normally produced in

the output would be misleading because the weights in grouped data are sums of the weights for the individual units within each group. Also, the definition of variance estimation stratum (VESTR) and replicates (VEREP) required for variance calculation would not be correct. To avoid these misleading results from using the grouped data, the final model was rerun with the full (ungrouped) data.

4.5 Steps in GEM Fitting

Exhibit 4.1 depicts the GEM steps. After specifying the GEM parameters, such as the initial upper and lower bounds, the number of the Newton-Raphson iterations and half-steps, and the type of weight adjustment (nonresponse adjustment, poststratification, or extreme weight adjustment), a forward selection method for modeling was used. A model with only main effects and loose bounds was first fit to obtain a set of realized baseline upper and lower bounds for extreme and nonextreme weights and to calculate a baseline UWE. Next, using the realized bounds, as many higher order interactions as possible were added to the model to help reduce bias, without unduly increasing the UWE and the extreme weight percentages. Convergence problems were addressed by loosening lower bounds and upper bounds and collapsing or dropping variables. In GEM, t tests and p values for significance of various effects could be computed for a previously converged model, which would be helpful in deciding about the collapsing of effects when convergence problems arose with realized bounds.

For this application, "collapsing" implies combining the "levels" of variables with other levels explicitly present in the model, while "dropping" implies combining with the reference levels, which are not explicitly represented in the model. Collapsing or dropping lower order interactions had a direct impact on the inclusion of the number of higher order interactions. For the 2010 NSDUH, when adding higher order terms, all previously selected explanatory variables were retained in the model. Possible reasons for nonconvergence included explanatory variables corresponding to domains with small sample sizes, or domains with large discrepancies between estimated totals based on the initial weights and the target control totals. The variables causing problems with convergence were identified by the high magnitude of the estimated model parameters. Once the explanatory variables were finalized, finer adjustments of upper bounds and lower bounds could optimize the model by reducing UWE and the extreme weight percentages.

4.6 Quality Control Checks

The distributions of the weights before and after each adjustment were compared to uncover any unusual impact of the weight adjustment on the initial weights. In addition to the weight distributions, the ratios of the maximum weight to the mean weight and the UWEs were compared across various domains both before and after each adjustment. The percentages of extreme weights were checked after each adjustment to see how effective the modeling was in controlling extreme weights. Coverage bias analysis based on the slippage rates also was conducted to check the impact of poststratification on various noncontrolled domains (i.e., those factors that were dropped or collapsed in the model).

4.7 Practical Guidelines in Using GEM

1. Collapsing checks for domains with small sample sizes. The number of observations in various domains defined by levels of the factor effects was examined. If the domain sample size was 0 and the control total corresponding to this domain also was 0, the factor generally was dropped. This automatically collapsed the factor level with the reference level; however, if the control total was not 0, the factor could not be dropped because collapsing the domains together for the sample also would collapse the population domains together. The result would be that control totals could not be met for the reference levels involved. In these cases, the factor level corresponding to a 0 domain sample size should be collapsed with another level for which we are willing to compromise on satisfying the control total.

In general, domains with small sample sizes may cause problems during GEM modeling and prevent the model from converging. For the 2010 NSDUH, if the model did not converge because a domain sample size was small, the corresponding factor effect was collapsed with another effect based on substantive considerations. For example, if State was involved, then it was better, in general, to collapse within States; collapsing of geographically adjacent States was done only when there was no other reasonable alternative (see Section 4.8 for more details). The necessity of collapsing was checked at each stage of model enlargement in the forward selection of factors. If variables were collapsed at a previous stage, the corresponding factor levels were also collapsed using the hierarchy principle at succeeding stages involving higher order factor effects.

2. Singularity checks. As in the case of collapsing checks, singularity checks (i.e., linear dependence checks of realized value columns of the predictors) were performed for the baseline model; in addition, they were performed at each stage of model enlargement because singularities depended on what other predictors were in the model. (Note that, although all variables were linearly independent of each other, it was possible for the columns of their realized values to have been linearly dependent.) For nonresponse adjustment, any variable that was a linear combination of other variables was either dropped from the model or collapsed with other variables. To decide whether to drop or to collapse, a singularity check was performed for both respondents only and the full sample. If both samples showed the same set of variables causing singularity, then these singularity variables could be dropped; if not, collapsing needed to be performed. For poststratification adjustment, any variable that was a linear combination of other variables had to be collapsed with other variables because the variables corresponding to poststratification controls typically were linearly independent.

3. Finding the initial factor set. After the collapsing and singularity checks, the remaining factor effects at a given stage of model enlargement formed the initial factor set.

4. Baseline model. Starting with the model consisting of all one-factor effects from the initial factor set, a convergent version was found (after any required collapsing) under no restrictions on the bounds. The model was optimized by trying to reduce the UWE and tighten the bounds. If necessary (to obtain convergence), factors corresponding to large parameter estimates were collapsed. As an option, p values could have been used to determine which factors to collapse.

5. Baseline plus two-factor effects. All two-factor interactions from the initial factor set were added to the baseline model. A convergent version under no bound restrictions then was found, and the model was optimized using criteria described in Guideline 4. The non-State two-factor effects were added first, and then, in a separate step, the State two-factor effects were added.

6. Baseline with two and higher order factor effects. Starting with the optimized model from Guideline 5, the higher order factor effects were added—first the non-State three-factor effects, then, in a separate step, the State three-factor effects. Again, criteria from Guideline 4 were followed to obtain an optimal model.

7. Optimizing a model with respect to the target model characteristics. These are summarized in the following points:

- For each step of model enlargement, the UWE for the initial weights was computed. It was allowed to increase up to 20 percent, or the maximum allowable UWE (generally under six), whichever was lower.
- The following guidelines, based on empirical considerations, were used for setting the bounds. In the case of poststratification and separate extreme weight adjustments, the center was set as $C_1 = C_2 = C_3 = 1$. Instead of tightening the bounds to as close to 1 as possible, as was done for surveys prior to 2002, we used an adaptive approach to choose the bounds starting from the 2003 NSDUH; that is, starting with loose bounds of (0.1, 10), we performed GEM iteratively four times, each with the realized bounds from the previous iteration. The final bounds for nonextreme weights were desired to be around (0.2, 5). The iterations based on the adaptive approach generally met this desired criterion. If this was not the case, then collapsing of some model variables was allowed to meet this criterion. Finally, the bounds U_1 and L_3 were further tightened to be as close to 1 as possible to better control high and low extreme weights, while maintaining $L_3 \geq L_2$ and $U_1 \leq U_2$.
- In the case of nonresponse, the centers were set equal to the common value of the overall inverse response propensity, and all the three lower bounds (L_1, L_2 , and L_3) were set to 1. Next, starting with the loose bounds of (1, 10), the bounds were chosen iteratively as mentioned above using the realized bounds from the previous GEM iteration. The bounds U_1 and L_3 were further tightened to as close to center as possible, while maintaining $L_3 \geq L_2$ and $U_1 \leq U_2$.
- Targets for the maximum acceptable percentages of extreme weights and outwinsors within GEM for nonresponse and poststratification were as follows: 3 percent for the unweighted extreme weights, 15 percent for weighted extreme weights, and 5 percent for outwinsors. These percentages are liberal and serve as guidelines only. In practice, reducing them by half is preferable. If these guidelines were not met after all stages of calibration, a separate GEM for adjustment of extreme weights was implemented after poststratification.

8. Evaluation measures. After each stage of model enlargement, various characteristics were examined for large values. These included the UWE, the ratio of the maximum to the mean

for adjusted weight, the percentage of extreme weights and outwinsors, the distance between the total sample weighted count and the target population count (i.e., slippage rates for different domains), and other characteristics, such as weight summary statistics. In addition, the distributions of adjustment factors were checked for highly asymmetric tails. With the set of realized bounds for the final model, the baseline model was rerun, and then point estimates and SEs for selected outcome variables for the two models were compared. Generally, the two estimates were likely to be close, but not the SEs. The SEs for the final model were expected to be smaller but, at times, could be larger. Larger SEs were identified and examined because they could be an indication of instability of the model parameter estimates because of possible overfitting or insufficient sample sizes. In such situations, the final model was revised to get a more parsimonious model.

4.8 Variable Collapsing Guide

As discussed in Section 4.5, convergence problems in GEM were solved by either loosening bounds or collapsing model variables. Grouping proposed levels into a smaller number of categories could be done in several ways, but care was taken so that they remained meaningful. When constructing the model and attempting to obtain convergence, maintenance of logical groupings was a top priority. The following are some general guidelines that were followed when collapsing variables.

- *Ordinal variables.* Most of the proposed explanatory variables were ordinal. Thus, collapsing was done in a meaningful way, following the order. For example, the combined rental/house quintile had five levels (i.e., 1st, 2nd, 3rd, 4th, and 5th quintile) with the 5th quintile set for the reference. If the 4th quintile needed to be collapsed, it would be collapsed with either the 3rd or 5th quintile.
- *Age groups.* Age group had five levels: 12 to 17, 18 to 25, 26 to 34, 35 to 49, and 50 or older (50 or older was further broken down into 50 to 64 and 65 or older for the person-level poststratification adjustment and the person-level extreme weight adjustment to increase the accuracy of estimates for these age groups). For the main effects, the age covariate with five or six levels was easy to incorporate in the model. For the interactions, every effort was made to maintain the age group, and, therefore, collapsing was performed within age groups first. Collapsing across age groups occurred only if the age groups could not be maintained separately.
- *Large and adjacent States.* In the main effects, fitting States separately in the model was not a problem. For the State-specific interactions, collapsing was done within the State first, collapsing with other adjacent States was done only if needed. For the eight States with large sample sizes (California, Florida, Illinois, Michigan, New York, Ohio, Pennsylvania, Texas), every effort was made to preserve all factor levels within States so that direct estimates could be made for the large States.
- *Race.* In the main effects and State-specific two-factor interactions, Race had five levels (white, black or African American, American Indian or Alaska Native, Asian, and two or more races), while in non-State-specific two- and three-factor effects, Race had three levels (white, black or African American, and other). If maintaining all five levels was difficult in the main effects or State \times Race interactions, the following guidelines were followed: (1) collapse American Indian or Alaska Native

and Asian if either of them caused a convergence problem; (2) collapse black or African American with two or more races if black or African American caused a convergence problem; (3) collapse two or more races with American Indian or Alaska Native or Asian, whichever had a smaller sample size, if two or more races caused a convergence problem; and (4) collapse American Indian or Alaska Native, Asian, and two or more races, or collapse all nonwhite Race groups if necessary. In the State \times Race interactions, collapsing Race was done within State. If the three-level Race could not be maintained, the levels were collapsed to white and nonwhite.

5. Weight Calibration at Phase I Dwelling Unit and Phase II Person Levels

The 2010 National Survey on Drug Use and Health (NSDUH) was based on probability sampling so that valid inferences could be made from survey findings to the target population. Probability sampling refers to sampling in which every unit on the frame is given a known, nonzero probability of inclusion in the survey. This is required for unbiased estimation of the population total. The assumption of nonzero inclusion probability for every pair of units in the frame also is required for unbiased variance estimation. The basic sampling plan involved four stages of selection across two phases of design (see [Exhibit 5.1](#)). The first phase of the design was the dwelling unit (DU) level, and the second phase was the person level. The four stages of selection were as follows: within Phase I, (1) the selection of census tracts within the State sampling (SS) region; (2) the selection of segments within each sampled census tract; (3) the selection of DUs within these segments; and within Phase II, (4) the selection of eligible individuals within DUs ([Table 5.1](#)). Specific details of the sample design and sample selection procedures can be found in the 2010 NSDUH sample design report (Morton, Martin, Chromy, Hirsch, & Ridenhour, 2011).

As part of the postsurvey data-processing activities, analysis weights were calculated for the 2010 NSDUH respondents that reflected the selection probabilities from various stages of the sample design. These sample weights were adjusted at both the DU level (screening sample) and person level (drug questionnaire sample) to account for bias due to extreme weights, nonresponse, and coverage.

The final Phase I DU-level and Phase II person-level sample weights for the 2010 NSDUH sample are products of several factors (see [Exhibit 5.1](#)), each representing either a probability of selection at some particular stage or some form of extreme weight, nonresponse, or poststratification adjustment. In the following sections, these components are described in greater detail. In summary, the first 10 factors are defined for all screener-complete DUs and reflect the fully adjusted DU-level weight. The latter five components reflect the person-level selection within each screened DU, as well as any additional adjustments for person-level extreme weight, nonresponse, and poststratification error. Note that the unconditional, final person-level weights for the 2010 NSDUH sample are the product of all 15 weight components, as illustrated in [Exhibit 5.1](#).

[Exhibit 5.2](#) shows the U.S. Census Bureau divisions and model groups used in the 2010 NSDUH person-level weight calibration.

Exhibit 5.1 Summary of 2010 NSDUH Sample Weight Components

Phase I Dwelling Unit Level

Design Weight Components	
#1	Inverse Probability of Selecting Census Tract
#2	Inverse Probability of Selecting Segment
#3	Quarter Segment Weight Adjustment
#4	Subsegmentation Inflation Adjustment
#5	Inverse Probability of Selecting Dwelling Unit
#6	Inverse Probability of Added/Subsampled Dwelling Unit
#7	Dwelling Unit Release Adjustment

Weight Adjustment Components	
#8	Dwelling Unit Nonresponse Adjustment (<i>res.sdu.nr</i>) *
#9	Dwelling Unit Poststratification Adjustment (<i>res.sdu.ps</i>) *
#10	Dwelling Unit Extreme Weight Adjustment (<i>res.sdu.ev</i>) *

Phase II Person Level

Design Weight Components	
#11	Inverse Probability of Selecting a Person within a Dwelling Unit

Weight Adjustment Components	
#12	Selected Person-Level Poststratification Adjustment to Screener Data Controls (<i>sel.per.ps</i>) *
#13	Person-Level Nonresponse Adjustment (<i>res.per.nr</i>) *
#14	Person-Level Poststratification Adjustment (<i>res.per.ps</i>) *
#15	Person-Level Extreme Weight Adjustment (<i>res.per.ev</i>) *

* These adjustments use the generalized exponential model (GEM), which also involves pre- and postprocessing in addition to running the GEM macro. See [Exhibit 4.1](#). For computational feasibility, all weight adjustments were done using the nine model groups based on U.S. Census divisions defined in [Exhibit 5.2](#).

Exhibit 5.2 U.S. Census Bureau Divisions/Model Groups

Model Group	Census Division
1	New England (6 States) Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
2	Middle Atlantic (3 States) New Jersey, New York, Pennsylvania
3	East North Central (5 States) Illinois, Indiana, Michigan, Ohio, Wisconsin
4	West North Central (7 States) Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota
5	South Atlantic (8 States and the District of Columbia) Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia
6	East South Central (4 States) Alabama, Kentucky, Mississippi, Tennessee
7	West South Central (4 States) Arkansas, Louisiana, Oklahoma, Texas
8	Mountain (8 States) Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming
9	Pacific (5 States) Alaska, California, Hawaii, Oregon, Washington

Table 5.1 Sample Size, by Model Group for Each Stage of Sampling

Model Group	Eligible DU	Completed DU	Eligible Persons	Selected Persons	Completed Persons
1	14,087	12,410	25,553	6,711	5,483
2	21,946	17,235	37,047	10,071	7,534
3	30,849	26,997	56,537	16,211	12,835
4	15,043	14,121	28,591	7,928	6,466
5	29,365	25,841	52,934	13,324	10,879
6	8,556	7,897	16,151	4,434	3,572
7	13,612	12,503	26,629	7,839	6,318
8	16,244	15,166	31,571	9,059	7,356
9	16,830	14,840	33,772	9,420	7,361
Total	166,532	147,010	308,785	84,997	67,804

DU = dwelling unit.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010 (Revised March 2012).

In the 2010 NSDUH, as in the 2000 through 2009 surveys, the order of the extreme weight adjustment step at both the DU and person level was different from the order used in the 1999 National Household Survey on Drug Abuse (NHSDA) computer-assisted interviewing (CAI). In the 1999 NHSDA CAI, the extreme weight adjustment step was introduced before nonresponse and poststratification, which was analogous to the traditional trimming step before nonresponse and poststratification. In the 1999 NHSDA, the initially identified extreme weights were held fixed at their winsorized values, and the nonextreme weights were adjusted so that the original sample distribution of the weights for various domains was preserved. As a better alternative for the surveys after 1999, the generalized exponential model (GEM) first was allowed to control the extreme weights during the nonresponse and poststratification steps, and then a separate extreme weight adjustment step was performed after poststratification, if necessary. This step would be like a repeated poststratification, except that the extreme weights identified after poststratification would have tighter bounds, thus preserving the sample distributions in various domains (equivalent to satisfying the poststratification controls). For the 2010 NSDUH, the extreme weight adjustment step was not necessary either at the DU level or at the person level.

5.1 Phase I Household-Level Weight Components

5.1.1 Weight Components #1 to #7: Selection of a Dwelling Unit

The first seven components in the Phase I sample weights reflect the probability of selecting the DUs. These components were derived from (1) the probability of selecting the census tract within each State SS region, (2) the probability of selecting the segment within each census tract, (3) a quarter segment weight adjustment, (4) a subsegmentation inflation factor, (5) the probability of selecting a DU from within each counted and listed sampled segment, (6) the probability of inclusion of added DUs, and (7) DU percent release adjustment.

Segments were selected with probabilities representing a full year's sample; therefore, Weight Component #3 was set to 1 in the 12-month analysis and was set to 2 in the 6-month analysis (because only half of the segments were used in the analysis). Also, when the field staff, who were responsible for counting and listing, traveled to a specified segment, occasionally they may have found the number of potential DUs to be much greater than what the sample frame (constructed from 2000 U.S. Census Bureau data adjusted for 2005 Claritas projections) indicated. This happened either because of errors in the frame or, more commonly, because of rapid growth in a particular geographic area. When this occurred, the original segment was partitioned and a subsegment was randomly selected. Weight Component #4 (i.e., subsegmentation inflation factor) is an adjustment that accounts for this selection process.

Note that in 2008, 2009, and 2010, there was an occasional second subsegmentation step when the initial partitioning of segments was insufficient due to out-of-date census counts or the segment was still too large to list after the original subsegmentation. This second partitioning was not accounted for in the weighting over these survey years. A comparison was done to evaluate the effect of this omission, and it was determined that the missing second subsegmenting factor in the analysis weight had minimal impact on estimates. Therefore, weights for these years were not reproduced. Additional detail may be found in the 2010 NSDUH sample design report (Morton et al., 2011).

As noted in the 2010 and earlier sample design reports, a lengthy process of determining the optimal DU sample was used during the design of the survey. Weight Component #5 is a result of this process and is equal to the inverse of the DU sample size divided by the total number of DUs counted and listed within a selected segment.

Furthermore, the list of DUs, which includes housing units and group quarters, was constructed by the counting and listing staff during the summer and fall of 2009. Because the listing was done a short time before the 2010 screening and interviewing activities began, no major discrepancies were expected. However, such factors as new construction, demolition, and inaccurate listing were present in some cases. More commonly, DUs may have been "hidden" and, therefore, overlooked by the counter and lister. For all DUs to be given a chance of being selected, the NSDUH has a procedure for locating and adding missed DUs. The current procedure requires field interviewers (FIs) to look both on the property of selected DUs and between each DU and the next listed DU (half-open interval rule). Starting from the 2000 survey, the rule was modified such that the half-open interval would be closed on each map page. Therefore, if the selected DU was the last on a page, the "next listed DU" would be the first one listed on the same page. If the number of added DUs linked to any particular DU did not exceed 6, or if the number for the entire segment was less than or equal to 10, the FI was instructed to consider these DUs as part of his or her assignment. However, if either of these limits was exceeded, the FI would contact RTI for subsampling to be considered. Weight Component #6 accounts for any subsampling that occurred because of added DUs.

To account for corrections, modifications, or both that occurred during the process of design optimization, an additional sample was included throughout all four quarters. Weight Component #7 is the adjustment for the percentage of the DU sample released to FIs in these quarters.

For more detailed information on Weight Components #1 through #7, refer to the 2010 NSDUH sample design report (Morton et al., 2011).

5.1.2 Weight Component #8: Dwelling Unit–Level Nonresponse Adjustment

After DUs were selected, an FI was sent to the DU to screen the residence. Failure to obtain the screening interview from eligible DUs represented the first type of nonresponse encountered in the survey. To account for this nonresponse, as in previous surveys, the (unconditional) sample weights up to this point (equal to the product of Weight Components #1 through #7) were adjusted using a multiplicative adjustment factor derived from modeling response propensity via GEM. This adjustment was recalculated for Pennsylvania in the reweighting.

5.1.3 Weight Component #9: Dwelling Unit–Level Poststratification Adjustment

The screener data provided a large sample with information on some demographic variables for the households; therefore, as in two-phase sampling, the screener dwelling unit (SDU) weights first were adjusted for nonresponse and poststratification. Later, estimates for household variables (which were based on screener data) were used as control totals for weight adjustments at the second phase and for person pair-level weights. This was useful because, unlike census controls that were available for individual persons, no controls were available for

person pairs. Note that for SDU poststratification, census controls still could be used because each SDU's contribution was computed as the number of persons in the SDU who had certain demographic characteristics multiplied by the SDU weight. It follows that, although explanatory variables used for modeling the weight adjustment were counts instead of binary (0/1), as is often the case, person-level census controls still could be used. For example, age group had five categories (12 to 17, 18 to 25, 26 to 34, 35 to 49, and 50 or older); in SDU poststratification, category 12 to 17 was the number of the persons in this age category within a DU, and so on. The intercept was the total number of persons in the DU, which varied by SDU because SDU size was not constant. Note that when defining interaction control variables for count variables, the corresponding count variables were not simply multiplied, as was done for the binary case; instead, the counts for the category defined by the interaction term (say, Age \times Gender) were used.

In addition, the screening process only required the reporting of age for each person rostered; as a result, some fields of demographic information (e.g., race, Hispanic or Latino origin, gender, and two or more races) were missing. Missing data for race and Hispanic or Latino origin were imputed using the predictive mean neighborhood (PMN) methodology (see Appendix C). The probability of observing race (white, black or African American, American Indian or Alaska Native, Asian, and two or more races) was modeled using PROC MULTLOG in SUDAAN[®], and the probability of observing Hispanic or Latino origin was modeled using PROC LOGISTIC in SAS. Those probabilities were used in computing predictive means and delta neighborhoods. The "hot deck" method then was used to randomly pick a donor from the neighborhood to impute a missing value for each case. Missing data for gender were imputed using an unweighted hot-deck methodology (see Appendix C). The data file was sorted by auxiliary variables that were considered relevant to the variable being imputed. The sort order of these auxiliary variables was chosen to reflect the degree of importance of the auxiliary variables in relation to the variable being imputed. Exhibit 5.3 displays the order in which demographic variables were imputed, along with explanatory variables used in the model or in hot-deck sorting. This adjustment was recalculated for Pennsylvania in the reweighting.

Exhibit 5.3 Imputed Demographic Variables and Corresponding Explanatory or Auxiliary Sort Variables

Imputed Variable	Methodology	Explanatory or Auxiliary Sort Variables
Race	Multivariate predictive mean neighborhood (MPMN)	Census region, household type (white, black or African American, Hispanic or Latino), percent of segments that are black or African American, percent of segments that are Hispanic or Latino, percent of owner-occupied dwelling units in segment, segment-combined median rent and housing value, age group
Hispanic or Latino Origin	Univariate predictive mean neighborhood (UPMN)	Census region, imputed race, household type (white, black or African American, Hispanic or Latino), percent of segments that are black or African American, percent of segments that are Hispanic or Latino, percent of owner-occupied dwelling units in segment, segment-combined median rent and housing value, age group
Gender	Hot deck	Census division, imputation-revised Hispanic or Latino origin, imputation-revised race and a random sort number

5.1.4 Weight Component #10: Dwelling Unit–Level Extreme Weight Adjustment

The product of Weight Components #1 through #9 was checked to see if the extreme weight adjustment step was needed. Using the SS region as the domain for the extreme weight definition, weights were defined as extreme if they were outside the range defined by the median $\pm 3 \times$ interquartile range (IQR). Because the unweighted, weighted, and winsorized extreme weight percentages were not high, the extreme weight adjustment was not necessary (see results in Appendix F). Therefore, Weight Component #10 was set to 1 for every DU for which roster information was collected (i.e., every DU with a completed screener).

After this adjustment was completed, the final DU weight was calculated as the product of Weight Components #1 through #10 described previously. This adjusted weight was used to compute household-level estimates from the screener data. It also was used to compute person-level estimates derived from the full roster sample. In addition, these 10 weight components became the first 10 components of the final interview respondent sample weight. The remaining five weight components discussed in the next section account for the person probability of selection for those persons for which a NSDUH interview was sought; they also account for person-level nonresponse, extreme weights, and coverage errors resulting from the last stages of the sample design.

Details on the final models used for DU nonresponse (nr) and poststratification (ps) adjustment for each respective model group can be found in Appendix D.

Table 5.2 presents the weight distribution for design-based weight and unequal weighting effect (UWE) before the implementation of any weight adjustment and after the DU-level nonresponse adjustment and poststratification.

Table 5.2 Weight Distribution for Design-Based Weight and Weight after DU-Level Adjustments

	Minimum	25% Percentile	Median	75% Percentile	Maximum	Mean	<i>n</i>	UWE
Design-Based Weight	17	390	553	860	11,011	646	166,532	1.52
Weight after DU-Level Adjustments	11	438	694	1,053	8,508	797	146,999	1.49

DU = dwelling unit; UWE = unequal weighting effect.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010 (Revised March 2012).

5.2 Phase II Person-Level Weight Components

5.2.1 Weight Component #11: Selection of a Person within a Dwelling Unit

The rate at which persons were selected within each DU depended on the age group and was determined during the design of the 2010 study; this also was done for the probabilities of selecting DUs (i.e., Weight Component #5). Note that, similar to the previous surveys, all possible pairs of eligible rostered persons were given some nonzero probability of selection to facilitate unbiased variance estimation. With the use of the handheld computer used by FIs, selection probabilities were adjusted to reflect the total household composition. The survey design restricted the number of interviews to two per DU. With this restriction, a modified

Brewer's selection method was used to select either zero, one, or two persons from the DU. (Three ghost units were defined for each DU to allow for the selection of no persons and to avoid division by 0 in Brewer's algorithm.) In short, if the sum of the selection probabilities for all eligible DU members was greater than 2, then the probabilities were ratio-adjusted to sum to 2; sums less than 2 were unadjusted. These adjusted rates then were retained as the final selection probabilities. An additional design change was made in 2002 and continued through 2010. A new pair-sampling strategy was implemented that increased the number of person pairs selected in DUs with older persons on the roster (Chromy & Penne, 2002). Weight Component #11 represents the inverse of this probability of selection.

5.2.2 Weight Component #12: Selected Person-Level Poststratification Adjustment

The selected person-level poststratification step was started during the 1999 NHSDA. In NHSDAs prior to 1999, a combined step of person-level nonresponse and poststratification to estimated totals from the screener person data was used as a compromise to this step. As was done for the previous surveys, the combined step was divided into two separate steps; the first step was poststratification of the selected persons (i.e., respondents and nonrespondents) to estimated control totals from the screener person data; the second step was respondent person-level nonresponse adjustment (see Component #13) to reproduce control totals from the selected person data (i.e., the full sample). Using two separate steps takes advantage of the inherent two-phase nature of the survey design (although the design is viewed primarily as multistage). With this step, more stable controls for the nonresponse adjustment were obtained (as compared with the traditional nonresponse adjustment) because of the additional selected-person poststratification. Note that this would not have been possible in the absence of screener data on the member demographics of the selected DUs. See Appendix D for details on the final models. This adjustment was recalculated for Pennsylvania in the reweighting.

5.2.3 Weight Component #13: Respondent Person-Level Nonresponse Adjustment

The next step was to adjust the sample weights of the interview respondents to the weighted distributions over various demographic domains based on the full sample.

Demographic information for the drug questionnaire respondents was available from two sources—screener data and questionnaire data—while only screener data were available for the large first-phase sample of rostered individuals of all the screened DUs. However, to be consistent with respect to the data source, screener data for both respondents and nonrespondents were used for the person-level nonresponse adjustment. It may be noted that during screening, the only required demographic was the age of each person who was rostered. Thus, such demographics as race/ethnicity and gender of all the rostered eligible persons were not required, and imputation procedures were needed to replace missing data for race/ethnicity and gender. For race/ethnicity, imputations were created using PMN methodology, and for gender, imputations were created using hot-deck methodology. It should be noted that answers from the questionnaire respondents potentially could cause discrepancies between screener values of demographics and their final imputation-revised values. Details on the final models used for the person nonresponse adjustment for each model group can be found in Appendix D. This adjustment was recalculated for Pennsylvania in the reweighting.

5.2.4 Weight Component #14: Respondent Person-Level Poststratification Adjustment

This adjustment was to calibrate the weighted respondent-sample data for various demographic domains to the specified control totals obtained from the Census Bureau's estimates of the civilian, noninstitutionalized population aged 12 or older for the year 2010 based on the 2000 census. See Appendix B for details on the derivation of control totals.

After computing the various control totals that were needed, appropriate poststratification factors were applied to the sample weights using GEM to (1) control the resulting UWE and thereby reduce the potential variance inflation that could result from this weight adjustment, and (2) control for a larger number of main effect and lower order interaction control variables. Details on the final models used for the person-level poststratification adjustment for each model group can be found in Appendix D. This adjustment was recalculated for Pennsylvania in the reweighting.

5.2.5 Weight Component #15: Respondent Person-Level Extreme Weight Adjustment

The weights for the product of Weight Components #1 through #14 were checked to see if the extreme weight adjustment step was needed, with extreme weights defined as described in Section 4.1. As in the case of Weight Components #10, unweighted, weighted, and winsorized extreme weight percentages were acceptably low. Therefore, it was decided that the extreme weight adjustment was not required at this stage either. See Appendix G for results. Therefore, Weight Component #15 was set to 1 for each responding person.

Table 5.3 presents the weight distribution and UWE before the implementation of any person-level weight adjustment and after selected person-level poststratification and person-level nonresponse adjustment and poststratification.

Table 5.3 Weight Distribution for Weight before Any Person-Level Adjustment and after Person-Level Adjustments

	Minimum	25% Percentile	Median	75% Percentile	Maximum	Mean	<i>n</i>	UWE
Weight before Any Person-Level Adjustment	15	698	1,333	3,466	82,330	2,967	84,997	2.94
Weight after Person-Level Adjustments	2	732	1,507	4,005	142,265	3,740	67,804	3.65

UWE = unequal weighting effect.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010 (Revised March 2012).

6. Evaluation of Calibration Weights

During the weight calibration process, several criteria for quality control were implemented to assess model adequacy. This chapter describes the individual procedures and presents a summary of their results. All tables referred to in this chapter can be found in Appendices E, F, G, H, and I. More details can be found in the supplement to the appendices.

6.1 Response Rates

Table E.1 in Appendix E displays the final sample sizes for the categories "selected," "eligible," and "completed" at the dwelling unit (DU) level, and for "selected" and "respondents" at the person level from the 2010 National Survey on Drug Use and Health (NSDUH), for both the national and State levels. This table also shows the weighted eligibility rates and weighted response rates for DU screeners and person-level interviews. Table E.1, at the national level, indicates an overall eligibility rate of 82.80 percent as compared with 82.75 percent for 2009. This similarity in overall rates held in nearly all States, with a few notable exceptions: the eligibility rate dropped from 79.56 to 72.24 percent for Nevada and increased from 83.37 to 86.85 percent for North Carolina. The screening rate at the national level was also similar for the 2 years (88.42 percent for 2010 vs. 88.40 percent for 2009). The national interview response rate was 74.64 percent, a decrease of 0.83 percentage point compared with 75.47 percent for 2009, with the biggest decrease in Arizona (from 79.60 percent in 2009 to 72.60 percent in 2010) and the biggest increase in Massachusetts (from 73.00 percent in 2009 to 77.48 percent in 2010). Table 6.1 presents summary statistics of overall response rates across individual States.

Table 6.1 Summary Statistics of Overall Weighted Response Rates across Individual States

Domain	National Level	Minimum	Median	Maximum
Dwelling Unit Level				
Eligibility Rate	82.80%	69.49% (Maine)	83.01% (Georgia)	88.14% (Oregon)
Screener Response Rate	88.42%	75.25% (New York)	91.75% (Kansas)	95.06% (South Dakota)
Person Level				
Interview Response Rate	74.64%	66.44% (Hawaii)	76.35% (North Dakota)	82.29% (District of Columbia)

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010 (Revised March 2012).

6.2 Percentages of Extreme Weights and Outwinors

During the stages of modeling adjustments (i.e., nonresponse and poststratification), a major factor in deciding the adequacy of a particular model was the extent of resulting extreme weights among the weights. As explained in Section 4.1, the percentages of extreme weights for the input weight were calculated for some domains of interest prior to adjustment. These values then were compared with the resulting percentages of extreme weights using the product of weight components that included the new adjustment.

Table F.1 in Appendix F and Tables G.1 and G.2 in Appendix G present percentages of extreme weights at both the DU level for the Nation and the person level for the individual States. Unweighted percentages are based on the actual counts of units and are defined as the ratio of extreme weights relative to the total sample size. Weighted percentages reflect the percentage of total extreme value weights relative to the total sample weight, while outwinsor percentages represent the total amount of residual weight (given that the weights are trimmed to the critical values that were used for extreme weight definition) relative to the total sample weight. For evaluation purposes, the outwinsor percentage is considered the most important of the three percentages. This assessment stems from the fact that its value reflects only the actual amount of weight that would be affected if trimming were implemented.

For the 2010 NSDUH sample, domains for extreme weight definitions were defined as follows for various weight adjustments via the generalized exponential model (GEM) (see Section 4.1):

- DU nonresponse by State sampling (SS) region;
- DU poststratification by SS region;
- selected person-level poststratification by SS region and age group,⁴ State and age group, SS region, and State;
- person-level nonresponse by SS region and age group, State and age group, SS region, and State; and
- person-level poststratification by SS region and age group, State and age group, SS region, and State.

Before any weight adjustment was implemented, the percentage of unweighted extreme weights was 3.46 percent and outwinsor was 1.20 percent for the product of design weight components weight 1 to weight 7. After DU-level nonresponse adjustment and poststratification, the percentage of the unweighted extreme weights decreased to 1.89 percent and the outwinsor also decreased to 0.73 percent. When the design weight component weight 11 (inverse probability of selecting a person within a dwelling unit) was introduced, percentage of unweighted extreme weights increased to 3.59 percent and outwinsor increased to 1.71 percent. The person-level adjustments, which consisted of selected person-level poststratification, person-level nonresponse adjustment, and person-level poststratification, were able to bring down the percentage of unweighted extreme weights to 1.21 percent and outwinsor to 0.69 percent.

6.3 Slippage Rates

The slippage rate for a given domain is defined as the percentage difference between the design-based domain population estimate and the census control total, relative to the census control, both before and after poststratification. The tables in Appendix H display national and State-level, domain-specific weight sums for both before and after poststratification. They also present the control totals to be met through poststratification and the relative percentage difference (or the amount of adjustment necessary [positive or negative] to meet the given totals). The first relative difference was used explicitly during the poststratification modeling procedure to identify potential problems for convergence; this was done because large

⁴ Age group categories are 12 to 17, 18 to 25, 26 to 34, 35 to 49, and 50 or older.

differences in domains with relatively small sample sizes indicate potentially large adjustment factors, which may cause problems in convergence. The reason is that adjustments required for one domain may have an adverse effect for another domain when a unit belongs to both domains.

Consider [Table H.12](#) for Georgia, which indicates a sample size of 508 for race domain "white"; an initial total, also known as the design-based weight, of 4,991,861; a census total of 5,211,208; and an initial slippage rate of -4.21 percent. The ratio of the census total to the initial total gives the value of the weight adjustment: 1.04. Similar to this example, but in the opposite direction, is [Table H.38](#) for Oklahoma. The domain "Hispanic or Latino" contains a sample size of 116 and an initial slippage rate of 6.63 percent. The initial total of 234,451 and the census total of 219,877 indicate an adjustment of 0.94 would be required.

6.4 Weight Adjustment Summary Statistics

[Tables I.1](#) to [I.3](#) in Appendix I display summary statistics on the product of weight components for before and after all stages of adjustment, for both the DU and person levels. Note that these tables have before and after categories for all adjustments except for the DU poststratification (res.du.ps); this is because the before and after statistics are the same and are, therefore, displayed only as the category after. Note also that there could be changes, although minimal, in person-level specific demographic distributions from screener data to questionnaire data, so the respondent sample unequal weighting effect (UWE) prior to poststratification based on the questionnaire data (e.g., see [Table I.1](#), under the heading "After res.per.nr") would be only slightly different from what would be obtained after the nonresponse adjustment (e.g., see [Table I.1](#), under the heading "Before res.per.ps"). The sample size (n) for the demographic domains from res.per.nr tables also could be different from the res.per.ps tables.

6.5 Sensitivity Analysis of Drug Use Estimates to Baseline Models

In general, there is a trade-off between bias reduction and variance reduction. For instance, with GEM (for nonresponse or poststratification), enlarging a simple model (such as the one with only main effects) has the potential of further reducing the bias. At the same time, this enlargement may be associated with a corresponding increase in the variance of the estimate of the population total. The increased variability comes from estimating the additional parameters included in the model. To check for possible overfitting of the GEM model, a sensitivity analysis was conducted for the poststratification step, where a simple baseline model was fitted with the same bounds and maximum number of iterations as that used for the final, more complex model. Then, point estimates and standard errors (SEs) were examined for substantial changes. If the SE increased only slightly under the complex model or, even better, if it decreased (which is possible because of the correlation between the study and predictor variables), then we would feel comfortable fitting the more complex model.

The SE, a ratio-adjusted estimator denoted by SE1, computed under the DESCRIP procedure in SUDAAN[®], treats the calibration adjustment factors as nonrandom. A more complete method of estimation would take into account the variability present in the weight adjustment. The sandwich formula for the Taylor linearization (see Vaish et al., 2000) is designed to provide an estimate of the variance that adjusts for the random calibration factors to sampling weights via GEM. This "sandwich variance," adjusting for the poststratification variability, is denoted by SE2. Both SE1 and SE2 were calculated, as well as point estimates for

a few important drug recency variables (past year marijuana, alcohol, and cigarette use), across four age groups (12 to 17, 18 to 25, 26 to 34, and 35 or older), for the eight States with large sample sizes.

As noted previously, to check for overfitting, the variances of the baseline and final models were compared. In [Tables 6.2 to 6.7](#), there are cases where the SE from the final model is slightly larger than the SE from the baseline model, indicating possible overfitting. However, the variance estimates for the two models (baseline and final) are generally similar to each other. Note that smaller variance estimates for the final model would indicate that the complex model for the poststratification adjustment resulted in better variance reduction (because of correlation between study and predictor variables) and bias reduction (because of meeting control totals corresponding to a number of factor effects). Therefore, the evidence does not favor the view that fitting a large number of parameters in GEM creates instability in estimates.

Table 6.2 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Lifetime Licit Drug Estimates, Cigarettes and Alcohol: 2010 NSDUH

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Cigarettes Lifetime											
Total	Point Estimates	64.25	64.18	57.57	57.33	62.39	62.31	64.78	64.81	69.07	69.01
	SE1	0.34	0.35	1.23	1.28	1.47	1.49	1.26	1.27	1.17	1.18
	SE2	0.31	0.30	1.15	1.12	1.44	1.32	1.22	1.11	1.18	1.18
12-17	Point Estimates	20.20	20.32	17.36	17.68	20.06	19.88	20.18	20.49	19.74	19.56
	SE1	0.38	0.39	1.35	1.39	1.51	1.51	1.57	1.60	1.22	1.24
	SE2	0.38	0.38	1.33	1.37	1.51	1.50	1.57	1.62	1.23	1.20
18-25	Point Estimates	62.08	62.09	56.59	56.55	55.88	55.89	66.17	66.47	64.28	64.02
	SE1	0.49	0.50	1.77	1.76	1.99	2.04	1.67	1.70	1.74	1.76
	SE2	0.48	0.47	1.76	1.70	2.02	2.10	1.66	1.61	1.76	1.71
26-34	Point Estimates	71.91	71.89	64.12	64.10	71.44	72.00	73.10	73.15	74.24	74.46
	SE1	0.74	0.76	2.71	2.77	2.73	2.69	2.37	2.42	2.55	2.53
	SE2	0.73	0.67	2.68	2.60	2.71	2.31	2.35	2.37	2.54	2.43
35+	Point Estimates	69.71	69.58	62.92	62.47	67.16	66.99	69.60	69.54	76.59	76.50
	SE1	0.49	0.50	1.78	1.87	2.04	2.07	1.81	1.82	1.71	1.70
	SE2	0.46	0.44	1.70	1.66	2.00	1.88	1.77	1.61	1.71	1.66
Alcohol Lifetime											
Total	Point Estimates	82.61	82.52	79.80	79.55	82.64	82.26	83.98	84.15	85.64	85.78
	SE1	0.28	0.29	1.10	1.17	0.91	0.94	0.99	0.98	0.94	0.92
	SE2	0.25	0.23	0.96	0.92	0.91	0.90	0.96	0.80	0.94	0.87
12-17	Point Estimates	35.20	35.22	32.30	32.42	39.21	39.28	35.28	35.61	33.62	33.38
	SE1	0.44	0.45	1.71	1.71	1.60	1.60	1.75	1.79	1.43	1.46
	SE2	0.44	0.44	1.66	1.63	1.60	1.60	1.76	1.81	1.44	1.47
18-25	Point Estimates	85.71	85.72	84.51	84.78	81.67	81.71	88.34	88.66	86.41	86.10
	SE1	0.34	0.35	1.13	1.16	1.82	1.85	1.24	1.23	1.48	1.50
	SE2	0.34	0.32	1.14	1.13	1.83	1.82	1.23	1.19	1.49	1.49
26-34	Point Estimates	90.56	90.63	88.40	88.04	91.27	91.32	88.64	88.88	93.72	93.81
	SE1	0.49	0.50	1.77	1.82	1.58	1.57	1.55	1.53	1.22	1.18
	SE2	0.48	0.45	1.75	1.79	1.57	1.55	1.51	1.41	1.22	1.14
35+	Point Estimates	87.39	87.23	84.53	84.10	86.63	86.09	89.70	89.79	91.84	92.11
	SE1	0.40	0.41	1.60	1.72	1.21	1.27	1.42	1.40	1.27	1.25
	SE2	0.37	0.34	1.46	1.37	1.20	1.22	1.39	1.17	1.27	1.21

(continued)

Table 6.2 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Lifetime Licit Drug Estimates, Cigarettes and Alcohol: 2010 NSDUH (continued)

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Cigarettes Lifetime									
Total	Point Estimates	62.67	62.76	66.76	66.92	66.05	65.72	62.84	63.06
	SE1	1.31	1.33	1.31	1.33	1.31	1.37	1.33	1.29
	SE2	1.25	1.16	1.29	1.19	1.31	1.26	1.22	1.10
12-17	Point Estimates	17.24	17.40	21.73	21.83	19.23	19.32	19.12	19.26
	SE1	1.34	1.37	1.32	1.32	1.39	1.41	1.34	1.37
	SE2	1.34	1.35	1.32	1.34	1.40	1.42	1.31	1.34
18-25	Point Estimates	57.63	58.08	63.52	63.52	61.48	61.70	63.00	63.12
	SE1	1.85	1.89	2.50	2.49	1.79	1.82	1.64	1.66
	SE2	1.84	1.83	2.49	2.42	1.78	1.82	1.62	1.54
26-34	Point Estimates	70.31	70.40	78.85	79.21	72.48	71.25	73.77	73.58
	SE1	2.63	2.64	2.43	2.45	2.78	2.87	2.26	2.40
	SE2	2.62	2.63	2.43	2.50	2.79	2.81	2.29	2.22
35+	Point Estimates	68.49	68.56	71.58	71.72	72.10	71.79	67.75	68.17
	SE1	1.83	1.88	1.76	1.81	1.80	1.89	2.11	2.05
	SE2	1.78	1.66	1.74	1.63	1.79	1.74	1.97	1.76
Alcohol Lifetime									
Total	Point Estimates	83.89	83.71	84.93	85.10	85.63	85.60	80.66	80.31
	SE1	0.97	1.01	0.88	0.88	0.84	0.84	0.96	0.99
	SE2	0.93	0.84	0.87	0.74	0.84	0.83	0.88	0.85
12-17	Point Estimates	36.85	36.98	33.35	33.33	30.95	31.27	33.23	33.67
	SE1	1.60	1.62	1.59	1.59	1.38	1.41	1.70	1.72
	SE2	1.60	1.60	1.60	1.58	1.38	1.39	1.64	1.65
18-25	Point Estimates	86.91	87.10	88.51	88.43	89.89	89.88	83.75	83.58
	SE1	1.28	1.28	1.20	1.23	1.05	1.07	1.13	1.15
	SE2	1.28	1.21	1.20	1.20	1.06	1.06	1.13	1.11
26-34	Point Estimates	88.89	88.64	93.97	94.22	95.45	94.99	91.36	91.51
	SE1	1.90	1.90	1.45	1.42	1.07	1.15	1.39	1.46
	SE2	1.90	1.84	1.45	1.58	1.07	1.14	1.38	1.43
35+	Point Estimates	88.87	88.63	90.00	90.24	90.32	90.36	85.60	84.96
	SE1	1.31	1.41	1.24	1.24	1.20	1.19	1.49	1.58
	SE2	1.29	1.21	1.24	1.09	1.19	1.20	1.40	1.35

Note: The final generalized exponential model variable sets kept in the poststratification adjustment step for each model group (census division) were used to calculate the sandwich standard errors in this table. After weights were recalibrated for Pennsylvania only, the variable sets for the whole model group could not be assembled in the original way, so the method used to create this table could not be applied; thus, this table was not revised.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table 6.3 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Lifetime Illicit Drug Estimates, Marijuana and Cocaine: 2010 NSDUH

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Marijuana Lifetime											
Total	Point Estimates	41.91	41.89	41.79	41.44	37.14	36.56	41.39	41.56	48.99	49.28
	SE1	0.38	0.39	1.48	1.54	1.40	1.43	1.35	1.37	1.41	1.41
	SE2	0.34	0.32	1.31	1.19	1.36	1.19	1.31	1.19	1.39	1.25
12-17	Point Estimates	16.96	17.00	19.12	19.40	17.62	17.59	15.62	15.80	17.02	16.86
	SE1	0.35	0.36	1.32	1.40	1.30	1.33	1.25	1.28	1.29	1.28
	SE2	0.35	0.36	1.31	1.36	1.30	1.32	1.26	1.29	1.28	1.23
18-25	Point Estimates	51.17	51.11	51.91	52.16	47.38	47.27	52.87	53.16	54.33	54.12
	SE1	0.49	0.50	1.66	1.70	1.73	1.74	1.81	1.87	1.87	1.86
	SE2	0.48	0.47	1.66	1.58	1.74	1.70	1.82	1.80	1.88	1.81
26-34	Point Estimates	53.89	53.90	50.38	49.63	52.05	52.98	51.63	52.07	59.85	60.25
	SE1	0.86	0.86	3.19	3.16	3.07	3.07	3.00	2.98	2.68	2.67
	SE2	0.84	0.79	3.15	3.08	3.12	2.73	2.93	2.71	2.68	2.54
35+	Point Estimates	40.98	40.96	41.06	40.54	34.73	33.81	40.50	40.59	50.64	51.06
	SE1	0.54	0.56	2.02	2.12	1.98	2.01	2.02	2.06	2.03	2.02
	SE2	0.48	0.45	1.79	1.63	1.90	1.55	1.97	1.81	1.98	1.77
Cocaine Lifetime											
Total	Point Estimates	14.70	14.67	17.95	17.80	12.66	12.67	11.93	12.01	14.11	14.16
	SE1	0.27	0.27	1.16	1.16	0.92	0.95	0.94	0.96	1.00	1.00
	SE2	0.25	0.24	1.08	1.01	0.91	0.86	0.92	0.88	1.00	0.96
12-17	Point Estimates	1.48	1.49	2.59	2.60	1.28	1.30	0.71	0.77	1.13	1.11
	SE1	0.11	0.11	0.49	0.51	0.28	0.29	0.27	0.30	0.31	0.31
	SE2	0.11	0.11	0.49	0.50	0.28	0.29	0.27	0.30	0.31	0.31
18-25	Point Estimates	13.26	13.29	14.13	14.39	11.93	11.73	12.34	12.64	12.22	12.07
	SE1	0.33	0.33	1.20	1.21	1.21	1.22	1.13	1.18	1.00	1.00
	SE2	0.33	0.32	1.19	1.16	1.22	1.19	1.13	1.15	1.01	0.98
26-34	Point Estimates	19.16	19.07	19.43	18.57	20.62	21.24	11.84	12.07	15.50	15.64
	SE1	0.67	0.67	2.33	2.22	2.55	2.62	1.98	2.01	2.39	2.42
	SE2	0.65	0.62	2.28	2.11	2.57	2.41	1.98	1.98	2.39	2.34
35+	Point Estimates	16.01	15.98	21.05	20.97	12.62	12.61	13.66	13.65	16.22	16.29
	SE1	0.39	0.39	1.70	1.70	1.23	1.26	1.37	1.40	1.38	1.36
	SE2	0.36	0.34	1.61	1.51	1.21	1.12	1.34	1.22	1.38	1.33

(continued)

Table 6.3 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Lifetime Illicit Drug Estimates, Marijuana and Cocaine: 2010 NSDUH (continued)

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Marijuana Lifetime									
Total	Point Estimates	43.50	43.78	42.96	43.54	38.91	39.03	38.17	38.42
	SE1	1.34	1.37	1.33	1.35	1.31	1.34	1.53	1.57
	SE2	1.28	1.18	1.31	1.21	1.29	1.17	1.40	1.31
12-17	Point Estimates	15.95	16.04	14.87	14.98	14.38	14.55	15.41	15.64
	SE1	1.33	1.34	1.09	1.10	1.15	1.19	1.23	1.26
	SE2	1.33	1.32	1.09	1.09	1.15	1.19	1.21	1.25
18-25	Point Estimates	50.31	50.38	51.02	50.91	46.67	46.91	47.02	46.99
	SE1	1.85	1.87	2.95	2.94	2.17	2.21	1.64	1.63
	SE2	1.87	1.82	2.93	2.69	2.16	2.22	1.65	1.60
26-34	Point Estimates	55.75	55.85	60.65	61.50	58.23	57.64	49.41	50.25
	SE1	2.94	2.93	2.81	2.84	2.91	2.97	3.03	3.17
	SE2	2.93	2.79	2.81	2.90	2.92	3.01	3.03	2.99
35+	Point Estimates	43.23	43.67	41.81	42.54	36.90	37.17	37.10	37.24
	SE1	1.92	1.96	1.84	1.89	1.80	1.86	2.43	2.50
	SE2	1.83	1.72	1.79	1.65	1.77	1.65	2.19	1.96
Cocaine Lifetime									
Total	Point Estimates	15.70	15.69	12.17	12.63	13.02	13.03	14.50	14.59
	SE1	0.98	0.99	0.91	0.99	0.91	0.90	0.98	0.99
	SE2	0.97	0.93	0.91	0.93	0.90	0.81	0.95	0.94
12-17	Point Estimates	0.98	0.95	1.64	1.63	0.67	0.62	2.48	2.47
	SE1	0.32	0.31	0.36	0.36	0.29	0.27	0.49	0.50
	SE2	0.32	0.31	0.36	0.36	0.29	0.28	0.49	0.50
18-25	Point Estimates	10.63	10.67	12.00	12.04	9.62	9.47	15.21	15.38
	SE1	1.05	1.07	1.33	1.33	0.94	0.93	1.30	1.33
	SE2	1.03	1.03	1.32	1.34	0.94	0.91	1.29	1.25
26-34	Point Estimates	17.85	17.68	14.03	14.71	16.52	16.78	18.84	18.78
	SE1	2.47	2.48	1.94	2.03	2.17	2.26	2.29	2.32
	SE2	2.47	2.37	1.94	2.06	2.18	2.28	2.28	2.24
35+	Point Estimates	18.38	18.42	13.39	13.95	14.70	14.70	15.33	15.46
	SE1	1.40	1.41	1.35	1.47	1.30	1.31	1.50	1.51
	SE2	1.38	1.34	1.34	1.33	1.29	1.18	1.47	1.39

Note: The final generalized exponential model variable sets kept in the poststratification adjustment step for each model group (census division) were used to calculate the sandwich standard errors in this table. After weights were recalibrated for Pennsylvania only, the variable sets for the whole model group could not be assembled in the original way, so the method used to create this table could not be applied; thus, this table was not revised.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table 6.4 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Year Licit Drug Estimates, Cigarettes and Alcohol: 2010 NSDUH

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Cigarettes Past Year											
Total	Point Estimates	26.96	26.99	22.00	21.72	25.30	25.05	28.30	28.28	31.70	31.59
	SE1	0.33	0.33	0.99	1.02	1.16	1.15	1.32	1.32	1.21	1.23
	SE2	0.31	0.29	0.95	0.93	1.16	1.11	1.29	1.15	1.21	1.17
12-17	Point Estimates	14.06	14.13	11.60	11.79	13.89	13.75	13.97	14.12	14.50	14.35
	SE1	0.33	0.33	1.17	1.20	1.14	1.15	1.28	1.31	1.13	1.13
	SE2	0.33	0.32	1.16	1.18	1.14	1.14	1.29	1.33	1.13	1.11
18-25	Point Estimates	43.10	43.07	36.80	36.73	39.53	39.63	46.63	46.89	47.31	47.12
	SE1	0.49	0.50	1.88	1.90	1.73	1.76	1.53	1.59	1.87	1.88
	SE2	0.49	0.48	1.86	1.84	1.73	1.77	1.53	1.58	1.89	1.85
26-34	Point Estimates	38.66	38.51	30.81	30.54	38.49	39.55	39.18	39.42	44.27	44.33
	SE1	0.82	0.84	2.81	2.88	2.97	2.98	2.71	2.72	3.02	3.04
	SE2	0.81	0.76	2.76	2.64	2.98	2.76	2.70	2.68	3.02	3.01
35+	Point Estimates	22.78	22.86	18.05	17.61	21.48	20.99	23.91	23.75	28.62	28.51
	SE1	0.45	0.46	1.49	1.51	1.55	1.51	1.75	1.75	1.76	1.77
	SE2	0.43	0.41	1.42	1.42	1.56	1.50	1.73	1.56	1.76	1.74
Alcohol Past Year											
Total	Point Estimates	66.64	66.40	65.50	65.08	66.41	65.75	68.56	68.58	69.34	69.70
	SE1	0.38	0.39	1.44	1.51	1.21	1.23	1.29	1.29	1.35	1.34
	SE2	0.35	0.33	1.29	1.20	1.21	1.16	1.26	1.16	1.34	1.26
12-17	Point Estimates	28.54	28.54	26.81	26.87	30.86	30.94	28.58	28.81	27.07	26.90
	SE1	0.43	0.43	1.68	1.69	1.55	1.56	1.54	1.56	1.37	1.39
	SE2	0.42	0.42	1.62	1.59	1.56	1.55	1.55	1.57	1.38	1.40
18-25	Point Estimates	78.78	78.70	77.52	77.64	75.34	75.11	82.34	82.61	81.67	81.33
	SE1	0.41	0.42	1.39	1.44	2.28	2.31	1.40	1.42	1.55	1.56
	SE2	0.41	0.39	1.38	1.38	2.26	2.17	1.39	1.34	1.56	1.54
26-34	Point Estimates	79.54	79.33	76.69	76.13	80.20	80.68	79.47	79.68	83.23	83.39
	SE1	0.68	0.70	2.37	2.43	2.86	2.82	2.14	2.14	2.17	2.15
	SE2	0.67	0.63	2.36	2.42	2.83	2.69	2.11	2.03	2.17	2.13
35+	Point Estimates	66.91	66.59	66.37	65.74	66.53	65.56	69.27	69.18	70.51	71.14
	SE1	0.55	0.56	2.08	2.21	1.61	1.64	1.90	1.93	1.92	1.91
	SE2	0.51	0.48	1.90	1.75	1.61	1.55	1.87	1.72	1.91	1.81

(continued)

Table 6.4 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Year Licit Drug Estimates, Cigarettes and Alcohol: 2010 NSDUH (continued)

Variables	New York		Ohio		Pennsylvania		Texas		
	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	
Cigarettes Past Year									
Total	Point Estimates	25.27	25.73	29.45	29.78	27.97	27.83	27.57	27.71
	SE1	1.12	1.15	1.34	1.39	1.26	1.30	1.27	1.27
	SE2	1.10	1.10	1.33	1.31	1.24	1.15	1.20	1.16
12-17	Point Estimates	13.23	13.38	15.77	15.84	12.29	12.41	13.77	14.00
	SE1	1.21	1.24	1.23	1.24	1.08	1.13	1.15	1.17
	SE2	1.21	1.23	1.23	1.23	1.08	1.13	1.14	1.14
18-25	Point Estimates	36.59	37.15	46.00	45.92	42.63	42.75	43.76	43.75
	SE1	1.83	1.85	1.99	1.97	1.74	1.75	1.80	1.82
	SE2	1.83	1.81	2.00	1.92	1.74	1.75	1.77	1.66
26-34	Point Estimates	36.99	37.39	44.68	45.42	39.75	38.54	40.94	41.47
	SE1	2.91	2.91	3.28	3.26	2.99	3.04	2.92	2.99
	SE2	2.91	2.89	3.28	3.32	2.99	2.95	2.87	2.83
35+	Point Estimates	21.96	22.47	24.98	25.37	24.84	24.89	22.53	22.51
	SE1	1.52	1.57	1.73	1.81	1.69	1.73	1.69	1.68
	SE2	1.49	1.48	1.71	1.70	1.67	1.54	1.68	1.64
Alcohol Past Year									
Total	Point Estimates	68.48	68.12	68.00	68.28	70.30	70.40	64.04	63.93
	SE1	1.28	1.30	1.32	1.32	1.25	1.29	1.38	1.40
	SE2	1.26	1.15	1.33	1.27	1.24	1.21	1.29	1.21
12-17	Point Estimates	31.45	31.46	26.17	26.20	26.03	26.70	27.43	27.78
	SE1	1.51	1.55	1.47	1.46	1.21	1.27	1.65	1.66
	SE2	1.51	1.53	1.47	1.44	1.21	1.28	1.61	1.63
18-25	Point Estimates	81.06	81.04	83.40	83.35	85.64	85.63	76.80	76.78
	SE1	1.55	1.59	1.30	1.30	1.21	1.24	1.31	1.34
	SE2	1.54	1.47	1.29	1.25	1.22	1.22	1.30	1.27
26-34	Point Estimates	76.58	75.84	84.30	84.46	87.28	85.93	80.41	80.77
	SE1	2.75	2.80	2.26	2.26	2.16	2.50	1.96	2.02
	SE2	2.73	2.58	2.24	2.18	2.16	2.34	1.95	1.97
35+	Point Estimates	69.32	68.95	67.73	68.17	69.92	70.33	63.14	62.77
	SE1	1.83	1.87	1.92	1.93	1.77	1.82	2.30	2.35
	SE2	1.82	1.67	1.93	1.87	1.77	1.74	2.13	1.96

Note: The final generalized exponential model variable sets kept in the poststratification adjustment step for each model group (census division) were used to calculate the sandwich standard errors in this table. After weights were recalibrated for Pennsylvania only, the variable sets for the whole model group could not be assembled in the original way, so the method used to create this table could not be applied; thus, this table was not revised.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table 6.5 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Year Illicit Drug Estimates, Marijuana and Cocaine: 2010 NSDUH

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Marijuana Past Year											
Total	Point Estimates	11.53	11.52	14.04	13.95	10.87	10.89	11.12	11.21	13.28	13.33
	SE1	0.22	0.22	0.96	0.96	0.73	0.76	0.68	0.69	0.75	0.76
	SE2	0.20	0.19	0.89	0.85	0.71	0.68	0.66	0.59	0.75	0.73
12-17	Point Estimates	13.88	13.97	15.69	15.94	14.85	14.80	12.75	12.91	14.17	14.01
	SE1	0.32	0.34	1.30	1.37	1.18	1.20	1.13	1.15	1.18	1.18
	SE2	0.32	0.34	1.29	1.35	1.18	1.21	1.14	1.17	1.18	1.14
18-25	Point Estimates	29.95	29.82	31.90	31.77	29.94	29.72	30.91	31.13	31.49	31.50
	SE1	0.47	0.47	1.63	1.69	1.69	1.70	1.57	1.61	1.77	1.76
	SE2	0.46	0.44	1.63	1.55	1.68	1.62	1.58	1.59	1.78	1.74
26-34	Point Estimates	17.70	17.55	20.62	19.68	20.50	21.21	15.28	15.75	18.95	18.89
	SE1	0.67	0.67	2.50	2.48	2.61	2.66	1.89	1.95	2.39	2.41
	SE2	0.65	0.61	2.45	2.34	2.61	2.51	1.87	1.84	2.40	2.35
35+	Point Estimates	5.79	5.82	7.92	7.96	4.92	4.95	5.49	5.42	8.23	8.38
	SE1	0.25	0.25	1.25	1.26	0.76	0.80	0.86	0.87	0.92	0.94
	SE2	0.24	0.24	1.22	1.20	0.76	0.77	0.86	0.81	0.92	0.93
Cocaine Past Year											
Total	Point Estimates	1.78	1.77	2.25	2.14	1.87	1.83	1.78	1.81	1.44	1.44
	SE1	0.08	0.08	0.31	0.29	0.28	0.27	0.33	0.34	0.25	0.26
	SE2	0.08	0.07	0.30	0.27	0.27	0.25	0.32	0.31	0.25	0.25
12-17	Point Estimates	0.97	0.98	1.79	1.73	0.83	0.85	0.53	0.57	0.47	0.47
	SE1	0.09	0.09	0.41	0.40	0.25	0.25	0.23	0.25	0.21	0.20
	SE2	0.09	0.09	0.41	0.40	0.25	0.25	0.23	0.26	0.21	0.20
18-25	Point Estimates	4.62	4.62	6.10	6.11	5.61	5.31	4.87	4.84	3.97	3.87
	SE1	0.20	0.21	0.83	0.85	0.77	0.75	0.72	0.74	0.65	0.63
	SE2	0.20	0.20	0.83	0.82	0.77	0.75	0.72	0.73	0.65	0.62
26-34	Point Estimates	3.64	3.56	5.94	5.21	4.90	5.13	1.97	2.07	2.94	2.93
	SE1	0.34	0.33	1.44	1.28	1.27	1.34	0.77	0.81	1.23	1.23
	SE2	0.33	0.31	1.42	1.26	1.27	1.28	0.77	0.81	1.23	1.22
35+	Point Estimates	0.86	0.87	0.48	0.49	0.70	0.68	1.25	1.27	0.77	0.80
	SE1	0.08	0.08	0.22	0.22	0.24	0.23	0.46	0.48	0.29	0.30
	SE2	0.08	0.08	0.22	0.22	0.24	0.22	0.45	0.44	0.28	0.29

(continued)

Table 6.5 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Year Illicit Drug Estimates, Marijuana and Cocaine: 2010 NSDUH (continued)

Variables	New York		Ohio		Pennsylvania		Texas		
	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	
Marijuana Past Year									
Total	Point Estimates	12.45	12.46	10.72	10.92	9.87	9.81	9.73	9.74
	SE1	0.81	0.80	0.73	0.76	0.72	0.71	0.76	0.75
	SE2	0.79	0.76	0.73	0.71	0.71	0.63	0.71	0.69
12-17	Point Estimates	14.20	14.36	12.34	12.45	12.26	12.50	11.65	12.00
	SE1	1.32	1.34	1.00	1.01	1.03	1.07	1.13	1.17
	SE2	1.33	1.32	1.00	1.01	1.04	1.08	1.13	1.18
18-25	Point Estimates	30.75	30.64	30.92	30.89	28.46	28.44	24.81	24.52
	SE1	1.71	1.73	2.15	2.12	2.17	2.21	1.48	1.45
	SE2	1.72	1.71	2.14	1.92	2.16	2.18	1.47	1.41
26-34	Point Estimates	16.71	16.52	15.59	16.00	16.31	16.60	12.00	12.08
	SE1	2.23	2.19	2.15	2.19	2.32	2.40	2.11	2.19
	SE2	2.23	2.15	2.14	2.15	2.31	2.33	2.11	2.14
35+	Point Estimates	7.41	7.43	5.42	5.69	4.52	4.43	5.10	5.06
	SE1	1.03	1.03	0.84	0.91	0.78	0.75	0.98	0.96
	SE2	1.02	1.00	0.83	0.84	0.78	0.74	0.96	0.91
Cocaine Past Year									
Total	Point Estimates	1.93	1.94	1.57	1.57	1.53	1.47	1.79	1.78
	SE1	0.31	0.32	0.28	0.28	0.33	0.31	0.25	0.25
	SE2	0.31	0.31	0.28	0.28	0.33	0.29	0.24	0.24
12-17	Point Estimates	0.89	0.86	1.05	1.05	0.44	0.43	1.49	1.55
	SE1	0.31	0.30	0.28	0.27	0.24	0.23	0.40	0.42
	SE2	0.31	0.30	0.27	0.27	0.24	0.23	0.40	0.41
18-25	Point Estimates	4.42	4.47	3.88	3.82	4.19	4.20	4.51	4.41
	SE1	0.66	0.70	0.66	0.65	0.69	0.72	0.61	0.60
	SE2	0.65	0.68	0.66	0.65	0.69	0.70	0.61	0.59
26-34	Point Estimates	3.01	3.09	2.24	2.38	1.53	1.50	2.53	2.47
	SE1	1.07	1.12	0.90	0.96	0.68	0.67	0.86	0.86
	SE2	1.07	1.08	0.90	0.91	0.68	0.66	0.85	0.81
35+	Point Estimates	1.31	1.31	1.05	1.04	1.14	1.07	0.98	0.99
	SE1	0.39	0.40	0.34	0.34	0.46	0.42	0.32	0.33
	SE2	0.39	0.39	0.34	0.34	0.46	0.41	0.32	0.33

Note: The final generalized exponential model variable sets kept in the poststratification adjustment step for each model group (census division) were used to calculate the sandwich standard errors in this table. After weights were recalibrated for Pennsylvania only, the variable sets for the whole model group could not be assembled in the original way, so the method used to create this table could not be applied; thus, this table was not revised.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table 6.6 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Month Licit Drug Estimates, Cigarettes and Alcohol: 2010 NSDUH

Variables	United States		California		Florida		Illinois		Michigan		
	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	
Cigarettes Past Month											
Total	Point Estimates	22.90	22.97	17.48	17.49	21.81	21.57	23.32	23.25	26.61	26.45
	SE1	0.31	0.31	0.92	0.97	1.11	1.10	1.16	1.16	1.16	1.17
	SE2	0.29	0.28	0.88	0.89	1.11	1.07	1.15	1.07	1.16	1.11
12-17	Point Estimates	8.30	8.34	6.66	6.63	7.30	7.18	7.24	7.40	8.88	8.67
	SE1	0.25	0.26	0.81	0.81	0.76	0.77	0.91	0.94	0.95	0.93
	SE2	0.25	0.25	0.81	0.79	0.76	0.79	0.91	0.94	0.95	0.92
18-25	Point Estimates	34.31	34.24	27.16	27.06	30.79	30.79	37.41	37.57	38.92	38.81
	SE1	0.47	0.48	1.74	1.74	1.74	1.74	1.48	1.54	1.65	1.65
	SE2	0.47	0.46	1.71	1.68	1.74	1.74	1.49	1.53	1.66	1.63
26-34	Point Estimates	33.74	33.59	26.31	25.85	35.52	36.33	31.49	31.61	38.53	38.42
	SE1	0.80	0.81	2.68	2.70	2.87	2.86	2.53	2.56	3.08	3.11
	SE2	0.78	0.74	2.64	2.54	2.88	2.68	2.52	2.53	3.08	3.07
35+	Point Estimates	20.20	20.35	14.79	14.93	19.23	18.84	20.80	20.60	24.43	24.26
	SE1	0.42	0.44	1.30	1.40	1.55	1.51	1.58	1.56	1.66	1.66
	SE2	0.41	0.39	1.26	1.31	1.55	1.51	1.57	1.48	1.66	1.63
Alcohol Past Month											
Total	Point Estimates	52.06	51.79	49.84	49.27	50.57	50.47	53.82	53.65	54.25	54.48
	SE1	0.40	0.41	1.41	1.47	1.56	1.57	1.32	1.32	1.42	1.41
	SE2	0.36	0.34	1.25	1.18	1.53	1.44	1.31	1.26	1.41	1.34
12-17	Point Estimates	13.59	13.59	13.85	13.93	13.40	13.36	12.36	12.34	12.36	12.18
	SE1	0.33	0.33	1.24	1.25	1.17	1.17	1.14	1.14	1.11	1.10
	SE2	0.33	0.33	1.22	1.21	1.18	1.17	1.14	1.14	1.11	1.11
18-25	Point Estimates	61.62	61.53	59.91	60.18	57.53	56.94	66.44	66.53	64.16	63.68
	SE1	0.50	0.50	1.66	1.70	2.04	2.06	1.72	1.76	1.67	1.68
	SE2	0.49	0.46	1.65	1.65	2.04	1.96	1.70	1.67	1.68	1.63
26-34	Point Estimates	64.80	64.56	65.17	64.86	64.37	65.05	66.10	66.33	66.80	67.17
	SE1	0.81	0.83	2.78	2.85	3.53	3.50	2.67	2.70	2.62	2.57
	SE2	0.79	0.75	2.78	2.83	3.50	3.36	2.66	2.66	2.62	2.58
35+	Point Estimates	52.97	52.62	49.63	48.67	51.26	51.18	54.70	54.36	56.13	56.54
	SE1	0.57	0.58	2.07	2.16	2.05	2.06	1.87	1.89	1.99	1.99
	SE2	0.52	0.49	1.88	1.74	2.01	1.90	1.85	1.77	1.99	1.90

(continued)

Table 6.6 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Month Licit Drug Estimates, Cigarettes and Alcohol: 2010 NSDUH (continued)

Variables	New York		Ohio		Pennsylvania		Texas		
	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	
Cigarettes Past Month									
Total	Point Estimates	21.62	22.01	25.54	25.76	24.68	24.61	22.45	22.59
	SE1	1.08	1.12	1.28	1.30	1.23	1.25	1.15	1.14
	SE2	1.07	1.07	1.27	1.23	1.21	1.14	1.10	1.06
12-17	Point Estimates	7.65	7.72	11.11	11.28	7.76	7.99	7.07	7.18
	SE1	0.98	1.01	1.10	1.11	0.84	0.87	0.75	0.76
	SE2	0.98	1.00	1.10	1.11	0.84	0.87	0.74	0.76
18-25	Point Estimates	28.46	28.91	37.11	37.00	35.75	35.76	32.80	32.73
	SE1	1.63	1.66	2.03	2.03	1.54	1.55	1.72	1.73
	SE2	1.64	1.64	2.03	1.96	1.54	1.54	1.70	1.66
26-34	Point Estimates	31.87	32.01	40.43	41.01	35.62	34.50	32.85	33.52
	SE1	2.92	2.95	3.24	3.24	3.13	3.16	2.89	2.95
	SE2	2.92	2.91	3.24	3.29	3.14	3.09	2.84	2.79
35+	Point Estimates	19.86	20.36	22.24	22.49	22.61	22.75	19.91	19.92
	SE1	1.48	1.53	1.65	1.69	1.64	1.68	1.61	1.60
	SE2	1.45	1.45	1.63	1.58	1.62	1.53	1.60	1.54
Alcohol Past Month									
Total	Point Estimates	55.68	55.50	53.10	53.32	54.14	53.94	49.21	49.04
	SE1	1.33	1.33	1.41	1.43	1.41	1.44	1.52	1.52
	SE2	1.30	1.19	1.42	1.37	1.40	1.37	1.45	1.35
12-17	Point Estimates	16.80	16.93	12.29	12.33	12.61	13.03	11.68	11.86
	SE1	1.28	1.28	1.09	1.10	0.91	0.94	1.14	1.16
	SE2	1.29	1.27	1.10	1.09	0.91	0.94	1.13	1.13
18-25	Point Estimates	66.54	66.49	64.38	64.21	69.77	69.35	58.93	58.96
	SE1	1.85	1.92	1.75	1.74	1.84	1.90	1.69	1.70
	SE2	1.83	1.76	1.74	1.70	1.84	1.89	1.66	1.56
26-34	Point Estimates	65.32	65.32	65.61	65.60	73.84	72.35	63.84	64.11
	SE1	3.05	3.07	3.12	3.16	2.94	3.14	2.50	2.59
	SE2	3.04	2.83	3.12	3.13	2.94	3.06	2.48	2.52
35+	Point Estimates	56.79	56.52	54.30	54.70	52.78	52.88	49.69	49.27
	SE1	1.84	1.86	1.99	2.02	1.93	1.97	2.39	2.42
	SE2	1.82	1.68	2.01	1.94	1.92	1.89	2.26	2.06

Note: The final generalized exponential model variable sets kept in the poststratification adjustment step for each model group (census division) were used to calculate the sandwich standard errors in this table. After weights were recalibrated for Pennsylvania only, the variable sets for the whole model group could not be assembled in the original way, so the method used to create this table could not be applied; thus, this table was not revised.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table 6.7 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Month Illicit Drug Estimates, Marijuana and Cocaine: 2010 NSDUH

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Marijuana Past Month											
Total	Point Estimates	6.84	6.85	8.12	8.16	6.06	6.06	6.43	6.45	8.77	8.80
	SE1	0.16	0.16	0.70	0.71	0.51	0.53	0.50	0.49	0.59	0.60
	SE2	0.15	0.15	0.67	0.66	0.50	0.50	0.49	0.46	0.59	0.59
12-17	Point Estimates	7.35	7.38	9.15	9.19	6.61	6.59	6.84	6.83	7.77	7.63
	SE1	0.24	0.25	0.96	1.00	0.78	0.79	0.81	0.81	0.83	0.82
	SE2	0.24	0.24	0.96	0.97	0.78	0.78	0.81	0.81	0.84	0.80
18-25	Point Estimates	18.53	18.47	20.27	20.11	17.97	17.65	19.24	19.38	19.70	19.86
	SE1	0.38	0.38	1.28	1.30	1.36	1.37	1.30	1.34	1.37	1.39
	SE2	0.37	0.36	1.28	1.17	1.35	1.31	1.30	1.33	1.37	1.39
26-34	Point Estimates	10.55	10.55	9.75	9.72	12.00	12.10	8.21	8.45	14.24	14.09
	SE1	0.54	0.55	1.84	1.83	2.10	2.10	1.45	1.48	2.03	2.02
	SE2	0.53	0.50	1.82	1.73	2.11	2.09	1.42	1.40	2.03	1.97
35+	Point Estimates	3.40	3.42	4.70	4.79	2.61	2.71	3.10	3.03	5.57	5.65
	SE1	0.19	0.19	0.98	1.02	0.52	0.56	0.63	0.62	0.73	0.74
	SE2	0.18	0.18	0.96	0.99	0.52	0.54	0.62	0.60	0.73	0.73
Cocaine Past Month											
Total	Point Estimates	0.58	0.58	0.73	0.71	0.55	0.53	0.60	0.61	0.42	0.41
	SE1	0.04	0.04	0.17	0.16	0.15	0.14	0.21	0.22	0.12	0.11
	SE2	0.04	0.04	0.17	0.15	0.15	0.14	0.21	0.21	0.12	0.11
12-17	Point Estimates	0.24	0.25	0.33	0.36	0.41	0.41	0.13	0.13	0.05	0.05
	SE1	0.04	0.05	0.15	0.17	0.19	0.19	0.10	0.10	0.05	0.05
	SE2	0.04	0.04	0.15	0.17	0.19	0.19	0.10	0.10	0.05	0.05
18-25	Point Estimates	1.43	1.46	2.16	2.21	1.43	1.37	1.23	1.25	1.23	1.21
	SE1	0.11	0.12	0.49	0.51	0.36	0.38	0.29	0.30	0.33	0.32
	SE2	0.11	0.11	0.49	0.50	0.36	0.37	0.29	0.30	0.33	0.31
26-34	Point Estimates	1.14	1.11	2.50	2.27	1.06	1.07	0.00	0.00	0.85	0.79
	SE1	0.19	0.18	0.93	0.84	0.63	0.63	0.00	0.00	0.56	0.53
	SE2	0.18	0.17	0.90	0.80	0.63	0.63	0.00	0.00	0.56	0.50
35+	Point Estimates	0.32	0.32	0.01	0.02	0.31	0.28	0.68	0.69	0.22	0.22
	SE1	0.05	0.05	0.01	0.02	0.19	0.17	0.33	0.34	0.13	0.13
	SE2	0.05	0.05	0.01	0.02	0.19	0.17	0.33	0.32	0.13	0.12

(continued)

Table 6.7 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Month Illicit Drug Estimates, Marijuana and Cocaine: 2010 NSDUH (continued)

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Marijuana Past Month									
Total	Point Estimates	7.17	7.16	5.93	6.08	5.79	5.79	5.77	5.81
	SE1	0.60	0.59	0.53	0.55	0.48	0.48	0.54	0.52
	SE2	0.59	0.57	0.53	0.52	0.47	0.42	0.51	0.49
12-17	Point Estimates	9.14	9.15	7.12	7.15	7.07	7.17	5.57	5.78
	SE1	1.14	1.15	0.84	0.85	0.82	0.86	0.74	0.78
	SE2	1.15	1.14	0.84	0.84	0.82	0.86	0.75	0.79
18-25	Point Estimates	19.09	19.06	17.80	17.81	18.77	18.94	15.38	15.40
	SE1	1.52	1.51	1.62	1.60	1.63	1.64	1.16	1.16
	SE2	1.52	1.45	1.61	1.45	1.64	1.69	1.15	1.17
26-34	Point Estimates	9.85	9.66	8.35	8.42	9.94	10.03	6.75	6.96
	SE1	1.76	1.74	1.73	1.74	1.64	1.66	1.47	1.53
	SE2	1.76	1.74	1.74	1.75	1.65	1.68	1.46	1.48
35+	Point Estimates	3.79	3.79	2.88	3.11	2.19	2.18	3.20	3.16
	SE1	0.70	0.69	0.60	0.66	0.46	0.46	0.73	0.70
	SE2	0.69	0.68	0.60	0.60	0.46	0.45	0.72	0.69
Cocaine Past Month									
Total	Point Estimates	0.79	0.78	0.43	0.44	0.32	0.31	0.64	0.66
	SE1	0.18	0.18	0.14	0.15	0.09	0.09	0.17	0.18
	SE2	0.18	0.17	0.14	0.14	0.09	0.09	0.17	0.18
12-17	Point Estimates	0.50	0.49	0.22	0.22	0.00	0.00	0.35	0.37
	SE1	0.24	0.24	0.16	0.16	0.00	0.00	0.21	0.22
	SE2	0.24	0.23	0.16	0.16	0.00	0.00	0.21	0.22
18-25	Point Estimates	1.66	1.59	0.69	0.69	1.47	1.49	0.90	0.94
	SE1	0.46	0.47	0.26	0.26	0.39	0.41	0.25	0.27
	SE2	0.46	0.46	0.26	0.26	0.39	0.42	0.25	0.27
26-34	Point Estimates	2.00	2.03	1.10	1.25	0.60	0.59	0.89	0.82
	SE1	0.86	0.89	0.63	0.71	0.43	0.42	0.54	0.53
	SE2	0.86	0.87	0.63	0.63	0.43	0.42	0.54	0.51
35+	Point Estimates	0.37	0.37	0.26	0.26	0.07	0.07	0.57	0.60
	SE1	0.17	0.17	0.16	0.16	0.07	0.07	0.24	0.26
	SE2	0.17	0.16	0.16	0.15	0.07	0.07	0.24	0.25

Note: The final generalized exponential model variable sets kept in the poststratification adjustment step for each model group (census division) were used to calculate the sandwich standard errors in this table. After weights were recalibrated for Pennsylvania only, the variable sets for the whole model group could not be assembled in the original way, so the method used to create this table could not be applied; thus, this table was not revised.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

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Appendix A: Technical Details about the Generalized Exponential Model

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A.1 Distance Function

Let $\Delta(w, d)$ denote the distance between the initial weights $d = \{d_k : k \in s\}$ and the adjusted weights w , with k being the k^{th} unit in the sample and s being the sample selected. The distance function minimized under the generalized exponential model (GEM), subject to calibration constraints, is given by

$$\Delta(w, d) = \sum_{k \in s} \frac{d_k}{A_k} \left\{ (a_k - \ell_k) \log \frac{a_k - \ell_k}{c_k - \ell_k} + (u_k - a_k) \log \frac{u_k - a_k}{u_k - c_k} \right\}, \quad (\text{A.1.1})$$

where $a_k = w_k / d_k$, $A_k = (u_k - \ell_k) / [(u_k - c_k)(c_k - \ell_k)]$ and ℓ_k , c_k , and u_k are prescribed real numbers. Let T_x denote the p -vector of control totals corresponding to predictor variables (x_1, \dots, x_p) . Then, the calibration constraints for the above minimization problem are

$$\sum_{k \in s} x_k d_k a_k = T_x. \quad (\text{A.1.2})$$

The solution for the above minimization problem, if it exists, is given by a GEM with model parameters λ ; that is,

$$a_k(\lambda) = \frac{\ell_k (u_k - c_k) + u_k (c_k - \ell_k) \exp\{A_k x'_k \lambda\}}{(u_k - c_k) + (c_k - \ell_k) \exp\{A_k x'_k \lambda\}}. \quad (\text{A.1.3})$$

Note that the number of parameters in the GEM should be $\leq n$, where n is the size of the sample s . This is also the dimension of vectors d and w . It follows from Equation A.1.3 that

$$\ell_k < a_k < u_k, k = 1, \dots, n. \quad (\text{A.1.4})$$

The usual raking ratio method (Singh & Mohl, 1996) of weight adjustment is a special case of the GEM, noting that for $\ell_k = 0$, $u_k = \infty$, $c_k = 1$, and $k = 1, \dots, n$, we have

$$\Delta(w, d) = \sum_{k \in s} d_k a_k \log a_k - \sum_{k \in s} d_k (a_k - 1) \quad (\text{A.1.5})$$

and $a_k(\lambda) = \exp(x'_k \lambda)$.

The logit method of Deville and Särndal (1992) is also a special case of the GEM, by setting $\ell_k = \ell$, $u_k = u$, and $c_k = 1$ for all k . The new method was introduced by Folsom and Singh (2000).

A.2 GEM Adjustments for Extreme Value Treatment, Nonresponse, and Poststratification

By choosing the user-specified parameters ℓ_k , c_k , and u_k appropriately, the unified GEM formula (A.1.3) can be justified for all three types of adjustment: extreme value treatment, nonresponse, and poststratification. For extreme value treatment via winsorization, denote the winsorized weights by $\{b_k\}$, where $b_k = d_k$ if d_k is not an extreme weight, and

$b_k = \text{med}\{d_k\} \pm 3 * \text{IQR}$ if d_k is an extreme weight, where IQR denotes the interquartile range, and the median and quartiles for the weights are defined with respect to a suitable design-based stratum.

For the nonresponse adjustment, the sample is first divided into two parts: the nonextreme weight subsample and the extreme weight subsample. For nonextreme weights, the following are set: $\ell_2 = 1$, $c_2 = \rho^{-1}$, $u_2 = u > \rho^{-1}$, where ρ is the overall response propensity.

For extreme weights with high weights, $\ell_k = \ell_1 m_k$, $c_k = \rho^{-1} m_k$, and $u_k = u_1 m_k$, where $m_k = b_k/d_k$ and $1 \leq \ell_1 < \rho^{-1} = c_1 < u_1$ are prescribed numbers. Similarly, for extreme weights with low weights, $\ell_k = \ell_3 m_k$, $c_k = \rho^{-1} m_k$, $u_k = u_3 m_k$, and $1 \leq \ell_3 < \rho^{-1} = c_3 < u_3$.

For the poststratification adjustment, the following weights are set: for nonextreme weights, $\ell_k = \ell_2$, $c_k = c_2 = 1$, and $u_k = u_2$; for high extreme weights, $\ell_k = \ell_1 m_k$, $c_k = m_k$, and $u_k = u_1 m_k$; and similarly, for low extreme weights, $\ell_k = \ell_3 m_k$, $c_k = m_k$, and $u_k = u_3 m_k$. The extreme value adjustment is identical to poststratification, except for tighter bounds on extreme weights resulting from the final poststratification.

Notice that the GEM allows the flexibility of specifying different bounds for different subsamples. In addition, the lower bound (in the case of nonresponse adjustments) can be made to equal one by choosing the center $c_k > 1$.

A.3 Newton-Raphson Steps

Let X denote the $n \times p$ matrix of predictor values, and for the v^{th} iteration,

$$\Gamma_{\phi^v} = \text{diag}\left(d_k \phi_k^{(v)}\right), \phi_k^{(o)} = 1,$$

where $\phi_k^{(v)} = \left[\left(u_k - a_k^{(v)}\right)\left(a_k^{(v)} - \ell_k\right)\right] / \left[\left(u_k - c_k\right)\left(c_k - \ell_k\right)\right]$.

Then, for the Newton-Raphson iteration ν , the value of the p -vector λ is adjusted as

$$\lambda^{(\nu)} = \lambda^{(\nu-1)} + (X' \Gamma_{\phi, \nu-1} X)^{-1} (T_x - \hat{T}_x^{(\nu-1)}),$$

where $\lambda^{(0)} = 1$.

The convergence criterion is based on the Euclidean distance $\|T_x - \hat{T}_x^{(\nu)}\|$, which is defined as $\sqrt{(T_x - \hat{T}_x^{(\nu)})' (T_x - \hat{T}_x^{(\nu)})}$. At each iteration, it is checked to determine whether it is decreasing. If it is not, a half step is used in the iteration increment.

A.4 Scaled Constrained Exponential Model

In National Household Surveys on Drug Abuse (NHSDAs)¹ prior to 1999, constrained exponential models (CEMs) were used for poststratification, and scaled CEMs were used for nonresponse adjustments. The CEM refers to the logit model of Deville and Särndal (1992), in which lower and upper bounds do not vary with k ; that is, $\ell_k = \ell$, $u_k = u$, and $c_k = c = 1$, such that $\ell < 1 < u$. Thus, the CEM is a special case of the GEM. For the nonresponse adjustment, Folsom and Witt (1994) modified the CEM estimating equations by a scaling factor (ρ^{-1} , the inverse of the overall response propensity), such that $1 < \rho^{-1} a_k < \rho^{-1} u$. This implies that choosing ℓ in the CEM as ρ ensures that the scaled adjustment factor for nonresponse is at least one.

¹ The National Household Survey on Drug Abuse (NHSDA) was renamed the National Survey on Drug Use and Health (NSDUH) in the 2002 survey year.

Appendix B: Poststratification Control Totals

Appendix B: Poststratification Control Totals

For poststratification, quarterly State-specific totals for the target population (civilian, noninstitutionalized, aged 12 or older) are required for 120 demographic domains defined by Age, Race, Gender, and Hispanicity ($6 \times 5 \times 2 \times 2$) (Exhibit B.1). The Population Estimates Branch of the U.S. Bureau of the Census produced, in response to a special request, the necessary population estimates based on monthly State-level estimates of the target population, which were based on the enumerated population from Census 2000.

To arrive at quarterly estimates, approximations at the midpoints of the quarters were needed. To get these approximations, the estimates from the last 2 months in each quarter were averaged. For example, to obtain an approximation for the first quarter of 2010, the U.S. census estimates for February 1 and March 1 were averaged, resulting in a population estimate appropriate for February 15 (i.e., the midpoint of Quarter 1).

Exhibit B.1 Definition of Levels for Variables

Age (years)

1: 12-17, 2: 18-25, 3: 26-34, 4: 35-49, 5: 50-64, 6: 65+

Race

1: White, 2: Black or African American, 3: American Indian or Alaska Native, 4: Asian or Native Hawaiian or Pacific Islander, 5: Two or More Races

Gender

1: Male, 2: Female

Hispanicity

1: Hispanic or Latino, 2: Non-Hispanic or Latino

Appendix C: Imputation Methodology

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C.1 Unweighted Hot Deck

The adjustments of (1) dwelling unit (DU) poststratification, (2) poststratification of the selected sample to all eligible rostered persons, and (3) person-level nonresponse required the use of demographic information obtained from the 2010 National Survey on Drug Use and Health (NSDUH) screener interview. However, at the time of screening, the only required information for an individual was age, and, thus, some demographic information (i.e., Gender, Hispanic or Latino origin, and race) was missing. Therefore, some form of imputation was required for cases with missing data.¹ This imputation was performed using an unweighted hot-deck methodology. The unweighted hot-deck method of imputing a variable with missing responses (which is called the base variable in this appendix) involved three basic steps.

1. *Forming imputation classes.* When a strong logical association existed between the base variable and certain auxiliary variables, the data set was partitioned by the auxiliary variables, and imputation procedures were implemented independently within classes defined by the cross of the auxiliary variables.
2. *Sorting the file.* Within each imputation class, the file was sorted by auxiliary variables that were relevant to the item being imputed. The sort order of the auxiliary variables was chosen to reflect the degree of importance of the auxiliary variables in relation to the base variable being imputed (i.e., those auxiliary variables that were better predictors for the item being imputed were used as the first sorting variables).

For the 2010 NSDUH, two types of sorting procedures were used to sort the files prior to imputation:

- (a) Straight Sort. A set of variables was sorted in ascending order by the first variable specified, then, within each level of the first variable, the file was sorted in ascending order by the second variable specified, and so on. For example:

1	1	1
1	1	2
1	2	1
1	2	2
1	3	1
1	3	2
2	1	1
2	1	2
2	2	1
2	2	2
2	3	1
2	3	2

¹ Because the imputation of these demographic variables was not required for the main NSDUH analysis, it is documented here in the weighting report.

(b) Serpentine Sort. A set of variables was sorted so that the direction of the sort (ascending or descending) changed each time the value of a variable changed. For example:

1	1	1
1	1	2
1	2	2
1	2	1
1	3	1
1	3	2
2	3	2
2	3	1
2	2	1
2	2	2
2	1	2
2	1	1

The serpentine sort has the advantage of minimizing the change in the entire set of auxiliary variables whenever any one of the variables changes its value.

3. *Replace missing values.* The file was sorted and then read sequentially. Each time an item respondent was encountered (i.e., the base variable was nonmissing), the base variable response was stored, updating the donor response, and any subsequent nonrespondent encountered received the stored donor response, creating the statistically imputed response. A starting value was needed if an item nonrespondent was the first record on a sorted file. Typically, the response from the first respondent on the sorted file was used as the starting value.

Note that because the file was sorted by relevant auxiliary variables, the preceding item respondent (donor) closely matched the neighboring item nonrespondent (recipient) with respect to the auxiliary variables.

For more information on the general hot-deck method of item imputation, see Little and Rubin, 1987 (pp. 62-67).

With the unweighted sequential hot-deck imputation procedure, for any particular item being imputed, there was the risk of several nonrespondents appearing next to one another on the sorted file. To detect this problem in NSDUH, for every variable being imputed, a record was kept of the imputation donor. Then, by examining frequencies by imputation donor, if several nonrespondents were lining up next to one another in the sort, the situation could be detected. When this problem occurred, sort variables were added or eliminated, or the order of the sort variables was rearranged.

C.2 Predictive Mean Neighborhood (PMN)

As in 2002, the predictive mean neighborhood (PMN) methodology was used for the 2010 NSDUH weighting process to impute "race" and "Hispanic or Latino origin" for the screener demographic information, as well as the questionnaire data (Singh, Grau, & Folsom, 2002). Because there was not a good set of predictors for PMN modeling, the unweighted

sequential hot-deck method was used to impute gender. Unweighted sequential hot deck is simple and quick to implement, but it has a number of disadvantages:

- The first few sorting covariates almost entirely determine what donor will be used for a particular respondent with missing data, regardless of how many sorting covariates are included.
- There is no mechanism derived from the data to weight the sorting covariates based on their relationship to the response variable.
- Weights are not used to determine the most appropriate donor for a respondent with missing data.
- The correlations across multiple outcome variables imputed to the same record are not accounted for when finding a donor.
- The choice of donor, after the sort has been completed, may be deterministic; this may introduce bias in estimating means and totals and, thus, make it difficult to determine the variance of the estimator when taking imputation into account.

To address the deficiencies of the unweighted sequential hot deck, the PMN methodology was developed for NSDUH. It is a combination of two commonly used imputation methods: a nonmodel-based hot deck and the model-based predictive mean matching method of Rubin. It enhances the predictive mean matching method in that it can be applied to both discrete and continuous variables either individually or jointly. It also enhances the nearest neighbor hot-deck method in that the distance function used to find neighbors is no longer ad hoc. It is easily applicable to problems of both univariate (UPMN) and multivariate (MPMN) imputations. Univariate imputation is used for imputing a single continuous or dichotomous discrete variable independently, while multivariate imputation arises when values of two or more variables are missing for a single respondent or when a single polytomous variable has missing values. (A polytomous variable is a categorical variable with three or more possible values, such as marital status, which is categorical and has the possible values of married, widowed, divorced, and never married.)

The procedure for implementing univariate and multivariable imputations can be summarized with the following six steps. Steps 2 through 5, and sometimes Step 6, were cycled through each of the variables in the order determined by Step 1. Steps 4 and 5 (Steps 4 through 6, when applicable) could be considered a variant of a random nearest neighbor hot deck.

Step 1: Hierarchy definition. Determine the order in which variables are modeled, so that variables early in the hierarchy may be used for modeling the conditional predictive mean (i.e., variables early in the hierarchy have the potential to be part of the set of covariates for variables later in the hierarchy).

For each variable:

Step 2: Setup for model building and hot-deck assignment. For each model that is fitted, two groups must be created: complete and incomplete data respondents (item respondents and item

nonrespondents). Complete data respondents have complete data across the variables of interest, and incomplete data respondents encompass the remainder of respondents.

Step 3: Sequential hierarchical modeling. The model is built using the complete data for respondents only, with weights adjusted for item nonresponse.

Step 4: Computation of predictive means and delta neighborhoods. The predictive means for item respondents and item nonrespondents are calculated using the model coefficients. Then those item respondents whose predictive means are determined to be "close" (based on a distance function taking values within delta) to the item nonrespondents are considered part of the "delta" neighborhood.

Step 5: Assignment of imputed values using a univariate predictive mean. Using a simple random draw from the neighborhood developed in Step 4, a donor is chosen for each item nonrespondent.

If the variables for which Steps 2 through 5 have been completed are part of a complete multivariate set for which multivariate imputation is to be applied, Step 6 is the next step in the process. If the variables for which Steps 2 through 5 are completed are not part of a complete multivariate set, and other variables are still to be imputed, Step 2 is the next step. Otherwise, the process is finished.

Step 6: Determination of multivariate predictive mean neighborhood and assignment of imputed values. With multivariate imputation, the neighborhood is defined based on a vector of predictive means, rather than from a single predictive mean as in the univariate case.

The PMN methodology addresses all of the shortcomings of the unweighted sequential hot-deck method and was widely used for the imputation of a variety of variables in NSDUH, including both continuous and categorical variables with one or more levels. The models were fit using standard modeling procedures in SAS and SUDAAN[®], while SAS macros were used to implement the hot-deck step, including the restrictions on the neighborhoods. Although creating a different neighborhood for each item nonrespondent was computationally intensive, the method was implemented successfully. For more details on PMN, see Frechtel and Laufenberg (2012).

Appendix D: Generalized Exponential Model Summary

Appendix D: Generalized Exponential Model Summary

This appendix summarizes each model group throughout all stages of modeling the weight calibrations. Unlike much of the other information presented in this report, this appendix provides a model-specific overview of weight calibration, as opposed to a State- or domain-specific one.

The modeling for the 2010 National Survey on Drug Use and Health (NSDUH) involved taking nine generalized exponential model (GEM) groups through five adjustment steps: (1) dwelling unit (DU)-level nonresponse adjustment, (2) DU-level poststratification, (3) selected person-level poststratification, (4) person-level nonresponse adjustment, and (5) respondent person-level poststratification. The sampling weights after DU-level poststratification for this year were reasonably distributed and did not require the additional treatment of the extreme weight adjustment step at the DU level. Because the adaptive fitting strategy for choosing bounds introduced this year does not require the bounds to be as tight as possible (see Section 4.5), an extreme weight adjustment step was performed after respondent person-level poststratification to further control the extreme weight. See [Table D](#) for a summary of the distributions of each of the weight components at the national level.

Model-specific summary statistics are shown in [Tables D.1a](#) and [D.1b](#) to [D.9a](#) and [D.9b](#). Included in these tables, for each stage of modeling, are the following: the number of effects that were controlled directly; the high, low, and nonextreme weight bounds set to provide the upper and lower limits for GEM; weighted, unweighted, and winsorized weight proportions; the unequal weighting effect (UWE); and weight distributions. The UWE provides an approximate measure of variance and establishes how much impact a particular stage of modeling has on the distribution of the new product of weights. For more details on bounds, see Section 4.2. At each stage in the modeling, these summary statistics were calculated and used to evaluate the model that was constructed and its corresponding product of weights.

Such circumstances as small sample sizes and exact linear combinations (i.e., singularities) in the realized data led to situations where finalizing models with the originally proposed set of covariates was not possible. The text and exhibits in Sections D.1 to D.9 summarize the decisions made regarding final covariates that were included in each model. For a list of the proposed initial covariates considered at each stage of modeling, see [Exhibit D.1](#), and for the list of realized final model covariates, see [Exhibits D1.1](#) through [D9.5](#). The following sections establish a series of guidelines to assist in the interpretation of the covariates.

Table D Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (United States)

	<i>sel.sdu.des</i> ¹	<i>res.sdu.nr</i> ¹		<i>res.sdu.ps</i> ¹		<i>sel.per.des</i> ¹		<i>sel.per.ps</i> ¹		<i>res.per.nr</i> ¹		<i>res.per.ps</i> ¹	
	1-7 ²	8 ³	1-8 ³	9 ⁴	1-9 ⁴	11 ⁵	1-11 ⁵	12 ⁵	1-12 ⁵	13 ⁶	1-13 ⁶	14 ⁶	1-14 ⁶
Minimum	17	0.25	45	0.10	11	1.01	15	0.08	5	0.24	5	0.06	2
1%	52	0.99	58	0.42	64	1.01	104	0.37	83	0.98	91	0.20	56
5%	98	1.00	111	0.77	112	1.01	205	0.65	186	1.00	207	0.31	172
10%	152	1.02	165	0.88	173	1.01	332	0.75	321	1.02	351	0.77	299
25%	390	1.06	428	0.99	438	1.13	698	0.88	679	1.09	761	0.97	721
Median	553	1.10	642	1.08	694	1.44	1,333	0.99	1,320	1.20	1,504	1.02	1,488
75%	860	1.17	974	1.19	1,053	5.36	3,466	1.11	3,446	1.34	4,000	1.08	3,973
90%	1,234	1.29	1,395	1.34	1,508	11.07	7,644	1.27	7,696	1.54	9,840	1.23	9,896
95%	1,417	1.39	1,639	1.49	1,810	12.64	11,260	1.42	11,427	1.72	14,820	1.40	14,787
99%	1,936	1.70	2,152	2.00	2,586	14.72	20,120	1.95	21,020	2.47	29,179	1.91	29,925
Maximum	11,011	11.80	7,481	5.00	8,508	31.12	82,330	14.05	75,889	14.47	126,552	31.61	142,265
n	166,532	147,010	147,010	146,999	146,999	84,997	84,997	84,997	84,997	67,804	67,804	67,804	67,804
Max/Mean	17.03	-	10.22	-	10.67	-	27.75	-	25.43	-	34.00	-	38.22

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.

Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.

Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 because of the built-in control for extreme values. For an explanation, see Chapter 2.

¹ Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, Exhibit 5.1.

² Based on eligible dwelling units.

³ Based on screener-complete dwelling units.

⁴ Based on screener-complete dwelling units, occupants verified eligible.

⁵ Based on selected persons.

⁶ Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010 (Revised March 2012).

D.1 Final Model Explanatory Variables

For brevity, numeric abbreviations for variable levels are established in [Exhibit 3.1](#) in Chapter 3 (included here as [Exhibit D.1](#) for easy reference). There, a complete list is provided of all variables and associated levels used at any stage of modeling. In this report, each level of a variable is referred to as a covariate. Note that (1) not all variables or levels are present in all stages of modeling; (2) the initial set of covariates, allowing for differences in States across model groups, is the same for all model groups within a stage of modeling; and (3) the initial set of covariates changes across the stages of modeling. [Exhibits D.2](#) through [D.5](#) provide the initial covariates for the stages of modeling, and [Exhibits D1.1](#) through [D9.5](#) provide lists of both the proposed and the final covariates for the nine model groups. This last group of exhibits is grouped by model groups and contains one exhibit for each stage of weight adjustment. The initial variables are found in the "Proposed" column, and the realized covariates are found in the "Final" column.

Section D.3 explains how to create cross-classification tables, which help to illustrate what covariates are controlled for at each stage of the modeling. The general pattern is as follows: directions to follow, semicolon, reason for the change. Sections D.2 and D.3 explain how to use various exhibits for selected model variables to construct these tables. For greater detail on why variable levels are collapsed or dropped, see Section 4.7.

Exhibit D.1 Definition of Levels for Variables

Age (years)

1: 12-17, 2: 18-25, 3: 26-34, 4: 35-49, 5: 50+^{1,4}

Gender

1: Male, 2: Female¹

Group Quarters Indicator

1: College Dorm, 2: Other Group Quarter, 3: Non-Group Quarter¹

Hispanicity

1: Hispanic or Latino, 2: Non-Hispanic or Latino¹

Percentage of Owner-Occupied Dwelling Units in Segment (% Owner-Occupied)

1: 50% - 100%,¹ 2: 10% - > 50%, 3: 0 - >10%

Percentage of Segments That Are Black or African American

1: 50% - 100%, 2: 10% - >50%, 3: 0 - >10%¹

Percentage of Segments That Are Hispanic or Latino

1: 50% - 100%, 2: 10% - >50%, 3: 0 - >10%¹

Population Density

1: MSA 1,000,000 or More, 2: MSA Less than 1,000,000, 3: Non-MSA Urban, 4: Non-MSA Rural¹

Quarter

1: Quarter 1, 2: Quarter 2, 3: Quarter 3, 4: Quarter 4¹

Race (3 levels)

1: White,¹ 2: Black or African American, 3: Other

Race (5 levels)

1: White,¹ 2: Black or African American, 3: American Indian or Alaska Native, 4: Asian, 5: Two or More Races

Relation to Householder

1: Householder or Spouse,¹ 2: Child, 3: Other Relative, 4: Nonrelative

Segment-Combined Median Rent and Housing Value (Rent/Housing)²

1: First Quintile, 2: Second Quintile, 3: Third Quintile, 4: Fourth Quintile, 5: Fifth Quintile¹

States³

Model Group 1: 1: Connecticut, 2: Maine, 3: New Hampshire, 4: Rhode Island, 5: Vermont, 6: Massachusetts¹

Model Group 2: 1: New Jersey,¹ 2: New York, 3: Pennsylvania

Model Group 3: 1: Illinois, 2: Indiana,¹ 3: Michigan, 4: Wisconsin, 5: Ohio

Model Group 4: 1: Iowa, 2: Kansas, 3: Minnesota, 4: Missouri,¹ 5: Nebraska, 6: South Dakota, 7: North Dakota

Model Group 5: 1: Delaware, 2: District of Columbia, 3: Georgia,¹ 4: Maryland, 5: North Carolina, 6: South Carolina, 7: Virginia, 8: West Virginia, 9: Florida

Model Group 6: 1: Alabama, 2: Kentucky, 3: Mississippi, 4: Tennessee¹

Model Group 7: 1: Arkansas,¹ 2: Louisiana, 3: Oklahoma, 4: Texas

Model Group 8: 1: Colorado, 2: Idaho, 3: Montana, 4: Nevada, 5: New Mexico, 6: Utah, 7: Wyoming, 8: Arizona¹

Model Group 9: 1: Alaska, 2: Hawaii, 3: Oregon, 4: Washington,¹ 5: California

MSA = metropolitan statistical area.

¹ The reference level for this variable. This is the level against which effects of other factor levels are measured.

² Segment-Combined Median Rent and Housing Value (also known as the Socioeconomic Status [SES] indicator) is a composite measure based on rent, housing value, and percent owner occupied.

³ The States or district assigned to a particular model are based on census divisions.

⁴ The age group 50+ was further broken down into 50-64 and 65+ for Person-Level Poststratification Adjustment and Person-Level Extreme Weight Adjustment.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

D.2 Glossary of Terms Used in the Exhibits and Descriptions of the Variables in the Final Model

This glossary provides a list of general terms. Certain other specific terms are sometimes used within a particular section.

All levels present. All levels of the variable under consideration were included in the final model.

Coll. Collapse (levels). These levels of the factor effect were collapsed together. Levels that have been collapsed together no longer appear in the model as separate variables, but rather manifest themselves jointly in the model.

Conv. If model is not convergent, dropping or collapsing of variables is performed.

Drop all levels. All levels of a factor effect were completely removed from the model, as well as any combinations involving this factor.

Drop level(s). These levels of a factor effect were collapsed into the reference set. The dropped levels manifest themselves jointly with the appropriate reference levels.

Drop level(s); singularity/zero sample. During the modeling process, the levels of factor effect(s) listed were removed from the model because of either singularities or sample sizes of zero.

Drop or collapse using *. The asterisk is used as a wildcard character to indicate all levels of that factor effect.

Factor effects. Another name for covariates, or variables, such as "Age." In addition to one-factor effects, two-, and three-factor effects also are referenced, such as "Age × Race" and "Age × Race × Gender."

Hier. Factor effects collapsed/dropped at lower order and the hierarchical effect carries up. This indicates that one or more levels of factor effects were collapsed/dropped in an earlier stage, and that the same action (collapse/drop) was performed on the corresponding levels in all higher-order factor effects containing the dropped/collapsed levels.

Keep level(s). These levels of the factor effect were kept in the model and the remainder into the reference set.

Reference/reference set. The reference levels of factor effects (see [Exhibit D.1](#)) are not explicitly listed in the set of model variables, but are represented implicitly in the model in the intercept term. These include one-, two-, and three-factor effects.

Repeat or Do the same for (effects). The previous action was repeated for all effect levels listed.

Sing. Singularity is the linear dependence of columns of realized values of the predictors in the model. Any variable that is a linear combination of other variables is either dropped from the model or collapsed with other variables.

D.3 How to Interpret Collapsing and Dropping of Factor Effects

To help visualize what effects were directly controlled for in the model, a table that reflects the collapsing scheme employed can be constructed. The following is a complex example from the 2004 modeling, which demonstrates how to use the information found in Exhibits D1.1 through D9.5.

1. Consider the following entry for the factor effect of State × Age × Race (3 levels), for Model Group 9, for the Person-Level Nonresponse Adjustment.

Three-Factor Effects	Comments
State × Age × Race (3 Levels)	Coll. (2,1,2) & (2,1,3); hier. Repeat for all levels of age in State (2); hier. Coll. (1,4,2) & (1,4,3); conv. Drop (3,4,2); sing. Drop (3,*,*); conv. Coll. (5,1,2) & (5,1,3); conv. Repeat for all levels of age in State (5).

2. Determine the initial range of possible levels for the variables by referring to the variable definitions shown in Exhibit D.1:

State (for the model group in question, in this case, Model Group 9)

Model Group 9: 1: Alaska, 2: Hawaii, 3: Oregon, 4: Washington,¹ 5: California

Age (years)

1: 12-17, 2: 18-25, 3: 26-34, 4: 35-49, 5: 50+¹

Race (3 levels)

1: White,¹ 2: Black or African American, 3: Other

3. Construct the cross-classification table.

For example, Race (5 levels) is defined this way:

Race (5 Levels)	White	Black or African American	Asian	American Indian or Alaska Native	Two or More Races
------------------------	--------------	----------------------------------	--------------	-----------------------------------------	--------------------------

Shading indicates the reference-level set.

¹ This is the reference level for this variable. This is the level against which effects of other factor levels are measured.

This is the cross-classification table for State × Race (5 levels):

State × Race (5 levels)	White	Black or African American	Asian	American Indian or Alaska Native	Two or More Races
AK					
HI					
OR					
WA					
CA					

Shading indicates the reference-level set.

The cross-classification table of interest [State × Age × Race (3 levels)] is as follows:

State × Age × Race (3 Levels)	White	Black or African American	Other
AK × 12-17			
18-25			
26-34			
35-49			
50+			
HI × 12-17			
18-25			
26-34			
35-49			
50+			
OR × 12-17			
18-25			
26-34			
35-49			
50+			
WA × 12-17			
18-25			
26-34			
35-49			
50+			
CA × 12-17			
18-25			
26-34			
35-49			
50+			

Shading indicates the reference-level set.

The number of respondents in that class at this stage of modeling would appear within each cell of the table. Construction of the other cross-classification tables follows the same logic and is only necessary to the point of providing an understanding of the final table.

4. Use the information under the "Final" column definition to determine the combination of factors controlled.

Hier. This means the factor effect was collapsed at a lower order. Because this note is present, examine the information on lower-order factor effects that are the components of the interaction term, State \times Race (3 levels) \times Age; that is, look at the one-factor and two-factor effects for State, Race (5 levels), and Age, and their accompanying information:

One-Factor Effects	Comments
State	All levels present.
Race (5 Levels)	All levels present.
Age	All levels present.
Two-Factor Effects	Comments
State \times Age	All levels present.
State \times Race (5 Levels)	Coll. (1,3) & (1,4). Do the same for all other States except (2). Coll. (2,2), (2,3), & (2,4).
Age \times Race (3 Levels)	All levels present.

Following these directions, the resulting two-factor table is:

State \times Race (5 Levels)	White	Black or African American	Asian	American Indian or Alaska Native	Two or More Races
AK					
HI					
OR					
WA					
CA					

Shading indicates the reference-level set.

Continuing on to the three-factor level for the same example:

Three-Factor Effects	Comments
State \times Age \times Race (3 Levels)	Coll. (2,1,2) & (2,1,3); hier. Repeat for all levels of age in State (2); hier. Coll. (1,4,2) & (1,4,3); conv. Drop (3,4,2); sing. Drop (3,*,*); conv. Coll. (5,1,2) & (5,1,3); conv. Repeat for all levels of age in State (5).

The reason for the note "Hier." in the three-factor effects is that collapsing was done on the two-factor interaction term State \times Race (5 levels). Because collapsing was done on this term, all three-factor crosses involving State \times Race must maintain this same collapsing scheme.

After following the directions, the cross-classification table should appear as follows:

State \times Age \times Race (3 Levels)	White	Black or African American	Other	
AK \times 12-17				
18-25				
26-34				
35-49				
50+				
HI \times 12-17				
18-25				
26-34				
35-49				
50+				
OR \times 12-17				
18-25				
26-34				
35-49				
50+				
WA \times 12-17				
18-25				
26-34				
35-49				
50+				
CA \times 12-17				
18-25				
26-34				
35-49				
50+				

Shading indicates the reference-level set.

The unshaded cells represent the factors directly controlled for by the model (i.e., those factors that were not collapsed or dropped). The shaded cells represent the composite reference set, whose values may be obtained by utilizing the marginal sums, although when changes to the initially proposed set occur, it can make certain reference cell counts indistinguishable.

Exhibit D.2 Covariates for 2010 NSDUH Person Weights (res.sdu.nr)

Variables	Levels	Proposed
One-Factor Effects		
Intercept	1	1
State	Model Specific	
Quarter	4	3
Population Density	4	3
Group Quarter	3	2
% Black or African American	3	2
% Hispanic or Latino	3	2
% Owner-Occupied	3	2
Rent/Housing	5	4
Two-Factor Effects		
% Owner-Occupied × % Black or African American	3 × 3	4
% Owner-Occupied × % Hispanic or Latino	3 × 3	4
% Owner-Occupied × Rent/Housing	3 × 5	8
Rent/Housing × % Black of African American	3 × 5	8
Rent/Housing × % Hispanic or Latino	3 × 5	8
State × Quarter	Model Specific	
State × Population Density	Model Specific	
State × Group Quarter	Model Specific	
State × % Black or African American	Model Specific	
State × % Hispanic or Latino	Model Specific	
State × % Owner-Occupied	Model Specific	
State × Rent/Housing	Model Specific	
Three-Factor Effects		
State × % Owner-Occupied × % Black or African American	Model Specific	
State × % Owner-Occupied × % Hispanic or Latino	Model Specific	
State × % Owner-Occupied × Rent/Housing	Model Specific	
State × Rent/Housing × % Black or African American	Model Specific	
State × Rent/Housing × % Hispanic or Latino	Model Specific	

Exhibit D.3 Covariates for 2010 NSDUH Person Weights (res.sdu.ps)

Variables	Levels	Proposed
One-Factor Effects		
Intercept	1	1
State	Model Specific	
Quarter	4	3
Age	5	4
Race (5 levels)	5	4
Gender	2	1
Hispanicity	2	1
Two-Factor Effects		
Age × Race (3 levels)	5 × 3	8
Age × Hispanicity	5 × 2	4
Age × Gender	5 × 2	4
Race (3 levels) × Hispanicity	3 × 2	2
Race (3 levels) × Gender	3 × 2	2
Hispanicity × Gender	3 × 2	1
State × Quarter	Model Specific	
State × Age	Model Specific	
State × Race (5 levels)	Model Specific	
State × Hispanicity	Model Specific	
State × Gender	Model Specific	
Three-Factor Effects		
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8
Age × Race (3 levels) × Gender	5 × 3 × 2	8
Age × Hispanicity × Gender	5 × 2 × 2	4
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2
State × Age × Race (3 levels)	Model Specific	
State × Age × Hispanicity	Model Specific	
State × Age × Gender	Model Specific	
State × Race (3 levels) × Hispanicity	Model Specific	
State × Race (3 levels) × Gender	Model Specific	
State × Hispanicity × Gender	Model Specific	

Exhibit D.4 Covariates for 2010 NSDUH Person Weights (sel.per.ps and res.per.nr)

Variables	Levels	Proposed
One-Factor Effects		
Intercept	1	1
State	Model Specific	
Quarter	4	3
Age	5	4
Race (5 levels)	5	4
Gender	2	1
Hispanicity	2	1
Relation to Householder	4	3
Population Density	4	3
Group Quarter	3	2
% Black or African American	3	2
% Hispanic or Latino	3	2
% Owner-Occupied	2	2
Rent/Housing	5	4
Two-Factor Effects		
Age × Race (3 levels)	5 × 3	8
Age × Hispanicity	5 × 2	4
Age × Gender	5 × 2	4
Race (3 levels) × Hispanicity	3 × 2	2
Race (3 levels) × Gender	3 × 2	2
Hispanicity × Gender	2 × 2	1
% Owner-Occupied × % Black or African American	3 × 3	4
% Owner-Occupied × % Hispanicity	3 × 3	4
% Owner-Occupied × Rent/Housing	3 × 5	8
Rent/Housing × % Black or African American	3 × 5	8
Rent/Housing × % Hispanic or Latino	3 × 5	8
State × Quarter	Model Specific	
State × Age	Model Specific	
State × Race (5 levels)	Model Specific	
State × Hispanicity	Model Specific	
State × Gender	Model Specific	
State × % Black or African American	Model Specific	
State × % Hispanic or Latino	Model Specific	
State × % Owner-Occupied	Model Specific	
State × Rent/Housing	Model Specific	
Three-Factor Effects		
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8
Age × Race (3 levels) × Gender	5 × 3 × 2	8
Age × Hispanicity × Gender	5 × 2 × 2	4
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2
State × Age × Race (3 levels)	Model Specific	
State × Age × Hispanicity	Model Specific	
State × Age × Gender	Model Specific	
State × Race (3 levels) × Hispanicity	Model Specific	
State × Race (3 levels) × Gender	Model Specific	
State × Hispanicity × Gender	Model Specific	

Exhibit D.5 Covariates for 2010 NSDUH Person Weights (res.per.ps and res.per.ev)

Variables	Levels	Proposed
One-Factor Effects		
Intercept	1	1
State	Model Specific	
Quarter	4	3
Age	5	5
Race (5 levels)	5	4
Gender	2	1
Hispanicity	2	1
Two-Factor Effects		
Age × Race (3 levels)	6 × 3	10
Age × Hispanicity	6 × 2	5
Age × Gender	6 × 2	5
Race (3 levels) × Hispanicity	3 × 2	2
Race (3 levels) × Gender	3 × 2	2
Hispanicity × Gender	2 × 2	1
State × Quarter	Model Specific	
State × Age	Model Specific	
State × Race (5 levels)	Model Specific	
State × Hispanicity	Model Specific	
State × Gender	Model Specific	
Three-Factor Effects		
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10
Age × Race (3 levels) × Gender	6 × 3 × 2	10
Age × Hispanicity × Gender	6 × 2 × 2	5
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2
State × Age × Race (3 levels)	Model Specific	
State × Age × Hispanicity	Model Specific	
State × Age × Gender	Model Specific	
State × Race (3 levels) × Hispanicity	Model Specific	
State × Race (3 levels) × Gender	Model Specific	
State × Hispanicity × Gender	Model Specific	

Appendix D1: Model Group 1: New England
(Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont)

Table D.1a 2010 NSDUH Person Weight GEM Modeling Summary (Model Group 1: New England)

Modeling Step ¹	Extreme Weight Proportions			UWE ²	# XVAR ³	Bounds ⁴	
	% Unweighted	% Weighted	% Outwisor			Nominal	Realized
<i>res.sdu.nr</i>	5.12	7.16	1.00	1.69707	306	(1.06, 1.60)	(1.06, 1.60)
	1.52	3.41	0.41	1.71967	127	(1.00, 4.39)	(1.00, 4.25)
						(1.10, 1.17)	(1.10, 1.16)
<i>res.sdu.ps</i>	1.52	3.41	0.41	1.71967	232	(0.22, 1.30)	(0.22, 1.30)
	3.70	4.43	1.00	1.79623	226	(0.20, 5.00)	(0.20, 5.00)
						(0.90, 2.14)	(0.90, 2.14)
<i>sel.per.ps</i>	4.66	6.89	2.06	4.24362	332	(0.21, 2.60)	(0.22, 2.60)
	1.70	3.73	0.97	4.05202	277	(0.23, 4.95)	(0.24, 4.94)
						(0.30, 3.94)	(0.30, 3.82)
<i>res.per.nr</i>	1.68	3.87	1.01	4.17160	332	(1.00, 2.83)	(1.00, 2.81)
	1.40	4.38	1.18	4.58041	221	(1.00, 5.00)	(1.00, 5.00)
						(1.20, 1.30)	(1.20, 1.20)
<i>res.per.ps</i>	1.51	4.88	1.33	4.58041	267	(0.20, 1.90)	(0.20, 1.90)
	1.11	3.34	0.63	4.58133	167	(0.20, 5.00)	(0.20, 3.86)
						(0.90, 5.00)	(0.90, 1.02)

¹ For a key to modeling abbreviations, see Chapter 5, [Exhibit 5.1](#).

² Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n] * CV^2$, where CV = coefficient of variation of weights.

³ Number of proposed covariates (XVAR) on top line and number finalized after modeling.

⁴ There are six sets of bounds for each modeling step. Nominal bounds are used in defining maximum/minimum values for the generalized exponential model (GEM) adjustment factors. The realized bound is the actual adjustment produced by the modeling. The set of three bounds listed for each step correspond to the high extreme values, the nonextreme values, and the low extreme values.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table D.1b Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (Model Group 1: New England)

	<i>sel.sdu.des</i> ¹	<i>res.sdu.nr</i> ¹		<i>res.sdu.ps</i> ¹		<i>sel.per.des</i> ¹		<i>sel.per.ps</i> ¹		<i>res.per.nr</i> ¹		<i>res.per.ps</i> ¹	
	1-7 ²	8 ³	1-8 ³	9 ⁴	1-9 ⁴	11 ⁵	1-11 ⁵	12 ⁵	1-12 ⁵	13 ⁶	1-13 ⁶	14 ⁶	1-14 ⁶
Minimum	17	0.57	93	0.20	23	1.01	30	0.12	14	0.33	14	0.10	4
1%	95	1.00	100	0.31	66	1.01	86	0.29	51	0.94	50	0.20	30
5%	117	1.03	124	0.72	115	1.01	141	0.52	123	1.00	141	0.42	107
10%	120	1.05	136	0.88	134	1.01	189	0.64	166	1.02	188	0.86	174
25%	179	1.08	198	0.98	207	1.07	287	0.80	281	1.09	318	0.98	315
Median	211	1.12	233	1.06	254	1.27	737	0.97	682	1.17	743	1.03	721
75%	586	1.17	703	1.15	709	5.56	1,708	1.16	1,760	1.30	2,047	1.07	2,080
90%	887	1.25	1,051	1.30	1,108	11.78	4,164	1.41	4,352	1.49	5,536	1.15	5,438
95%	1,002	1.32	1,133	1.43	1,244	14.12	7,981	1.64	8,077	1.68	9,894	1.32	10,466
99%	1,022	1.48	1,395	1.96	1,642	15.68	17,270	2.79	16,214	2.60	21,213	1.99	21,107
Maximum	1,880	9.01	2,132	5.00	5,634	20.66	72,379	7.98	30,035	5.00	57,946	3.86	56,578
n	14,087	12,410	12,410	12,410	12,410	6,711	6,711	6,711	6,711	5,483	5,483	5,483	5,483
Max/Mean	4.83	-	4.82	-	12.06	-	39.75	-	16.46	-	25.94	-	25.33

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.

Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.

Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 because of the built-in control for extreme values. For an explanation, see Chapter 2.

¹ Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, Exhibit 5.1.

² Based on eligible dwelling units.

³ Based on screener-complete dwelling units.

⁴ Based on screener-complete dwelling units, occupants verified eligible.

⁵ Based on selected persons.

⁶ Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Model Group 1 Overview

Dwelling Unit Nonresponse

Twenty-two of the proposed 24 one-factor effects were included in the model. Variable dropping was present in the Group Quarter main effect.

For the two-factor effects, variable collapsing or dropping was present in all factors except the percent Owner-occupied \times Rent/housing and State \times Quarters interactions. Out of 122 proposed variables, 79 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 160 proposed variables, 26 were included in the model.

In the final model, a total of 127 variables were included; see [Exhibit D1.1](#).

Dwelling Unit Poststratification

All 19 proposed one-factor effects were included in the model.

All of the 86 proposed two-factor effects were included in the model.

For the three-factor effects, variable collapsing or dropping was present in the Age \times Race \times Hispanicity, State \times Age \times Race, and State \times Race \times Hispanicity interactions. Out of 127 proposed variables, 121 were included in the model.

In the final model, a total of 226 variables were included; see [Exhibit D1.2](#).

Selected Person-Level Poststratification

All 37 proposed one-factor effects were included in the model.

For the two-factor effects, variable collapsing or dropping was present in the percent Owner-occupied \times percent Hispanic or Latino, Rent/housing \times percent Black or African American, Rent/housing \times percent Hispanic or Latino, State \times Race, State \times percent Black or African American, and State \times percent Hispanic or Latino interactions. Out of 168 proposed variables, 147 were included in the model.

For the three-factor effects, variable collapsing or dropping was present in all factors except the Age \times Race \times Gender and Age \times Hispanicity \times Gender interactions. Out of 127 proposed variables, 93 were included in the model.

In the final model, a total of 277 variables were included; see [Exhibit D1.3](#).

Respondent Person-Level Nonresponse

All 37 proposed one-factor effects were included in the model.

For the two-factor effects, variable collapsing or dropping was present in the percent Owner-occupied \times percent Hispanic or Latino, Rent/housing \times percent Black or African American, Rent/housing \times percent Hispanic or Latino, State \times Race, State \times percent Black or African American, State \times percent Hispanic or Latino, State \times percent Owner-occupied, and State \times Rent/housing interactions. Out of 168 proposed variables, 135 were included in the model.

For the three-factor effects, variable dropping was present in all three-way interactions except Age \times Hispanicity \times Gender and State \times Age \times Gender. Out of 127 proposed variables, 49 were included in the model.

In the final model, a total of 221 variables were included; see [Exhibit D1.4](#).

Respondent Person-Level Poststratification

All 20 proposed one-factor effects were included in the model.

For the two-factor effects, variable collapsing was present in the State \times Race interactions. Out of 95 proposed variables, 86 were included in the model.

For the three-factor effects, variable collapsing or dropping was present in all interactions except the Age \times Hispanicity \times Gender and State \times Age \times Gender interactions. Out of 152 proposed variables, 61 were included in the model.

In the final model, a total of 167 variables were included; see [Exhibit D1.5](#).

Exhibit D1.1 Covariates for 2010 NSDUH Person Weights (res.sdu.nr), Model Group 1: New England

Variables	Level	Proposed	Final	Comments
One-Factor Effects				
Intercept	1	1	1	All levels present.
State	6	5	5	All levels present.
Quarter	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	0	Drop all; conv.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects				
% Owner-Occupied × % Black or African American	3 × 3	4	3	Coll. (3,1) & (3,2); conv.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	3	Drop (2,1); sing.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	6	Drop (2,1), (3,1); zero, sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	7	Drop (4,1); sing.
State × Quarter	6 × 4	15	15	All levels present.
State × Population Density	6 × 4	15	6	Drop (1,2), (1,3), (2,1), (3,1), (4,*), (5,1), (5,3); sing., zero.
State × Group Quarter	6 × 3	10	0	Drop all; hier.
State × % Black or African American	6 × 3	10	3	Keep (1,1), (1,2), (4,2). Drop others; sing., zero, conv.
State × % Hispanic or Latino	6 × 3	10	4	Keep (1,1/2), (3,2), (4,1), (4,2). Drop others; sing., zero, conv.
State × % Owner-Occupied	6 × 3	10	6	Coll. (1,2) & (1,3). Repeat for States ME, RI, VT; sing., conv.
State × Rent/Housing	6 × 5	20	18	Coll. (1,1) & (1,2), (4,1) & (4,2); conv.
Three-Factor Effects				
State × % Owner-Occupied × % Black or African American	6 × 3 × 3	20	1	Keep (1,2/3,1/2), drop others; hier., sing., zero, conv.
State × % Owner-Occupied × % Hispanic or Latino	6 × 3 × 3	20	2	Keep (1,2/3,1/2), (4,2/3,1/2). Drop others; hier., sing., zero, conv.
State × % Owner-Occupied × Rent/Housing	6 × 3 × 5	40	17	Keep (1,2/3,1/2), (1,2/3,3), (1,2/3,4). Repeat for State RI. Keep (2,2/3,1), (2,2/3,2), (2,3/3,3), (3,2,1), (3,2,2), (3,2,3), (3,2/3,4), (5,2/3,*). Drop others; hier., sing., zero, conv.
State × Rent/Housing × % Black or African American	6 × 3 × 5	40	3	Keep (1,1/2,2), (1,3,2), (1,4,2). Drop others; hier., sing., zero, conv.
State × Rent/Housing × % Hispanic or Latino	6 × 3 × 5	40	3	Keep (1,3,1/2), (1,4,1/2), (3,3,2). Drop others; hier., sing., zero, conv.
Total		306	127	

Exhibit D1.2 Covariates for 2010 NSDUH Person Weights (res.sdu.ps), Model Group 1: New England

Variables	Level	Proposed	Final	Comments
One-Factor Effects				
Intercept	1	19	19	All levels present.
State	6	5	5	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects				
Age × Race (3 levels)	5 × 3	86	86	All levels present.
Age × Hispanicity	5 × 2	8	8	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	4	4	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	2	2	All levels present.
State × Quarter	6 × 4	1	1	All levels present.
State × Age	6 × 5	15	15	All levels present.
State × Race (5 levels)	6 × 5	20	20	All levels present.
State × Hispanicity	6 × 2	20	20	All levels present.
State × Gender	6 × 2	5	5	All levels present.
State × Gender	6 × 2	5	5	All levels present.
Three-Factor Effects				
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	127	121	Coll. (4,2,1) & (4,3,1); conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	8	8	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	4	4	All levels present.
State × Age × Race (3 levels)	3 × 2 × 2	2	2	All levels present.
State × Age × Hispanicity	6 × 5 × 3	40	36	Coll. (2,*,2) & (2,*,3); conv.
State × Age × Gender	6 × 5 × 2	20	20	All levels present.
State × Race (3 levels) × Hispanicity	6 × 5 × 2	20	20	All levels present.
State × Race (3 levels) × Gender	6 × 3 × 2	10	9	Coll. (2,2,1) & (2,3,1); conv.
State × Race (3 levels) × Gender	6 × 3 × 2	10	10	All levels present.
State × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Total		232	226	

Exhibit D1.3 Covariates for 2010 NSDUH Person Weights (sel.per.ps), Model Group 1: New England

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		37	37	
Intercept	1	1	1	All levels present.
State	6	5	5	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		168	147	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	3	Coll. (2,1) & (2,2); sing.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	6	Coll. (3,1) & (3,2); sing. Drop (2,1), zero.
Rent/Housing × % Hispanic or Latino	3 × 5	8	7	Coll. (4,1) & (4,2); sing.
State × Quarter	6 × 4	15	15	All levels present.
State × Age	6 × 5	20	20	All levels present.
State × Race (5 levels)	6 × 5	20	15	Coll. (1,3) & (1,4); conv. Repeat for all States.
State × Hispanicity	6 × 2	5	5	All levels present.
State × Gender	6 × 2	5	5	All levels present.
State × % Black or African American	6 × 3	10	3	Keep (1,1), (1,2), coll. (4,1) & (4,2). Drop all others; zero.
State × % Hispanic or Latino	6 × 3	10	5	Drop (2/5,1), (2,5,2); zero. Coll. (3,1) & (3,2); zero.
State × % Owner-Occupied	6 × 3	10	10	All levels present.
State × Rent/Housing	6 × 5	20	20	All levels present.
Three-Factor Effects		127	93	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	0	Drop all; conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,11) & (3,11); conv.
State × Age × Race (3 levels)	6 × 5 × 3	40	27	Coll. (2,1,2) & (2,1,3). Repeat for all ages; conv. Coll. (3,1,2) & (3,1,3). Repeat for all ages; conv.
State × Age × Hispanicity	6 × 5 × 2	20	14	Coll. (5,4,2) & (5,4,3); sing. Drop (2,1,1). Repeat for all ages; zero, conv.
State × Age × Gender	6 × 5 × 2	20	20	Drop (3,3,1), (3,4,1); zero, sing. All levels present.
State × Race (3 levels) × Hispanicity	6 × 3 × 2	10	6	Coll. (2,2,1) & (2,3,1), then drop; conv. Coll. (3,2,1) & (3,3,1), (5,2,1) & (5,3,1); conv.
State × Race (3 levels) × Gender	6 × 3 × 2	10	9	Coll. (2,2,1) and (2,3,1); conv.
State × Hispanicity × Gender	6 × 2 × 2	5	4	Drop (2,1,1).
Total		332	277	

Exhibit D1.4 Covariates for 2010 NSDUH Person Weights (res.per.nr), Model Group 1: New England

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		37	37	
Intercept	1	1	1	All levels present.
State	6	5	5	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		168	135	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	3	Drop (2,1); sing.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	6	Drop (2,1) & (3,1); sing, zero.
Rent/Housing × % Hispanic or Latino	3 × 5	8	7	Drop (4,1); sing.
State × Quarter	6 × 4	15	15	All levels present.
State × Age	6 × 5	20	20	All levels present.
State × Race (5 levels)	6 × 5	20	12	Coll. (1,3) & (1,4) & (1,5); conv. Repeat for States ME and RI. Coll. (3,3) & (3,4); conv. Repeat for State VT.
State × Hispanicity	6 × 2	5	5	All levels present.
State × Gender	6 × 2	5	5	All levels present.
State × % Black or African American	6 × 3	10	2	Keep (1,1), (1,2), drop all others; zero, conv.
State × % Hispanic or Latino	6 × 3	10	3	Coll. (1,1) & (1,2), conv. Repeat for State RI.
State × % Owner-Occupied	6 × 3	10	5	Keep (3,2), drop all others; zero. Coll. (1,2) & (1,3); conv. Repeat for all States.
State × Rent/Housing	6 × 5	20	19	Coll. (1,1) & (1,2); conv.
Three-Factor Effects		127	49	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	0	Coll. (1,2,1) & (1,3,1). Repeat for ages 2 and 4, then drop; conv. Drop (3,2,1), (3,3,1); zero, conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	3	Coll. (1,2,1) & (1,3,1); conv. Repeat for all ages. Drop (4,2/3,1); conv.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (3,1,1) & (2,1,1); conv.
State × Age × Race (3 levels)	6 × 5 × 3	40	0	Coll. and drop all; zero, sing, conv.
State × Age × Hispanicity	6 × 5 × 2	20	12	Drop (2,1,1). Repeat for all ages and for State NH; zero, conv.
State × Age × Gender	5 × 5 × 2	20	20	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	10	3	Keep (1,2,1) & (1,3,1). Coll. (4,2,1) & (4,3,1); conv. Coll. and drop all others; zero; sing, conv.
State × Race (3 levels) × Gender	5 × 3 × 2	10	2	Coll. (1,3,1) & (1,2,1); conv. Repeat for State RI. Coll. and then drop all others; conv.
State × Hispanicity × Gender	5 × 2 × 2	5	4	Drop (3,1,1); conv.
Total		332	221	

Exhibit D1.5 Covariates for 2010 NSDUH Person Weights (res.per.ps), Model Group 1: New England

Variables	Levels	Proposed	Final	Comments
One-Factor Effects				
Intercept	1	20	20	All levels present.
State	6	5	5	All levels present.
Quarter	4	3	3	All levels present.
Age	6	5	5	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects				
Age × Race (3 levels)	6 × 3	95	86	All levels present.
Age × Hispanicity	6 × 2	10	10	All levels present.
Age × Gender	6 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity	3 × 2	5	5	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	2	2	All levels present.
State × Quarter	2 × 2	1	1	All levels present.
State × Age	6 × 4	15	15	All levels present.
State × Race (5 levels)	6 × 6	25	25	All levels present.
	6 × 5	20	11	Coll. (1,3) & (1,4) & (1,5); conv. Repeat for States ME, NH, and VT. Coll. (4,3) & (4,4); conv.
State × Hispanicity	6 × 2	5	5	All levels present.
State × Gender	6 × 2	5	5	All levels present.
Three-Factor Effects				
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	152	61	Coll. (1,2,1) & (1,3,1); conv., sing. Repeat for all ages. Drop (5,2/3,1); conv.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	4	Coll. (1,2,1) & (1,3,1); conv. Repeat for all ages. Drop (5,2/3,1); conv.
Age × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	6 × 5 × 3	50	0	Coll. (1,1,2) & (1,1,3). Repeat for all States and ages; sing, zero, conv. Drop all; conv.
State × Age × Hispanicity	6 × 6 × 2	25	15	Drop (1,5,1), (2,3/4/5,1), (3,*,1), (5,5,1); sing., zero, conv.
State × Age × Gender	6 × 6 × 2	25	25	All levels present.
State × Race (3 levels) × Hispanicity	6 × 3 × 2	10	0	Coll. (1,2,1) & (1,3,1), repeat for all States; conv. Drop all; conv.
State × Race (3 levels) × Gender	6 × 3 × 2	10	5	Coll. (1,2,1) & (1,3,1); conv, repeat for States ME, NH, and VT. Drop (5,2/3,1); conv.
State × Hispanicity × Gender	6 × 2 × 2	5	2	Keep (1,1,1), (4,1,1), drop all others; conv.
Total		267	167	

Appendix D2: Model Group 2: Middle Atlantic
(New Jersey, New York, and Pennsylvania)

Table D.2a 2010 NSDUH Person Weight GEM Modeling Summary (Model Group 2: Middle Atlantic)

Modeling Step ¹	Extreme Weight Proportions			UWE ²	# XVAR ³	Bounds ⁴	
	% Unweighted	% Weighted	% Outwisor			Nominal	Realized
<i>res.sdu.nr</i>	0.59	0.79	0.05	1.20333	153	(1.00, 1.30)	(1.13, 1.30)
	1.41	1.75	0.23	1.18318	122	(1.00, 5.00)	(1.00, 3.33)
						(1.20, 5.00)	(1.20, 5.00)
<i>res.sdu.ps</i>	1.41	1.75	0.23	1.18320	127	(0.69, 1.40)	(0.70, 1.40)
	1.67	3.97	1.19	1.24065	127	(0.20, 4.94)	(0.20, 4.93)
						(0.90, 4.23)	(0.90, 4.23)
<i>sel.per.ps</i>	3.59	6.22	1.69	2.52501	197	(0.20, 3.00)	(0.20, 3.00)
	2.09	4.56	1.29	2.60465	195	(0.20, 4.71)	(0.20, 4.67)
						(0.90, 1.46)	(0.90, 1.46)
<i>res.per.nr</i>	2.30	4.83	1.42	2.74387	197	(1.00, 2.90)	(1.00, 2.90)
	2.11	4.73	1.15	2.92264	193	(1.00, 5.00)	(1.00, 5.00)
						(1.30, 2.46)	(1.30, 2.46)
<i>res.per.ps</i>	2.11	4.89	1.25	2.92264	147	(0.20, 2.07)	(0.20, 2.06)
	1.94	3.40	0.66	2.98621	137	(0.13, 2.19)	(0.13, 2.18)
						(0.90, 1.66)	(0.90, 1.66)

Note: The statistics in this table are for the original calibration based on model groups corresponding to census divisions. After weights were recalibrated for Pennsylvania only, methods used to calculate the statistics for the whole model group no longer applied; thus, this table was not revised.

¹ For a key to modeling abbreviations, see Chapter 5, [Exhibit 5.1](#).

² Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n] * CV^2$, where CV = coefficient of variation of weights.

³ Number of proposed covariates (XVAR) on top line and number finalized after modeling.

⁴ There are six sets of bounds for each modeling step. Nominal bounds are used in defining maximum/minimum values for the generalized exponential model (GEM) adjustment factors. The realized bound is the actual adjustment produced by the modeling. The set of three bounds listed for each step correspond to the high extreme values, the nonextreme values, and the low extreme values.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table D.2b Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (Model Group 2: Middle Atlantic)

	<i>sel.sdu.des</i> ¹	<i>res.sdu.nr</i> ¹		<i>res.sdu.ps</i> ¹		<i>sel.per.des</i> ¹		<i>sel.per.ps</i> ¹		<i>res.per.nr</i> ¹		<i>res.per.ps</i> ¹	
	1-7 ²	8 ³	1-8 ³	9 ⁴	1-9 ⁴	11 ⁵	1-11 ⁵	12 ⁵	1-12 ⁵	13 ⁶	1-13 ⁶	14 ⁶	1-14 ⁶
Minimum	60	0.68	512	0.20	178	1.01	180	0.08	42	0.54	45	0.08	11
1%	506	1.03	557	0.65	481	1.01	551	0.52	460	1.00	479	0.13	109
5%	513	1.09	582	0.82	577	1.01	654	0.74	631	1.03	658	0.17	455
10%	517	1.11	599	0.89	611	1.01	731	0.81	727	1.07	747	0.86	685
25%	527	1.15	637	0.99	671	1.17	940	0.91	942	1.19	1,017	0.98	994
Median	552	1.20	728	1.05	777	1.39	1,510	0.99	1,519	1.29	1,800	1.02	1,818
75%	670	1.38	887	1.14	974	5.58	4,357	1.08	4,332	1.43	5,131	1.06	5,080
90%	837	1.50	1,530	1.24	1,439	11.30	8,797	1.19	8,520	1.62	11,537	1.15	11,615
95%	1,521	1.58	1,736	1.34	1,694	12.66	11,260	1.29	11,259	1.84	15,190	1.60	15,356
99%	1,656	1.94	1,926	1.97	2,404	13.58	18,922	1.66	20,294	2.38	29,873	1.74	30,077
Maximum	3,577	11.80	2,444	4.93	7,789	25.78	74,378	4.42	69,814	10.29	77,927	2.18	79,963
n	21,946	17,235	17,235	17,233	17,233	10,071	10,071	10,071	10,071	7,534	7,534	7,534	7,534
Max/Mean	5.35	-	2.87	-	8.56	-	21.69	-	20.51	-	17.76	-	18.23

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.

Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.

Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 because of the built-in control for extreme values. For an explanation, see Chapter 2.

¹ *sel.sdu.des* refers to selected screener dwelling unit design weight, and *sel.per.des* refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, [Exhibit 5.1](#).

² Based on eligible dwelling units.

³ Based on screener-complete dwelling units.

⁴ Based on screener-complete dwelling units, occupants verified eligible.

⁵ Based on selected persons.

⁶ Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010 (Revised March 2012).

Model Group 2 Overview²

Dwelling Unit Nonresponse

All 21 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the State × Population Density and State × Group Quarters interactions. Out of 68 proposed variables, 63 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 64 proposed variables, 38 were included in the model.

In the final model, a total of 122 variables were included; see [Exhibit D2.1](#).

Dwelling Unit Poststratification

All 16 proposed one-factor effects were included in the model.

All 47 proposed two-factor effects were included in the model.

All 64 proposed two-factor effects were included in the model.

In the final model, a total of 127 variables were included; see [Exhibit D2.2](#).

Selected Person-Level Poststratification

All 34 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the State × Race interaction. Out of 99 proposed variables, 97 were included in the model.

All 64 proposed two-factor effects were included in the model.

In the final model, a total of 195 variables were included; see [Exhibit D2.3](#).

Respondent Person-Level Nonresponse

All 34 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the State × Rent/Housing interaction. Out of 99 proposed variables, 98 were included in the model.

² Weights for Pennsylvania in Model Group 2 were recalibrated after removing the cases with erroneous data. The Model Group 2 Overview is for the original calibration based on census division, so it was not revised.

For three-factor effects, variable collapsing or dropping was present in the State \times Race \times Hispanicity interaction. Out of 64 proposed variables, 61 were included in the model.

In the final model, a total of 193 variables were included; see [Exhibit D2.4](#).

Respondent Person-Level Poststratification

All 17 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing was present in the State \times Age interaction. Out of 53 proposed variables, 51 were included in the model.

For three-factor effects, variable collapsing was present in the Age \times Race \times Hispanicity, State \times Age \times Race, and State \times Race \times Hispanicity interactions. Out of 77 proposed variables, 69 were included in the model.

In the final model, a total of 137 variables were included; see [Exhibit D2.5](#).

Exhibit D2.1 Covariates for 2010 NSDUH Person Weights (res.sdu.nr), Model Group 2: Middle Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects				
Intercept	1	1	1	All levels present.
State	3	2	2	All levels present.
Quarter	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects				
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	3 × 4	6	6	All levels present.
State × Population Density	3 × 4	6	4	Drop (2,2), (2,3); sing., zero.
State × Group Quarter	3 × 3	4	2	Coll. (3,1) & (3,2); conv., coll. (2,1) & (2,2); sing.
State × % Black or African American	3 × 3	4	4	All levels present.
State × % Hispanic or Latino	3 × 3	4	4	All levels present.
State × % Owner-Occupied	3 × 3	4	4	All levels present.
State × Rent/Housing	3 × 5	8	7	Drop (2,1); sing.
Three-Factor Effects				
State × % Owner-Occupied × % Black or African American	3 × 3 × 3	8	8	All levels present.
State × % Owner-Occupied × % Hispanic or Latino	3 × 3 × 3	8	6	Drop (3,2,1), (3,3,1); sing., zero.
State × % Owner-Occupied × Rent/Housing	3 × 3 × 5	16	9	Drop (2,3,1), (2,3,3), (2,3,4), (2,2,1), (2,2,2); sing., zero. Drop (3,3,3), (3,3,4); conv.
State × Rent/Housing × % Black or African American	3 × 3 × 5	16	9	Drop (3,3,1), (3,4,1), (2,1,*), (2,2,1), (2,3,1), (2,4,1); sing., zero.
State × Rent/Housing × % Hispanic or Latino	3 × 3 × 5	16	6	Keep (2,2,1), (2,3,1), (2,3,2), (2,4,2), (3,1,2), (3,2,2). Drop others; sing., zero.
Total		153	122	

Note: Weights for Pennsylvania in Model Group 2 were recalibrated after removing the cases with erroneous data. The model covariate summary for this calibration step is for the original calibration based on census division, so this exhibit was not revised.

Exhibit D2.2 Covariates for 2010 NSDUH Person Weights (res.sdu.ps), Model Group 2: Middle Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		16	16	
Intercept	1	1	1	All levels present.
State	3	2	2	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		47	47	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	3 × 4	6	6	All levels present.
State × Age	3 × 5	8	8	All levels present.
State × Race (5 levels)	3 × 5	8	8	All levels present.
State × Hispanicity	3 × 2	2	2	All levels present.
State × Gender	3 × 2	2	2	All levels present.
Three-Factor Effects		64	64	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	8	All levels present.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	3 × 5 × 3	16	16	All levels present.
State × Age × Hispanicity	3 × 5 × 2	8	8	All levels present.
State × Age × Gender	3 × 5 × 2	8	8	All levels present.
State × Race (3 levels) × Hispanicity	3 × 3 × 2	4	4	All levels present.
State × Race (3 levels) × Gender	3 × 3 × 2	4	4	All levels present.
State × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
Total		127	127	

Note: Weights for Pennsylvania in Model Group 2 were recalibrated after removing the cases with erroneous data. The model covariate summary for this calibration step is for the original calibration based on census division, so this exhibit was not revised.

Exhibit D2.3 Covariates for 2010 NSDUH Person Weights (sel.per.ps), Model Group 2: Middle Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		34	34	
Intercept	1	1	1	All levels present.
State	3	2	2	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		99	97	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	3 × 4	6	6	All levels present.
State × Age	3 × 5	8	8	All levels present.
State × Race (5 levels)	3 × 5	8	7	Coll. (3,3) & (3,4); conv.
State × Hispanicity	3 × 2	2	2	All levels present.
State × Gender	3 × 2	2	2	All levels present.
State × % Black or African American	3 × 3	4	4	All levels present.
State × % Hispanic or Latino	3 × 3	4	4	All levels present.
State × % Owner-Occupied	3 × 3	4	4	All levels present.
State × Rent/Housing	3 × 5	8	7	Coll. (2,1) & (2,2); sing.
Three-Factor Effects		64	64	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	8	All levels present.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	3 × 5 × 3	16	16	All levels present.
State × Age × Hispanicity	3 × 5 × 2	8	8	All levels present.
State × Age × Gender	3 × 5 × 2	8	8	All levels present.
State × Race (3 levels) × Hispanicity	3 × 3 × 2	4	4	All levels present.
State × Race (3 levels) × Gender	3 × 3 × 2	4	4	All levels present.
State × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
Total		197	195	

Note: Weights for Pennsylvania in Model Group 2 were recalibrated after removing the cases with erroneous data. The model covariate summary for this calibration step is for the original calibration based on census division, so this exhibit was not revised.

Exhibit D2.4 Covariates for 2010 NSDUH Person Weights (res.per.nr), Model Group 2: Middle Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		34	34	
Intercept	1	1	1	All levels present.
State	3	2	2	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		99	98	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	3 × 4	6	6	All levels present.
State × Age	3 × 5	8	8	All levels present.
State × Race (5 levels)	3 × 5	8	8	All levels present.
State × Hispanicity	3 × 2	2	2	All levels present.
State × Gender	3 × 2	2	2	All levels present.
State × % Black or African American	3 × 3	4	4	All levels present.
State × % Hispanic or Latino	3 × 3	4	4	All levels present.
State × % Owner-Occupied	3 × 3	4	4	All levels present.
State × Rent/Housing	3 × 5	8	7	Drop (3,1); sing.
Three-Factor Effects		64	61	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	8	All levels present.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	3 × 5 × 3	16	16	All levels present.
State × Age × Hispanicity	3 × 5 × 2	8	8	All levels present.
State × Age × Gender	3 × 5 × 2	8	8	All levels present.
State × Race (3 levels) × Hispanicity	3 × 3 × 2	4	1	Coll. (3,2,1) & (3,3,1), (2,2,1) & (2,3,1), then drop (3,2/3,1); conv.
State × Race (3 levels) × Gender	3 × 3 × 2	4	4	All levels present.
State × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
Total		197	193	

Note: Weights for Pennsylvania in Model Group 2 were recalibrated after removing the cases with erroneous data. The model covariate summary for this calibration step is for the original calibration based on census division, so this exhibit was not revised.

Exhibit D2.5 Covariates for 2010 NSDUH Person Weights (res.per.ps), Model Group 2: Middle Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects				
Intercept	1	1	1	All levels present.
State	3	2	2	All levels present.
Quarter	4	3	3	All levels present.
Age	6	5	5	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects				
Age × Race (3 levels)	6 × 3	10	10	All levels present.
Age × Hispanicity	6 × 2	5	5	All levels present.
Age × Gender	6 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	3 × 4	6	6	All levels present.
State × Age	3 × 6	10	8	Coll. (2,3) & (2,4), (3,3) & (3,4); conv.
State × Race (5 levels)	3 × 5	8	8	All levels present.
State × Hispanicity	3 × 2	2	2	All levels present.
State × Gender	3 × 2	2	2	All levels present.
Three-Factor Effects				
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	5	Coll. (5,2,1) & (5,3,1); sing. Drop (5,2/3/1); conv. Coll. (4,2,1) & (4,3,1). Repeat for age levels 2 and 3; conv.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	10	All levels present.
Age × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race(3 levels)	3 × 6 × 3	20	19	Coll. (3,5,2) & (3,5,3); conv.
State × Age × Hispanicity	3 × 6 × 2	10	10	All levels present.
State × Age × Gender	3 × 6 × 2	10	10	All levels present.
State × Race (3 levels) × Hispanicity	3 × 3 × 2	4	2	Coll. (2,2,1) & (2,3,1), (3,2,1) & (3,3,1); conv.
State × Race (3 levels) × Gender	3 × 3 × 2	4	4	All levels present.
State × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
Total		147	137	

Note: Weights for Pennsylvania in Model Group 2 were recalibrated after removing the cases with erroneous data. The model covariate summary for this calibration step is for the original calibration based on census division, so this exhibit was not revised.

Appendix D3: Model Group 3: East North Central
(Illinois, Indiana, Michigan, Ohio, and Wisconsin)

Table D.3a 2010 NSDUH Person Weight GEM Modeling Summary (Model Group 3: East North Central)

Modeling Step ¹	Extreme Weight Proportions			UWE ²	# XVAR ³	Bounds ⁴	
	% Unweighted	% Weighted	% Outwisor			Nominal	Realized
<i>res.sdu.nr</i>	0.50	0.94	0.05	1.16072	255	(1.00, 1.14)	(1.00, 1.14)
	0.87	1.32	0.05	1.14206	171	(1.00, 1.82)	(1.00, 1.81)
						(1.00, 1.48)	(1.00, 1.48)
<i>res.sdu.ps</i>	0.87	1.32	0.05	1.14206	197	(0.57, 1.10)	(0.57, 1.10)
	1.26	2.01	0.35	1.16222	194	(0.20, 4.03)	(0.20, 4.02)
						(0.90, 1.52)	(0.90, 1.52)
<i>sel.per.ps</i>	3.77	6.02	1.48	2.55070	287	(0.21, 2.65)	(0.21, 2.65)
	1.72	3.21	0.56	2.50122	281	(0.20, 2.89)	(0.20, 2.89)
						(0.40, 3.95)	(0.40, 3.95)
<i>res.per.nr</i>	1.82	3.45	0.58	2.58346	287	(1.00, 2.00)	(1.01, 2.00)
	1.25	3.50	0.58	2.84713	246	(1.00, 4.95)	(1.00, 4.94)
						(1.20, 2.33)	(1.20, 2.06)
<i>res.per.ps</i>	1.42	3.79	0.66	2.84713	227	(0.20, 2.40)	(0.20, 2.40)
	1.21	3.21	0.76	2.91913	200	(0.20, 2.44)	(0.20, 2.43)
						(0.90, 1.09)	(0.90, 1.09)

¹ For a key to modeling abbreviations, see Chapter 5, [Exhibit 5.1](#).

² Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n] * CV^2$, where CV = coefficient of variation of weights.

³ Number of proposed covariates (XVAR) on top line and number finalized after modeling.

⁴ There are six sets of bounds for each modeling step. Nominal bounds are used in defining maximum/minimum values for the generalized exponential model (GEM) adjustment factors. The realized bound is the actual adjustment produced by the modeling. The set of three bounds listed for each step correspond to the high extreme values, the nonextreme values, and the low extreme values.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table D.3b Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (Model Group 3: East North Central)

	<i>sel.sdu.des</i> ¹	<i>res.sdu.nr</i> ¹		<i>res.sdu.ps</i> ¹		<i>sel.per.des</i> ¹		<i>sel.per.ps</i> ¹		<i>res.per.nr</i> ¹		<i>res.per.ps</i> ¹	
	1-7 ²	8 ³	1-8 ³	9 ⁴	1-9 ⁴	11 ⁵	1-11 ⁵	12 ⁵	1-12 ⁵	13 ⁶	1-13 ⁶	14 ⁶	1-14 ⁶
Minimum	91	0.66	166	0.20	96	1.01	97	0.08	36	0.61	61	0.06	12
1%	369	1.01	399	0.59	326	1.01	370	0.52	318	1.00	334	0.20	169
5%	377	1.05	419	0.85	434	1.01	483	0.74	472	1.04	524	0.68	482
10%	390	1.06	441	0.91	464	1.01	540	0.82	534	1.06	608	0.94	599
25%	432	1.08	489	1.00	519	1.13	665	0.93	663	1.13	771	1.00	772
Median	480	1.11	552	1.07	592	1.27	989	1.01	1,006	1.22	1,161	1.02	1,167
75%	557	1.18	638	1.14	713	5.04	3,011	1.09	3,067	1.34	3,824	1.05	3,848
90%	937	1.30	1,016	1.24	1,069	11.44	6,272	1.19	6,481	1.49	8,321	1.09	8,233
95%	1,041	1.36	1,135	1.35	1,237	12.25	7,436	1.30	7,661	1.62	10,756	1.19	10,755
99%	1,378	1.51	1,528	1.70	1,637	13.69	15,094	1.60	15,007	2.16	20,673	1.61	20,511
Maximum	1,433	2.76	1,774	4.02	4,421	24.92	47,297	6.86	45,508	4.94	54,508	3.63	49,721
n	30,849	26,997	26,997	26,993	26,993	16,211	16,211	16,211	16,211	12,835	12,835	12,835	12,835
Max/Mean	2.60	-	2.81	-	6.55	-	19.96	-	19.14	-	18.15	-	16.56

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.

Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.

Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 because of the built-in control for extreme values. For an explanation, see Chapter 2.

¹ Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, Exhibit 5.1.

² Based on eligible dwelling units.

³ Based on screener-complete dwelling units.

⁴ Based on screener-complete dwelling units, occupants verified eligible.

⁵ Based on selected persons.

⁶ Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Model Group 3 Overview

Dwelling Unit Nonresponse

All 23 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in Rent/Housing \times percent Black or African American, State \times Group Quarters, and State \times percent Hispanic or Latino interactions. Out of 104 proposed variables, 95 were included in the model.

For three-factor effects, variable collapsing or dropping was present in all interactions. Out of 128 proposed variables, 53 were included in the model.

In the final model, a total of 171 variables were included; see [Exhibit D3.1](#).

Dwelling Unit Poststratification

All 18 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing was present in State \times Race interaction. Out of 73 proposed variables, 72 were included in the model.

For three-factor effects, variable collapsing or dropping was present in State \times Race (3 levels) \times Hispanicity interactions. Out of 106 proposed variables, 104 were included in the model.

In the final model, a total of 196 variables were included; see [Exhibit D3.2](#).

Selected Person-Level Poststratification

All 36 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the Rent/housing \times percent Black or African American and State \times percent Hispanic or Latino interactions. Out of 145 proposed variables, 141 were included in the model.

For three-factor effects, variable collapsing or dropping was present in the State \times Race (3 levels) \times Hispanicity interaction. Out of 106 proposed variables, 104 were included in the model.

In the final model, a total of 281 variables were included; see [Exhibit D3.3](#).

Respondent Person-Level Nonresponse

All 36 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing and dropping was present in the Rent/Housing \times percent Black or African American, State \times Race, and State \times percent Hispanic or Latino interactions. Out of 145 proposed variables, 137 were included in the model.

For three-factor effects, variable collapsing or dropping was present in the Age \times Race \times Hispanicity, Race (3 levels) \times Hispanicity \times Gender, State \times Age \times Race, State \times Race \times Hispanicity, and State \times Race \times Gender interactions. Out of 106 proposed variables, 73 were included in the model.

In the final model, a total of 246 variables were included; see [Exhibit D3.4](#).

Respondent Person-Level Poststratification

All 19 proposed one-factor effects were included in the model.

For two-factor effects, collapsing was present in Race (3 levels) \times Hispanicity and State \times Race (5 levels) interactions. Out of 81 proposed variables, 78 were included in the model.

For three-factor effects, variable collapsing or dropping was present in the Age \times Race (3 levels) \times Hispanicity, Race \times Hispanicity \times Gender, State \times Age \times Race, State \times Age \times Hispanicity, and State \times Race (3 levels) \times Hispanicity interactions. Out of 127 proposed variables, 103 were included in the model.

In the final model, a total of 200 variables were included; see [Exhibit D3.5](#).

Exhibit D3.1 Covariates for 2010 NSDUH Person Weights (res.sdu.nr), Model Group 3: East North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		23	23	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		104	95	
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	7	Drop (4,1); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Population Density	5 × 4	12	12	All levels present.
State × Group Quarter	5 × 3	8	2	Coll. (5,1) & (5,2); sing. Drop (3,2); sing. Drop (3,1), (4,1), (4,2); zero.
State × % Black or African American	5 × 3	8	8	All levels present.
State × % Hispanic or Latino	5 × 3	8	5	Drop (5,1), (3,1); sing. Drop (4,1); zero.
State × % Owner-Occupied	5 × 3	8	8	All levels present.
State × Rent/Housing	5 × 5	16	16	All levels present.
Three-Factor Effects		128	53	
State × % Owner-Occupied × % Black or African American	5 × 3 × 3	16	5	Drop (4,3,2), (4,2,1), (4,2,2), (3,3,1), (4,3,1); sing., zero. Coll. (5,3,1) & (5,3,2); conv. Drop (3,3,2), (1,3,1), (1,3,2); conv.
State × % Owner-Occupied × % Hispanic or Latino	5 × 3 × 3	16	4	Drop (5,3,1), (5,2,1), (3,3,1), (3,2,1), (4,3,1), (4,2,1); hier. Drop (4,2,2), (1,3,1), (4,3,2); sing., zero. Drop (3,3,2), (5,3,2), (1,3,2); conv.
State × % Owner-Occupied × Rent/Housing	5 × 3 × 5	32	18	Drop (4,3,1), (4,3,2), (4,3,3), (4,3,4), (4,2,1), (4,2,4), (1,3,3), (1,3,4), (3,3,1), (3,3,3); sing., zero. Coll. (1,3,1) & (1,3,2), (5,3,1) & (5,3,2), (5,3,3) & (5,3,4); conv. Drop (3,3,2); conv.
State × Rent/Housing × % Black or African American	5 × 3 × 5	32	18	Drop (1,4,1), (5,4,1), (3,4,1), (4,4,1); hier. Drop (4,1,1), (4,1,2), (4,2,2), (4,3,1), (4,3,2), (4,4,2), (5,3,1), (3,1,1), (3,3,1), (3,4,2); sing., zero.
State × Rent/Housing × % Hispanic or Latino	5 × 3 × 5	32	8	Drop (5,1,1), (5,2,1), (5,3,1), (5,4,1), (3,1,1), (3,2,1), (3,3,1), (3,4,1), (4,1,1), (4,2,1), (4,3,1), (4,4,1); hier. Drop (4,1,2), (4,4,2), (1,1,1), (1,3,1), (1,4,1), (5,4,2), (3,4,2), (4,3,2); sing., zero. Drop (3,2,2), (3,3,2), (4,2,2), (5,2,2), (5,3,2), (5,1,2); conv.
Total		255	171	

Exhibit D3.2 Covariates for 2010 NSDUH Person Weights (res.sdu.ps), Model Group 3: East North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		18	18	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		73	72	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Age	5 × 5	16	16	All levels present.
State × Race (5 levels)	5 × 5	16	15	Coll. (5,3) & (5,4); conv.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
Three-Factor Effects		106	104	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	8	All levels present.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	5 × 5 × 3	32	32	All levels present.
State × Age × Hispanicity	5 × 5 × 2	16	16	All levels present.
State × Age × Gender	5 × 5 × 2	16	16	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	8	6	Coll. (4,2,1) & (4,3,1), (5,2,1) & (5,3,1); conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Total		197	194	

Exhibit D3.3 Covariates for 2010 NSDUH Person Weights (sel.per.ps), Model Group 3: East North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects				
		36	36	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects				
		145	141	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	7	Drop (4,1); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Age	5 × 5	16	16	All levels present.
State × Race (5 levels)	5 × 5	16	16	All levels present.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
State × % Black or African American	5 × 3	8	8	All levels present.
State × % Hispanic or Latino	5 × 3	8	5	Drop (4,1); zero; Drop (5,1), (3,1); sing.
State × % Owner-Occupied	5 × 3	8	8	All levels present.
State × Rent/Housing	5 × 5	16	16	All levels present.
Three-Factor Effects				
		106	104	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	8	All levels present.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	5 × 5 × 3	32	32	All levels present.
State × Age × Hispanicity	5 × 5 × 2	16	16	All levels present.
State × Age × Gender	5 × 5 × 2	16	16	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	8	6	Coll. (4,2,1) & (4,3,1); zero; Coll. (3,2,1) & (3,3,1); conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Total		287	281	

Exhibit D3.4 Covariates for 2010 NSDUH Person Weights (res.per.nr), Model Group 3: East North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		36	36	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		145	137	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	7	Drop (4,1); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Age	5 × 5	16	16	All levels present.
State × Race (5 levels)	5 × 5	16	12	Coll. (1,2) & (1,5). Repeat for all States; conv.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
State × % Black or African American	5 × 3	8	8	All levels present.
State × % Hispanic or Latino	5 × 3	8	5	Drop (5,1), (3,1); sing. Drop (4,1); zero.
State × % Owner-Occupied	5 × 3	8	8	All levels present.
State × Rent/Housing	5 × 5	16	16	All levels present.
Three-Factor Effects		106	73	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	0	Coll. (4,2,1) & (4,,3,1); sing. Coll. (1,2,1) & (1,3,1). Repeat for age levels 2 and 3; conv. Drop all; conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	5 × 5 × 3	32	16	Coll. (4,1,2) & (4,1,3), repeat for all age levels, repeat for all States; hier.
State × Age × Hispanicity	5 × 5 × 2	16	6	All levels present.
State × Age × Gender	5 × 5 × 2	16		All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Drop (4,2,1); zero. Coll. (1,2,1) & (1,3,1). Repeat for States OH and MI; conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	4	Coll. (4,1,2) & (4,1,3). Repeat for all age levels; hier.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Total		287	246	

Exhibit D3.5 Covariates for 2010 NSDUH Person Weights (res.per.ps), Model Group 3: East North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		19	19	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Age	6	5	5	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		81	78	
Age × Race (3 levels)	6 × 3	10	10	All levels present.
Age × Hispanicity	6 × 2	5	5	All levels present.
Age × Gender	6 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	1	Coll. (2,1) & (3,1); conv.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Age	5 × 6	20	20	All levels present.
State × Race (5 levels)	5 × 5	16	14	Coll. (4,3) & (4,4), (1,3) & (1,4).
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
Three-Factor Effects		127	103	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	4	Coll. (1,2,1) & (1,3,1). Repeat for age levels 2, 3, 4 and 5, hier. Drop (5,2/3,1); sing.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	10	All levels present.
Age × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); hier.
State × Age × Race (3 levels)	5 × 6 × 3	40	35	Coll. (4,4,2) & (4,4,3), (4,5,2) & (4,5,3), (1,5,2) & (1,5,3), (4,2,2) & (4,2,3) conv. Drop (4,5,2/3); conv.
State × Age × Hispanicity	5 × 6 × 2	20	15	Drop (5,5,1), (4,4,1), (4,5,1); sing. Drop (5,3,1), (5,4,1); conv.
State × Age × Gender	5 × 6 × 2	20	20	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	8	1	Coll. (1,2,1) & (1,3,1). Repeat for States MI, WI, and OH; hier. Keep (5,2/3,1). Drop others; hier., conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Total		227	200	

Appendix D4: Model Group 4: West North Central
(Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota)

Table D.4a 2010 NSDUH Person Weight GEM Modeling Summary (Model Group 4: West North Central)

Modeling Step ¹	Extreme Weight Proportions			UWE ²	# XVAR ³	Bounds ⁴	
	% Unweighted	% Weighted	% Outwisor			Nominal	Realized
<i>res.sdu.nr</i>	1.52	1.07	0.02	1.43101	357	(1.01, 1.10)	(1.01, 1.10)
	0.94	1.15	0.03	1.43531	162	(1.00, 1.44)	(1.00, 1.43)
						(1.05, 1.17)	(1.05, 1.17)
<i>res.sdu.ps</i>	0.94	1.15	0.03	1.43531	267	(0.60, 1.10)	(0.60, 1.10)
	3.49	4.54	0.83	1.53861	262	(0.20, 5.00)	(0.20, 5.00)
						(0.90, 1.92)	(0.90, 1.92)
<i>sel.per.ps</i>	4.28	8.56	2.05	3.11944	377	(0.46, 3.00)	(0.48, 3.00)
	1.98	3.53	0.94	3.40630	314	(0.20, 5.00)	(0.20, 5.00)
						(0.80, 3.99)	(0.80, 3.99)
<i>res.per.nr</i>	2.27	3.65	1.03	3.47455	377	(1.00, 3.00)	(1.00, 3.00)
	2.12	4.74	1.42	3.96758	261	(1.00, 5.00)	(1.00, 5.00)
						(1.20, 5.00)	(1.20, 5.00)
<i>res.per.ps</i>	2.23	5.45	1.58	3.96758	307	(0.20, 2.40)	(0.20, 2.40)
	2.03	4.91	1.55	4.03159	211	(0.20, 5.00)	(0.20, 5.00)
						(0.80, 2.12)	(0.80, 2.12)

¹ For a key to modeling abbreviations, see Chapter 5, [Exhibit 5.1](#).

² Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n] * CV^2$, where CV = coefficient of variation of weights.

³ Number of proposed covariates (XVAR) on top line and number finalized after modeling.

⁴ There are six sets of bounds for each modeling step. Nominal bounds are used in defining maximum/minimum values for the generalized exponential model (GEM) adjustment factors. The realized bound is the actual adjustment produced by the modeling. The set of three bounds listed for each step correspond to the high extreme values, the nonextreme values, and the low extreme values.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table D.4b Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (Model Group 4: West North Central)

	<i>sel.sdu.des</i> ¹	<i>res.sdu.nr</i> ¹		<i>res.sdu.ps</i> ¹		<i>sel.per.des</i> ¹		<i>sel.per.ps</i> ¹		<i>res.per.nr</i> ¹		<i>res.per.ps</i> ¹	
	1-7 ²	8 ³	1-8 ³	9 ⁴	1-9 ⁴	11 ⁵	1-11 ⁵	12 ⁵	1-12 ⁵	13 ⁶	1-13 ⁶	14 ⁶	1-14 ⁶
Minimum	93	0.99	97	0.20	20	1.01	22	0.20	9	0.48	9	0.08	2
1%	94	1.00	99	0.44	89	1.01	94	0.35	82	0.91	89	0.20	28
5%	96	1.02	101	0.77	98	1.01	126	0.59	121	1.00	139	0.35	117
10%	100	1.03	107	0.89	106	1.01	198	0.70	181	1.00	201	0.75	181
25%	162	1.04	169	0.96	177	1.14	475	0.85	438	1.05	456	0.96	456
Median	516	1.06	538	1.06	540	1.50	989	0.98	955	1.15	1,101	1.03	1,113
75%	817	1.08	873	1.16	910	5.47	2,052	1.12	2,096	1.30	2,436	1.09	2,413
90%	931	1.11	1,003	1.31	1,174	10.75	6,126	1.30	5,514	1.52	6,412	1.19	6,569
95%	1,075	1.13	1,138	1.47	1,282	12.69	8,088	1.45	8,429	1.74	10,404	1.39	10,269
99%	1,118	1.20	1,202	2.00	1,635	15.11	14,462	2.28	17,414	3.00	25,060	2.29	24,262
Maximum	1,170	1.43	1,451	5.00	4,158	26.12	58,280	8.99	40,248	5.80	48,991	31.61	51,401
n	15,043	14,121	14,121	14,121	14,121	7,928	7,928	7,928	7,928	6,466	6,466	6,466	6,466
Max/Mean	2.38	-	2.78	-	7.25	-	27.50	-	18.98	-	18.85	-	19.77

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.

Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.

Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 because of the built-in control for extreme values. For an explanation, see Chapter 2.

¹ Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, [Exhibit 5.1](#).

² Based on eligible dwelling units.

³ Based on screener-complete dwelling units.

⁴ Based on screener-complete dwelling units, occupants verified eligible.

⁵ Based on selected persons.

⁶ Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Model Group 4 Overview

Dwelling Unit Nonresponse

All 25 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in all effects except for percent Owner-occupied \times percent Black or African American, State \times Quarter, and State \times Rent/housing. Out of 140 proposed variables, 108 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 192 proposed variables, 29 were included in the model.

In the final model, a total of 162 variables were included; see [Exhibit D4.1](#).

Dwelling Unit Poststratification

All 20 proposed one-factor effects were included in the model.

All 99 proposed two-factor effects were included in the model.

For three-factor effects, variable collapsing or dropping was present in the Age \times Race \times Hispanicity, Race \times Hispanicity \times Gender, and State \times Race \times Hispanicity interactions. Out of 148 proposed variables, 145 were included in the model.

In the final model, a total of 262 variables were included; see [Exhibit D4.2](#).

Selected Person-Level Poststratification

All 38 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the percent Owner-occupied \times percent Hispanic or Latino, Rent/housing \times percent Black or African American, Rent/housing \times percent Hispanic or Latino, State \times Race, State \times percent Black or African American, and State \times percent Hispanic or Latino interactions. Out of 191 proposed variables, 175 were included in the model.

For three-factor effects, variable collapsing or dropping was present in the Age \times Race \times Hispanicity, Race \times Hispanicity \times Gender, State \times Age \times Race, State \times Age \times Hispanicity, State \times Race \times Hispanicity, and State \times Race \times Gender interactions. Out of 148 proposed variables, 101 were included in the model.

In the final model, a total of 314 variables were included; see [Exhibit D4.3](#).

Respondent Person-Level Nonresponse

All 38 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the percent Owner-occupied \times percent Black or African American, Owner-occupied \times percent Hispanic or Latino, percent Rent/housing \times percent Black or African American, Rent/housing \times percent Hispanic or Latino, State \times Race, State \times percent Black or African American, and State \times percent Hispanic or Latino interactions. Out of 191 proposed variables, 168 were included in the model.

Variable collapsing or dropping was present in all three-factor effects except the Age \times Hispanicity \times Gender and State \times Age \times Gender interactions. Out of 148 proposed variables, 57 were included in the model.

In the final model, a total of 263 variables were included; see [Exhibit D4.4](#).

Respondent Person-Level Poststratification

All 21 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the Age \times Hispanicity interactions. Out of 109 proposed variables, 108 were included in the model.

For three-factor effects, all levels were present for the Race \times Hispanicity \times Gender, State \times Age \times Gender and State \times Hispanicity \times Gender interactions. All the others were affected by variable collapsing or dropping. Out of 177 proposed variables, 110 were included in the model.

In the final model, a total of 239 variables were included; see [Exhibit D4.5](#).

Exhibit D4.1 Covariates for 2010 NSDUH Person Weights (res.sdu.nr), Model Group 4: West North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects				
		25	25	
Intercept	1	1	1	All levels present.
State	7	6	6	All levels present.
Quarter	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects				
		140	108	
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	2	Coll. (2,1) & (3,1), (2,2) & (3,2); conv.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	7	Coll. (4,1) & (4,2); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	5	Coll. (2,1) & (2,2); sing. Coll. (3,1) & (3,2), (4,1) & (4,2); zero.
State × Quarter	7 × 4	18	18	All levels present.
State × Population Density	7 × 4	18	13	Coll. (1,1) & (1,2). Repeat for States SD and ND; zero. Coll. (5,1) & (5,2) & (5,3); sing.
State × Group Quarter	7 × 3	12	3	Coll. (1,1) & (1,2). Repeat for States MN and ND. Drop (5/6,1/2); sing. Drop (2,1/2); zero.
State × % Black or African American	7 × 3	12	6	Coll. (2,1) & (2,2). Drop (6/7,1/2); zero. Coll. (3,1) & (3,2); sing.
State × % Hispanic or Latino	7 × 3	12	7	Coll. (1,1) & (1,2). Repeat for States MN, SD, and ND; zero. Coll. (5,1) & (5,2); sing.
State × % Owner-Occupied	7 × 3	12	11	Coll. (5,2) & (5,3); sing.
State × Rent/Housing	7 × 5	24	24	All levels present.
Three-Factor Effects				
		192	29	
State × % Owner-Occupied × % Black or African American	7 × 3 × 3	24	6	Coll. (3,3,1) & (3,3,2), (3,2,1) & (3,2,2). Coll. (5,2,1) & (5,3,1), (5,2,2) & (5,3,2). Drop (6/7,2/3,1/2); heir. Coll. (1,2,1) & (1,2,2). Coll. (2,2,1) & (2,2,2) & (2,3,1) & (2,3,2); sing. Drop (1,3,1/2); zero.
State × % Owner-Occupied × % Hispanic or Latino	7 × 3 × 3	24	2	Drop (1,3,1/2); (7,2/3,1/2). Coll. (3,2,1) & (3,2,2) & (3,3,1) & (3,3,2); zero. Coll. (1,2,1) & (1,2,2); heir. Drop (2/5/6, 2/3,1/2); conv.
State × % Owner-Occupied × Rent/Housing	7 × 3 × 5	48	17	Coll. (5,2,3) & (5,3,3). Repeat for (States, Rent/Housing) = (5,4); heir. Coll. (1,2,1) & (1,3,1). Repeat for (States, Rent/Housing) = (1,2), (2,1), (2,2), (3,1), (3,2), (3,3). Coll. (5,2,1) & (5,3,1) & (5,2,2) & (5,3,2); zero. Coll. (2,3,1) & (2,3,2). Repeat for (States, Rent/Housing) = (2,4), (3,4), (7,1), (7,2), (7,3), (7,4). Drop (1,2/3,3/4). Drop (6, *, *); conv.
State × Rent/Housing × % Black or African American	7 × 3 × 5	48	1	Coll. (2,1,1) & (2,1,2); heir. Drop rest; zero, sing, conv.
State × Rent/Housing × % Hispanic or Latino	7 × 3 × 5	48	3	Coll. (3,1,1) & (3,1,2) & (3,2,1) & (3,2,2); zero. Coll. (3,3,1) & (3,3,2), (3,4,1) & (3,4,2); sing.
Total		357	162	

Exhibit D4.2 Covariates for 2010 NSDUH Person Weights (res.sdu.ps), Model Group 4: West North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects				
Intercept	1	1	1	All levels present.
State	7	6	6	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects				
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	7 × 4	18	18	All levels present.
State × Age	7 × 5	24	24	All levels present.
State × Race (5 levels)	7 × 5	24	24	All levels present.
State × Hispanicity	7 × 2	6	6	All levels present.
State × Gender	7 × 2	6	6	All levels present.
Three-Factor Effects				
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	7	Coll. (4,2,1) & (4,3,1); sing.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	7 × 5 × 3	48	48	All levels present.
State × Age × Hispanicity	7 × 5 × 2	24	24	All levels present.
State × Age × Gender	7 × 5 × 2	24	24	All levels present.
State × Race (3 levels) × Hispanicity	7 × 3 × 2	12	9	Coll. (6,2,1) & (6,3,1); zero. Coll. (1,2,1) & (1,3,1), (3,2,1) & (3,3,1); conv.
State × Race (3 levels) × Gender	7 × 3 × 2	12	12	All levels present.
State × Hispanicity × Gender	7 × 2 × 2	6	6	All levels present.
Total		267	262	

Exhibit D4.3 Covariates for 2010 NSDUH Person Weights (sel.per.ps), Model Group 4: West North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		38	38	
Intercept	1	1	1	All levels present.
State	7	6	6	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		191	175	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	3	Coll. (3,1) & (3,2); zero.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	7	Coll. (4,1) & (4,2); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	5	Coll. (2,1) & (2,2), sing. Coll. (3,1) & (3,2). Drop (4, 1/2); zero.
State × Quarter	7 × 4	18	18	All levels present.
State × Age	7 × 5	24	24	All levels present.
State × Race (5 levels)	7 × 5	24	24	All levels present.
State × Hispanicity	7 × 2	6	6	All levels present.
State × Gender	7 × 2	6	6	All levels present.
State × % Black or African American	7 × 3	12	6	Coll. (2,1) & (2,2). Drop (6/7,1/2); zero. Coll. (3,1) & (3,2); sing.
State × % Hispanic or Latino	7 × 3	12	7	Coll. (5,1) & (5,2); sing. Coll. (1,1) & (1,2). Repeat for States MN, SD, and ND; zero.
State × % Owner-Occupied	7 × 3	12	12	All levels present.
State × Rent/Housing	7 × 5	24	24	All levels present.
Three-Factor Effects		148	101	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	5	Coll. (3,2,1) & (3,3,1), drop (4,2/3,1); conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	7 × 5 × 3	48	23	Coll. (6,3,2) & (6,3,3); zero. Coll. (6,4,2) & (6,4,3); sing. Coll. (1,1,2) & (1,1,3). Repeat for all remaining States and age levels. Drop (7,4,2/3); conv.
State × Age × Hispanicity	7 × 5 × 2	24	17	Drop (6,3,1); zero. Drop (1,4,1), (7,3/4,1); sing. Drop (3,4,1), (6,4,1), (7,2,1); conv.
State × Race (3 levels) × Hispanicity	7 × 3 × 2	12	3	Coll. (6,2,1) & (6,3,1); zero. Coll. (3,2,1) & (3,3,1), (5,2,1) & (5,3,1). Drop rest; conv.
State × Race (3 levels) × Gender	7 × 3 × 2	12	10	Coll. (6,2,1) & (6,3,1), (7,2,1) & (7,3,1); conv.
State × Age × Gender	7 × 5 × 2	24	24	All levels present.
State × Hispanicity × Gender	7 × 2 × 2	6	6	All levels present.
Total		377	314	

Exhibit D4.4 Covariates for 2010 NSDUH Person Weights (res.per.nr), Model Group 4: West North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects				
		38	38	
Intercept	1	1	1	All levels present.
State	7	6	6	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects				
		191	167	
Age × Race (3 levels)	5 × 3	8	7	Coll. (4,2) & (4,3); conv.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	3	Coll. (3,1) & (3,2); conv.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	3	Coll. (3,1) & (3,2); zero.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	6	Coll. (4,1) & (4,2); sing. Coll. (3,1) & (3,2); conv.
Rent/Housing × % Hispanic or Latino	3 × 5	8	5	Coll. (4,1) & (4,2), (3,1) & (3,2); zero. Coll. (2,1) & (2,2); sing.
State × Quarter	7 × 4	18	18	All levels present.
State × Age	7 × 5	24	24	All levels present.
State × Race (5 levels)	7 × 5	24	21	Coll. (1,3) & (1,4), (5,3) & (5,4) & (5,5); conv.
State × Hispanicity	7 × 2	6	6	All levels present.
State × Gender	7 × 2	6	6	All levels present.
State × % Black or African American	7 × 3	12	5	Coll. (1,1) & (1,2), (3,1) & (3,2); conv. Coll. (2,1) & (2,2). Drop (6/7,1/2); zero.
State × % Hispanic or Latino	7 × 3	12	7	Coll. (1,1) & (1,2). Repeat for States MN, NE, SD, and ND; zero.
State × % Owner-Occupied	7 × 3	12	11	Coll. (6,2) & (6,3); conv.
State × Rent/Housing	7 × 5	24	24	All levels present.
Three-Factor Effects				
		148	56	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	3	Coll. (1,2,1) & (1,3,1). Repeat for age levels 2 and 3. Drop (4,2/3,1); conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	5	Coll. (3,2,1) & (3,3,1). Drop (4,2/3,1); conv.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	7 × 5 × 3	48	13	Coll. (2,4,2) & (2,4,3); sing. Coll. (1,1,2) & (1,1,3). Repeat for all State*Age. Drop (1/3/7,4,*), (5/6,*,*); conv.
State × Age × Hispanicity	7 × 5 × 2	24	0	Drop (6,3,1); zero. Drop (7,3,1), (1/3/6/7,4,1); sing. Drop rest; conv.
State × Age × Gender	7 × 5 × 2	24	24	All levels present.
State × Race (3 levels) × Hispanicity	7 × 3 × 2	12	0	Drop all; conv.
State × Race (3 levels) × Gender	7 × 3 × 2	12	4	Coll. (1,2,1) & (1,3,1). Repeat for States KS, MN, and NE. Drop all for States SD and ND; conv.
State × Hispanicity × Gender	7 × 2 × 2	6	1	Keep (7,1,1), drop all others; conv.
Total		377	261	

Exhibit D4.5 Covariates for 2010 NSDUH Person Weights (res.per.ps), Model Group 4: West North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects				
Intercept	1	1	1	All levels present.
State	7	6	6	All levels present.
Quarter	4	3	3	All levels present.
Age	6	5	5	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects				
Age × Race (3 levels)	6 × 3	10	10	All levels present.
Age × Hispanicity	6 × 2	5	5	All levels present.
Age × Gender	6 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	7 × 4	18	18	All levels present.
State × Age	7 × 6	30	30	All levels present.
State × Race (5 levels)	7 × 5	24	21	Coll. (3,3) & (3,4), (1,2) & (1,5), (1,3) & (1,4); conv.
State × Hispanicity	7 × 2	6	6	All levels present.
State × Gender	7 × 2	6	6	All levels present.
Three-Factor Effects				
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	1	Coll. (1,2,1) & (1,3,1), drop all others; conv.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	9	Coll. (5,2,1) & (5,3,1); conv.
Age × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	7 × 6 × 3	60	15	Coll. (1,1,2) & (1,1,3); heir. Drop (3/5/6/7,5,2/3); sing. Coll. (2,1,2) & (2,1,3). Repeat for all State*Age. Drop (1,2/3/4/5, 2/3), (2,5,2/3), (3,4,2/3), (7,3/4,2/3), (6,2/3/4,2/3); conv.
State × Age × Hispanicity	7 × 6 × 2	30	10	Drop (1/3/6,5,1), (6,3,1); zero. Drop (7,3,1), (1/3/6/7,4,1), (2/5,5,1); sing. Drop (6,1/2,1), (1/2/3/5,3,1), (2/5,4,1), (7,5,1); conv.
State × Age × Gender	7 × 6 × 2	30	30	All levels present.
State × Race (3 levels) × Hispanicity	7 × 3 × 2	12	1	Coll. (1,2,1) & (1,3,1); heir. Drop rest; conv.
State × Race (3 levels) × Gender	7 × 3 × 2	12	7	Coll. (7,2,1) & (7,3,1), Drop (1/6,2/3,1); conv.
State × Hispanicity × Gender	7 × 2 × 2	6	5	Drop (6,1,1); conv.
Total		307	211	

Appendix D5: Model Group 5: South Atlantic
(Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina,
South Carolina, Virginia, and West Virginia)

Table D.5a 2010 NSDUH Person Weight GEM Modeling Summary (Model Group 5: South Atlantic)

Modeling Step ¹	Extreme Weight Proportions			UWE ²	# XVAR ³	Bounds ⁴	
	% Unweighted	% Weighted	% Outwisor			Nominal	Realized
<i>res.sdu.nr</i>	8.27	10.35	0.95	1.64885	459	(1.00, 2.00)	(1.00, 1.96)
	3.79	3.62	0.22	1.62549	298	(1.00, 5.00)	(1.00, 5.00)
						(1.00, 1.38)	(1.00, 1.35)
<i>res.sdu.ps</i>	3.79	3.62	0.22	1.62549	337	(0.20, 1.10)	(0.20, 1.10)
	1.29	1.75	0.26	1.58147	336	(0.20, 4.45)	(0.20, 4.42)
						(0.90, 1.29)	(0.90, 1.29)
<i>sel.per.ps</i>	2.72	5.87	1.16	2.86615	467	(0.56, 1.40)	(0.56, 1.40)
	1.09	2.02	0.34	3.03843	437	(0.20, 4.46)	(0.20, 4.45)
						(0.50, 2.22)	(0.50, 2.21)
<i>res.per.nr</i>	1.25	2.29	0.44	3.09685	467	(1.00, 2.60)	(1.00, 2.60)
	0.81	2.21	0.44	3.56949	424	(1.00, 5.00)	(1.00, 5.00)
						(1.00, 1.44)	(1.00, 1.43)
<i>res.per.ps</i>	0.92	2.51	0.48	3.56949	387	(0.20, 1.40)	(0.20, 1.40)
	0.62	1.35	0.12	3.61095	324	(0.20, 4.10)	(0.20, 4.02)
						(0.90, 1.18)	(0.90, 1.18)

¹ For a key to modeling abbreviations, see Chapter 5, [Exhibit 5.1](#).

² Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n] * CV^2$, where CV = coefficient of variation of weights.

³ Number of proposed covariates (XVAR) on top line and number finalized after modeling.

⁴ There are six sets of bounds for each modeling step. Nominal bounds are used in defining maximum/minimum values for the generalized exponential model (GEM) adjustment factors. The realized bound is the actual adjustment produced by the modeling. The set of three bounds listed for each step correspond to the high extreme values, the nonextreme values, and the low extreme values.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table D.5b Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (Model Group 5: South Atlantic)

	<i>sel.sdu.des</i> ¹	<i>res.sdu.nr</i> ¹		<i>res.sdu.ps</i> ¹		<i>sel.per.des</i> ¹		<i>sel.per.ps</i> ¹		<i>res.per.nr</i> ¹		<i>res.per.ps</i> ¹	
	1-7 ²	8 ³	1-8 ³	9 ⁴	1-9 ⁴	11 ⁵	1-11 ⁵	12 ⁵	1-12 ⁵	13 ⁶	1-13 ⁶	14 ⁶	1-14 ⁶
Minimum	44	0.25	45	0.14	11	1.01	15	0.20	7	0.44	7	0.09	2
1%	45	0.95	46	0.38	46	1.01	70	0.41	59	0.97	64	0.20	45
5%	52	1.00	57	0.72	67	1.01	179	0.66	158	1.00	169	0.37	136
10%	56	1.03	77	0.84	92	1.01	318	0.75	290	1.02	322	0.79	278
25%	286	1.07	318	1.00	344	1.12	816	0.87	786	1.08	886	0.96	843
Median	590	1.11	695	1.10	804	1.62	1,525	0.99	1,514	1.17	1,736	1.02	1,726
75%	1,040	1.17	1,210	1.23	1,257	5.81	4,541	1.12	4,542	1.30	4,966	1.09	4,878
90%	1,501	1.26	1,681	1.37	1,782	11.34	10,152	1.26	10,301	1.49	12,319	1.20	12,025
95%	1,859	1.34	2,005	1.51	2,138	13.19	13,428	1.39	14,296	1.66	18,360	1.32	18,632
99%	2,157	1.72	2,533	1.95	3,021	14.06	22,921	1.94	25,251	2.27	34,259	1.83	35,983
Maximum	5,079	5.00	5,626	4.42	6,803	24.52	58,398	4.98	75,889	5.00	126,552	4.02	93,110
n	29,365	25,841	25,841	25,841	25,841	13,324	13,324	13,324	13,324	10,879	10,879	10,879	10,879
Max/Mean	6.88	-	6.71	-	7.54	-	16.35	-	20.64	-	28.10	-	20.67

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.

Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.

Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 because of the built-in control for extreme values. For an explanation, see Chapter 2.

¹ Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, Exhibit 5.1.

² Based on eligible dwelling units.

³ Based on screener-complete dwelling units.

⁴ Based on screener-complete dwelling units, occupants verified eligible.

⁵ Based on selected persons.

⁶ Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Model Group 5 Overview

Dwelling Unit Nonresponse

All 27 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the State \times Population Density, State \times Group Quarter, and State \times percent Hispanic or Latino interactions. Out of 176 proposed variables, 153 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Many factors were excluded because of zero sample sizes or exact linear combinations. Out of 256 proposed variables, 118 were included in the model.

In the final model, a total of 298 variables were included; see [Exhibit D5.1](#).

Dwelling Unit Poststratification

All 22 proposed one-factor effects were included in the model.

All 125 proposed two-factor effects were included in the model.

For three-factor effects, variable collapsing was present in the State \times Race \times Hispanicity interaction. Out of 190 proposed variables, 189 were included in the model.

In the final model, a total of 336 variables were included; see [Exhibit D5.2](#).

Selected Person-Level Poststratification

All 40 proposed one-factor effects were included in the model.

For two-factor effects, variable collapse and dropping was present in the State \times percent Hispanic or Latino interaction. Out of 237 proposed variables, 233 were included in the model.

For three-factor effects, variable collapsing or dropping was present in the State \times Age \times Race, State \times Age \times Hispanicity, and State \times Race \times Hispanicity interactions. Out of 190 proposed variables, 164 were included in the model.

In the final model, a total of 437 variables were included; see [Exhibit D5.3](#).

Respondent Person-Level Nonresponse

All 40 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the State \times percent Hispanic or Latino interaction. Out of 237 proposed variables, 233 were included in the model.

For three-factor effects, all levels are present for the State \times Age \times Race, State \times Age \times Hispanicity, State \times Race \times Hispanicity, and State \times Race \times Gender interactions. Out of 190 proposed variables, 151 were included in the model.

In the final model, a total of 424 variables were included; see [Exhibit D5.4](#).

Respondent Person-Level Poststratification

All 23 proposed one-factor effects were included in the model.

All two-factor effects are present except the Race \times Hispanicity and State \times Race interactions. Out of 137 proposed variables, 128 were included in the model.

For three-factor effects, all levels are present for the Age \times Race \times Hispanicity, Race \times Hispanicity \times Gender, State \times Age \times Race, State \times Age \times Hispanicity, and State \times Race \times Hispanicity interactions. All the others were affected by variable collapsing or dropping. Out of 227 proposed variables, 173 were included in the model.

In the final model, a total of 324 variables were included; see [Exhibit D5.5](#).

Exhibit D5.1 Covariates for 2010 NSDUH Person Weights (res.sdu.nr), Model Group 5: South Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects				
Intercept	1	1	1	All levels present.
State	9	8	8	All levels present.
Quarter	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects				
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	9 × 4	24	24	All levels present.
State × Population Density	9 × 4	24	14	Drop (1,*), (2,*), (4,2/3), (5,3), (8,1); sing., zero.
State × Group Quarter	9 × 3	16	7	Drop (1,2), (4,*), (5,2), (6,*), (7,1), (8,*); sing., zero.
State × % Black or African American	9 × 3	16	16	All levels present.
State × % Hispanic or Latino	9 × 3	16	12	Drop (6/7/8,1), (8,2); zero.
State × % Owner-Occupied	9 × 3	16	16	All levels present.
State × Rent/Housing	9 × 5	32	32	All levels present.
Three-Factor Effects				
State × % Owner-Occupied × % Black or African American	9 × 3 × 3	32	21	Coll. (5,2,1) & (5,3,2); sing. Drop (7,3,1); zero. Drop (7,3,2); sing. Drop (6,3,1), (8,3,1/2), (8,2,1); zero. Drop (2,*,*); conv.
State × % Owner-Occupied × % Hispanic or Latino	9 × 3 × 3	32	9	Drop (9,2,1); sing. Drop (5,3,1); zero. Drop (5,2,1); sing. Drop (7,3,1/2); zero. Drop (4,3,1/2), (4,2,2); zero. Drop (4,2,1); sing. Drop (6,3/2,1); zero. Drop (6,3,2); conv. Drop (1,3,1/2); zero. Drop (1,2,1); sing. Drop (8,3,1/2), (8,2,1/2); zero.
State × % Owner-Occupied × Rent/Housing	9 × 3 × 5	64	32	Drop (9,3,1); zero. Coll. (5,3,1) & (5,3,2), (5,3,3) & (5,3,4); sing. Drop (7,3,*); sing., zero. Drop (4,3,*); sing., zero. Drop (6,3,*); zero, sing., conv. Drop (1,3,2/3); zero. Drop (1,2,4); sing. Drop (8,3,*), (8,2,3/4); zero, sing. Drop (2,*,*); conv.
State × Rent/Housing × % Black or African American	9 × 3 × 5	64	37	Drop (9,4,1), (5,4,1); sing. Coll. (7,3,1) & (7,3,2), (7,4,1) & (7,4,2), (4,4,1) & (4,4,2); sing. Drop (6,3,1); sing. Drop (6,4,1); zero. Drop (1,1,1/2), (1,4,1); zero, sing. Drop (8,1,2), (8,2/3/4,*); zero, sing. Drop (2,*,*); zero, sing., conv.
State × Rent/Housing × % Hispanic or Latino	9 × 3 × 5	64	19	Drop (9,1,1); sing. Drop (5,1/2,1), (5,3/4,*); zero, sing. Drop (7,2,1/2), (7,3/4,1), (4,1/2/3,*), (4,4,1); zero. Drop (6,1,1), (6,2/3/4,*); zero, sing. Drop (8,*,*); zero. Drop (2,*,*); zero, sing., conv.
Total		459	298	

Exhibit D5.2 Covariates for 2010 NSDUH Person Weights (res.sdu.ps), Model Group 5: South Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		22	22	All levels present.
Intercept	1	1	1	All levels present.
State	9	8	8	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		125	125	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	9 × 4	24	24	All levels present.
State × Age	9 × 5	32	32	All levels present.
State × Race (5 levels)	9 × 5	32	32	All levels present.
State × Hispanicity	9 × 2	8	8	All levels present.
State × Gender	9 × 2	8	8	All levels present.
Three-Factor Effects		190	189	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	8	All levels present.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	9 × 5 × 3	64	64	All levels present.
State × Age × Hispanicity	9 × 5 × 2	32	32	All levels present.
State × Age × Gender	9 × 5 × 2	32	32	All levels present.
State × Race (3 levels) × Hispanicity	9 × 3 × 2	16	15	Coll. (7,2,1) & (7,3,1); conv.
State × Race (3 levels) × Gender	9 × 3 × 2	16	16	All levels present.
State × Hispanicity × Gender	9 × 2 × 2	8	8	All levels present.
Total		337	336	

Exhibit D5.3 Covariates for 2010 NSDUH Person Weights (sel.per.ps), Model Group 5: South Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		40	40	All levels present.
Intercept	1	1	1	All levels present.
State	9	8	8	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		237	233	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	9 × 4	24	24	All levels present.
State × Age	9 × 5	32	32	All levels present.
State × Race (5 levels)	9 × 5	32	32	All levels present.
State × Hispanicity	9 × 2	8	8	All levels present.
State × Gender	9 × 2	8	8	All levels present.
State × % Black or African American	9 × 3	16	16	All levels present.
State × % Hispanic or Latino	9 × 3	16	12	Drop (6/7,1), (8,1/2); zero.
State × % Owner-Occupied	9 × 3	16	16	All levels present.
State × Rent/Housing	9 × 5	32	32	All levels present.
Three-Factor Effects		190	164	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	8	All levels present.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	9 × 5 × 3	64	56	Coll. (7,1,2) & (7,1,3). Repeat for all age levels, then repeat for State WV; conv.
State × Age × Hispanicity	9 × 5 × 2	32	28	Drop all for State WV; zero, conv.
State × Age × Gender	9 × 5 × 2	32	32	All levels present.
State × Race (3 levels) × Hispanicity	9 × 3 × 2	16	2	Drop all except for State FL; zero, conv.
State × Race (3 levels) × Gender	9 × 3 × 2	16	16	All levels present.
State × Hispanicity × Gender	9 × 2 × 2	8	8	All levels present.
Total		467	437	

Exhibit D5.4 Covariates for 2010 NSDUH Person Weights (res.per.nr), Model Group 5: South Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		40	40	All levels present.
Intercept	1	1	1	All levels present.
State	9	8	8	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		237	233	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	9 × 4	24	24	All levels present.
State × Age	9 × 5	32	32	All levels present.
State × Race (5 levels)	9 × 5	32	32	All levels present.
State × Hispanicity	9 × 2	8	8	All levels present.
State × Gender	9 × 2	8	8	All levels present.
State × % Black or African American	9 × 3	16	16	All levels present.
State × % Hispanic or Latino	9 × 3	16	12	Drop (6/7,1), (8,1/2); zero.
State × % Owner-Occupied	9 × 3	16	16	All levels present.
State × Rent/Housing	9 × 5	32	32	All levels present.
Three-Factor Effects		190	151	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	8	All levels present.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	9 × 5 × 3	64	43	Coll. (8,4,2) & (8,4,3); sing. Coll. (9,1,2) & (9,1,3). Repeat for all age levels. Repeat for States DC, NC, SC, and VA; conv.
State × Age × Hispanicity	9 × 5 × 2	32	31	Drop (8,3,1); zero.
State × Age × Gender	9 × 5 × 2	32	32	All levels present.
State × Race (3 levels) × Hispanicity	9 × 3 × 2	16	7	Drop (8,2,1); zero. Coll. (1,2,1) & (1,3,1). Repeat for all States. Drop (6,*,1); conv.
State × Race (3 levels) × Gender	9 × 3 × 2	16	8	Coll. (1,2,1) & (1,3,1). Repeat for all States; conv.
State × Hispanicity × Gender	9 × 2 × 2	8	8	All levels present.
Total		467	424	

Exhibit D5.5 Covariates for 2010 NSDUH Person Weights (res.per.ps), Model Group 5: South Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		23	23	All levels present.
Intercept	1	1	1	All levels present.
State	9	8	8	All levels present.
Quarter	4	3	3	All levels present.
Age	6	5	5	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		137	128	All levels present.
Age × Race (3 levels)	6 × 3	10	10	All levels present.
Age × Hispanicity	6 × 2	5	5	All levels present.
Age × Gender	6 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	1	Coll. (2,1) & (3,1); conv.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	9 × 4	24	24	All levels present.
State × Age	9 × 6	40	40	All levels present.
State × Race (5 levels)	9 × 5	32	24	Coll. (1,3) & (1,4). Repeat for all States; conv.
State × Hispanicity	9 × 2	8	8	All levels present.
State × Gender	9 × 2	8	8	All levels present.
Three-Factor Effects		227	173	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	5	Coll. (1,2,1) & (1,3,1). Repeat for all age levels; hier.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	10	All levels present.
Age × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); hier.
State × Age × Race (3 levels)	9 × 6 × 3	80	54	Coll. (5,4,2) & (5,4,3), (5,5,2) & (5,5,3), (8,5,2) & (8,5,3); sing. Coll. (1,1,2) & (1,1,3). Repeat for all age levels. Repeat for States MD, NC, and VA. Drop all for NC; conv.
State × Age × Hispanicity	9 × 6 × 2	40	26	Drop (7/8,5,1); sing. Drop all for States MD and WV. Drop (6,3/4/5,1); conv.
State × Age × Gender	9 × 6 × 2	40	40	All levels present.
State × Race (3 levels) × Hispanicity	9 × 3 × 2	16	8	Coll. (1,2,1) & (1,3,1). Repeat for all States; hier.
State × Race (3 levels) × Gender	9 × 3 × 2	16	16	All levels present.
State × Hispanicity × Gender	9 × 2 × 2	8	8	All levels present.
Total		387	324	

Appendix D6: Model Group 6: East South Central
(Alabama, Kentucky, Mississippi, and Tennessee)

Table D.6a 2010 NSDUH Person Weight GEM Modeling Summary (Model Group 6: East South Central)

Modeling Step ¹	Extreme Weight Proportions			UWE ²	# XVAR ³	Bounds ⁴	
	% Unweighted	% Weighted	% Outwisor			Nominal	Realized
<i>res.sdu.nr</i>	0.92	0.78	0.00	1.11438	204	(1.01, 1.16)	(1.01, 1.15)
	0.56	0.69	0.02	1.12340	118	(1.00, 1.29)	(1.00, 1.28)
<i>res.sdu.ps</i>						(1.00, 1.19)	(1.00, 1.18)
	0.56	0.69	0.02	1.12337	162	(0.67, 1.10)	(0.67, 1.10)
	2.38	3.91	0.77	1.14307	152	(0.20, 5.00)	(0.20, 4.99)
<i>sel.per.ps</i>						(0.90, 1.09)	(0.90, 1.09)
	3.81	6.72	1.24	2.29677	242	(0.20, 3.00)	(0.20, 3.00)
	1.83	4.45	0.91	2.49434	206	(0.20, 5.00)	(0.20, 5.00)
<i>res.per.nr</i>						(0.30, 4.31)	(0.30, 4.30)
	1.90	4.21	0.97	2.61047	242	(1.00, 3.00)	(1.00, 3.00)
	1.48	4.05	0.79	2.96359	176	(1.00, 5.00)	(1.00, 5.00)
<i>res.per.ps</i>						(1.20, 1.40)	(1.20, 1.20)
	1.54	4.19	0.81	2.96359	187	(0.20, 2.50)	(0.20, 2.50)
	0.98	3.12	1.08	3.21129	135	(0.20, 5.00)	(0.20, 5.00)
						(0.40, 1.10)	(0.40, 0.40)

¹ For a key to modeling abbreviations, see Chapter 5, [Exhibit 5.1](#).

² Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n] * CV^2$, where CV = coefficient of variation of weights.

³ Number of proposed covariates (XVAR) on top line and number finalized after modeling.

⁴ There are six sets of bounds for each modeling step. Nominal bounds are used in defining maximum/minimum values for the generalized exponential model (GEM) adjustment factors. The realized bound is the actual adjustment produced by the modeling. The set of three bounds listed for each step correspond to the high extreme values, the nonextreme values, and the low extreme values.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table D.6b Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (Model Group 6: East South Central)

	<i>sel.sdu.des</i> ¹	<i>res.sdu.nr</i> ¹		<i>res.sdu.ps</i> ¹		<i>sel.per.des</i> ¹		<i>sel.per.ps</i> ¹		<i>res.per.nr</i> ¹		<i>res.per.ps</i> ¹	
	1-7 ²	8 ³	1-8 ³	9 ⁴	1-9 ⁴	11 ⁵	1-11 ⁵	12 ⁵	1-12 ⁵	13 ⁶	1-13 ⁶	14 ⁶	1-14 ⁶
Minimum	142	0.90	290	0.20	102	1.01	154	0.09	50	0.39	50	0.08	13
1%	403	1.00	409	0.55	398	1.01	430	0.21	246	0.89	318	0.20	169
5%	414	1.01	448	0.75	494	1.01	631	0.52	498	1.00	563	0.68	509
10%	471	1.02	493	0.84	550	1.01	749	0.65	622	1.00	691	0.84	666
25%	659	1.05	693	0.96	693	1.12	963	0.80	894	1.05	1,001	0.97	979
Median	721	1.07	778	1.09	865	1.35	1,472	0.98	1,493	1.16	1,694	1.01	1,683
75%	917	1.11	1,002	1.21	1,053	5.35	4,854	1.19	4,446	1.33	5,071	1.07	4,943
90%	1,226	1.15	1,322	1.36	1,337	11.36	8,861	1.43	8,800	1.55	10,872	1.13	10,983
95%	1,345	1.19	1,434	1.54	1,518	13.07	11,973	1.63	11,698	1.76	15,346	1.18	15,459
99%	1,427	1.24	1,645	2.05	1,990	14.07	16,344	2.23	19,277	2.79	29,230	2.33	28,258
Maximum	1,468	2.04	1,735	4.99	6,587	18.80	32,170	14.05	41,761	5.00	63,423	5.00	91,931
n	8,556	7,897	7,897	7,896	7,896	4,434	4,434	4,434	4,434	3,572	3,572	3,572	3,572
Max/Mean	1.88	-	2.05	-	7.20	-	9.57	-	12.28	-	15.02	-	21.77

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.

Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.

Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 because of the built-in control for extreme values. For an explanation, see Chapter 2.

¹ Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, Exhibit 5.1.

² Based on eligible dwelling units.

³ Based on screener-complete dwelling units.

⁴ Based on screener-complete dwelling units, occupants verified eligible.

⁵ Based on selected persons.

⁶ Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Model Group 6 Overview

Dwelling Unit Nonresponse

For the one-factor effects, variable dropping was present in the Group quarter and percent Hispanic or Latino main effects. Out of 22 proposed variables, 19 were included in the model.

For the two-factor effects, variable collapsing or dropping was present in the percent Owner-occupied \times percent Hispanic or Latino, Rent/housing \times percent Hispanic or Latino, and State \times percent Hispanic or Latino interactions. Out of 86 proposed variables, 71 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 96 proposed variables, 28 were included in the model.

In the final model, a total of 118 variables were included; see [Exhibit D6.1](#).

Dwelling Unit Poststratification

All of the 17 proposed one-factor effects were included in the model.

For the two-factor effects, variable collapsing was present in the State \times Race interaction. Out of 60 proposed variables, 59 were included in the model.

For the three-factor effects, variable collapsing or dropping was present in the Age \times Race \times Hispanicity and State \times Race \times Hispanicity interactions. Out of 85 proposed variables, 76 were included in the model.

In the final model, a total of 152 variables were included; see [Exhibit D6.2](#).

Selected Person-Level Poststratification

For the one-factor effects, variable collapsing or dropping was present in the percent Hispanic or Latino main effects. Out of 35 proposed one-factor effects, 34 were included in the model.

For the two-factor effects, variable collapsing or dropping was present in the percent Owner-occupied \times percent Hispanic or Latino, Rent/housing \times percent Hispanic or Latino, State \times Race, and State \times percent Hispanic or Latino interactions. Out of 122 proposed variables, 110 were included in the model.

For the three-factor effects, all levels were present for the Age \times Race \times Hispanicity, Age \times Hispanicity \times Gender, State \times Age \times Gender, and State \times Hispanicity \times Gender interactions. Variable collapsing or dropping was present in all other interactions. Out of 85 proposed variables, 62 were included in the model.

In the final model, a total of 206 variables were included; see [Exhibit D6.3](#).

Respondent Person-Level Nonresponse

For the one-factor effects, variable collapsing or dropping was present in the percent Hispanic or Latino variables. Out of 35 proposed one-factor effects, 34 were included in the model.

For the two-factor effects, variable collapsing or dropping was present in the Age × Race, Race × Hispanicity, percent Owner-occupied × percent Hispanic or Latino, Rent/housing × percent Hispanic Latino, State × Race, and State × percent Hispanic or Latino interactions. Out of 122 proposed variables, 104 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 85 proposed variables, 38 were included in the model.

In the final model, a total of 176 variables were included; see [Exhibit D6.4](#).

Respondent Person-Level Poststratification

All 18 proposed one-factor effects were included in the model.

For the two-factor effects, variable collapsing or dropping was present in the Age × Race, Age × Hispanicity, and State × Race interactions. Out of 67 proposed variables, 60 were included in the model.

Variable collapsing or dropping was present in all three-factor effects except the State × Age × Gender and State × Race × Gender interactions. Out of 102 proposed variables, 57 were included in the model.

In the final model, a total of 135 variables were included; see [Exhibit D6.5](#).

Exhibit D6.1 Covariates for 2010 NSDUH Person Weights (res.sdu.nr), Model Group 6: East South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects				
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	0	Drop (1/2); conv.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	1	Drop (1); zero.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects				
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	2	Drop (2,1), (3,1); zero, hier.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	4	Drop (1,1), (2,1), (3,1), (4,1); zero, hier.
State × Quarter	4 × 4	9	9	All levels present.
State × Population Density	4 × 4	9	9	All levels present.
State × Group Quarter	4 × 3	6	0	Drop all; hier., conv.
State × % Black or African American	4 × 3	6	6	All levels present.
State × % Hispanic or Latino	4 × 3	6	3	Drop (1,1), (2,1), (3,1); zero, hier.
State × % Owner-Occupied	4 × 3	6	6	All levels present.
State × Rent/Housing	4 × 5	12	12	All levels present.
Three-Factor Effects				
State × % Owner-Occupied × % Black or African American	4 × 3 × 3	12	7	Keep (1,3,1), (1,2,1), (1,2,2), (2,3,2), (2,2,2), (3,2,1), (3,2,2). Drop all others; zero, sing.
State × % Owner-Occupied × % Hispanic or Latino	4 × 3 × 3	12	0	Drop all; hier, zero, sing., conv.
State × % Owner-Occupied × Rent/Housing	4 × 3 × 5	24	7	Keep (1,3,1), (1,2,2), (2,3,4), (2,2,1), (2,2,2), (3,2,1), (3,2,4). Coll. (1,2,1) & (1,2,2). Drop all others; zero, sing., conv.
State × Rent/Housing × % Black or African American	4 × 3 × 5	24	14	Drop (2,4,1); zero. Drop (1,4,1), (2,2,1), (2,3,1), (3,1,2), (3,2,1), (3,3,1), (3,4,1); sing. Drop (2,1,2), (2,2,2); conv.
State × Rent/Housing × % Hispanic or Latino	4 × 3 × 5	24	0	Drop all; hier, zero, sing., conv.
Total		204	118	

Exhibit D6.2 Covariates for 2010 NSDUH Person Weights (res.sdu.ps), Model Group 6: East South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		17	17	
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		60	59	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	4 × 4	9	9	All levels present.
State × Age	4 × 5	12	12	All levels present.
State × Race (5 levels)	4 × 5	12	11	Coll. (3,3) & (3,4); conv.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
Three-Factor Effects		85	76	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	5	Coll. (1,2,1) & (1,3,1); conv. Coll. (3,2,1) & (3,3,1); zero. Then drop (3,2/3,1); conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	4 × 5 × 3	24	24	All levels present.
State × Age × Hispanicity	4 × 5 × 2	12	12	All levels present.
State × Age × Gender	4 × 5 × 2	12	12	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	0	Coll. (*,2,1) & (*,3,1); conv, then drop (*,2/3,1); conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	6	All levels present.
State × Hispanicity × Gender	4 × 2 × 2	3	3	All levels present.
Total		162	152	

Exhibit D6.3 Covariates for 2010 NSDUH Person Weights (sel.per.ps), Model Group 6: East South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		35	34	
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	1	Drop (1); zero.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		122	110	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic	3 × 3	4	2	Drop (*,1); heir.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	4	Drop (*,1); heir.
State × Quarter	4 × 4	9	9	All levels present.
State × Age	4 × 5	12	12	All levels present.
State × Race (5 levels)	4 × 5	12	9	Coll. (1,3) & (1,4); conv. Repeat for States KY and MS.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
State × % Black or African American	4 × 3	6	6	All levels present.
State × % Hispanic or Latino	4 × 3	6	3	Drop (*,1); heir.
State × % Owner-Occupied	4 × 3	6	6	All levels present.
State × Rent/Housing	4 × 5	12	12	All levels present.
Three-Factor Effects		85	62	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	1	Coll. (1,2,1) & (1,3,1); conv. Repeat for age level 2; sing. Drop (2,2/3,1); conv. Drop (3,2,1); zero. Repeat for age level 4; sing. Drop (3,3,1). Repeat for age level 4; zero.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	0	Coll. (2,1,1) & (3,1,1); conv. Drop (2/3,1,1); conv.
State × Age × Race (3 levels)	4 × 5 × 3	24	18	Coll. (*,3,2) & (*,3,3); conv. Coll. (1,4,2) & (1,4,3). Repeat for State KY. Coll. (2,2,2) & (2,2,3); conv.
State × Age × Hispanicity	4 × 5 × 2	12	9	Drop (2,3,1); conv. Drop (2,4,1), (3,4,1); sing.
State × Age × Gender	4 × 5 × 2	12	12	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	2	Coll. (1,2,1) & (1,3,1); zero. Coll. (3,2,1) & (3,3,1); conv. Drop (1,2/3,1), (3,2/3,1); conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	5	Coll. (1,2,1) & (1,3,1); conv.
State × Hispanicity × Gender	4 × 2 × 2	3	3	All levels present.
Total		242	206	

Exhibit D6.4 Covariates for 2010 NSDUH Person Weights (res.per.nr), Model Group 6: East South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		35	34	
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	1	Drop (1); zero.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		122	104	
Age × Race (3 levels)	5 × 3	8	7	Coll. (3,2) & (3,3); conv.
Age × Hispanicity	5 × 2	4	3	Drop (4,1); conv.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	1	Coll. (2,1) & (3,1); conv.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	2	Drop (*,1); heir.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	4	Drop (*,1); heir.
State × Quarter	4 × 4	9	9	All levels present.
State × Age	4 × 5	12	12	All levels present.
State × Race (5 levels)	4 × 5	12	7	Coll. (*,3) & (*,4); conv. Coll. (1,3/4) & (1,5). Repeat for State KY; conv.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
State × % Black or African American	4 × 3	6	6	All levels present.
State × % Hispanic or Latino	4 × 3	6	2	Drop (*,1); heir. Drop (3,2); conv.
State × % Owner-Occupied	4 × 3	6	6	All levels present.
State × Rent/Housing	4 × 5	12	12	All levels present.
Three-Factor Effects		85	38	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	0	Coll. (*,2,1) & (*,3,1); heir. Drop (1,2/3,1); conv. Drop (2,2/3,1); sing., Drop (3,2/3,1); zero. Drop (4,2/3,1); heir.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	5	Coll. (3,2,1) & (3,3,1); heir. Coll. (1,2,1) & (1,3,1); conv. Repeat for age level 4.
Age × Hispanicity × Gender	5 × 2 × 2	4	1	Drop (4,1,1); heir. Drop (2,1,1). Repeat for age level 3; conv.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	0	Coll. (2,1,1) & (3,1,1); heir. Drop (2/3,1,1); conv.
State × Age × Race (3 levels)	4 × 5 × 3	24	14	Coll. (*,3,2) & (*,3,3); heir. Coll. (*,4,2) & (*,4,3); conv. Coll. (2,1,2) & (2,1,3); conv. Repeat for State MS. Coll. (2,2,2) & (2,2,3); conv. repeat for State MS.
State × Age × Hispanicity	4 × 5 × 2	12	1	Drop (1,1,1), (1,2,1), (1,3,1); conv. Drop (1,4,1); heir. Repeat for State KY. Drop (3,2,1), (3,3,1); conv. Drop (3,4,1); heir.
State × Age × Gender	4 × 5 × 2	12	12	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	0	Coll. (*,2,1) & (*,3,1); heir. Drop (*,2/3,1); conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	4	Coll. (1,2,1) & (1,3,1); conv. Repeat for State MS.
State × Hispanicity × Gender	4 × 2 × 2	3	1	Drop (1,1,1); conv. Repeat for State KY.
Total		242	176	

Exhibit D6.5 Covariates for 2010 NSDUH Person Weights (res.per.ps), Model Group 6: East South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		18	18	
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Age	6	5	5	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		67	60	
Age × Race (3 levels)	6 × 3	10	8	Coll. (3,2) & (3,3); conv. Repeat for age level 5; sing.
Age × Hispanicity	6 × 2	5	3	Drop (4,1), (5,1); conv.
Age × Gender	6 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	4 × 4	9	9	All levels present.
State × Age	4 × 6	15	15	All levels present.
State × Race (5 levels)	4 × 5	12	9	Coll. (*,3) & (*,4); conv.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
Three-Factor Effects		102	57	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	1	Keep (1,2/3,1), drop others; heir., sing., conv.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	8	Coll. (3,2,1) & (3,3,1); heir. Repeat for age level 5.
Age × Hispanicity × Gender	6 × 2 × 2	5	2	Drop (3,1,1); conv. Repeat for age level 4 and 5; heir.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	4 × 6 × 3	30	22	Coll. (*,3,2) & (*,3,3); heir. Coll. (*,5,2) & (*,5,3); heir. Drop (2,5,2/3); conv. Coll. (1,4,2) & (1,4,3); conv.
State × Age × Hispanicity	4 × 6 × 2	15	0	Drop all; heir., sing., conv.
State × Age × Gender	4 × 6 × 2	15	15	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	0	Drop all due to conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	6	All levels present.
State × Hispanicity × Gender	4 × 2 × 2	3	2	Drop (1,1,1); conv.
Total		187	135	

Appendix D7: Model Group 7: West South Central
(Arkansas, Louisiana, Oklahoma, and Texas)

Table D.7a 2010 NSDUH Person Weight GEM Modeling Summary (Model Group 7: West South Central)

Modeling Step ¹	Extreme Weight Proportions			UWE ²	# XVAR ³	Bounds ⁴	
	% Unweighted	% Weighted	% Outwisor			Nominal	Realized
<i>res.sdu.nr</i>	7.81	10.58	0.76	1.15402	204	(1.00, 1.40)	(1.01, 1.39)
	2.38	2.50	0.13	1.14172	126	(1.00, 5.00)	(1.00, 1.63)
						(1.00, 5.00)	(1.00, 2.12)
<i>res.sdu.ps</i>	2.38	2.50	0.13	1.14173	162	(0.22, 1.10)	(0.22, 1.10)
	1.54	2.10	0.30	1.16861	161	(0.20, 4.05)	(0.20, 4.02)
						(0.90, 2.46)	(0.90, 2.46)
<i>sel.per.ps</i>	2.88	6.46	1.55	2.25732	242	(0.75, 3.00)	(0.77, 3.00)
	1.57	3.85	0.67	2.35093	223	(0.27, 4.36)	(0.28, 4.28)
						(0.90, 3.57)	(0.90, 3.57)
<i>res.per.nr</i>	2.06	4.55	0.87	2.41388	242	(1.00, 2.79)	(1.00, 2.78)
	1.06	2.63	0.43	2.67814	214	(1.00, 5.00)	(1.00, 5.00)
						(1.30, 5.00)	(1.30, 5.00)
<i>res.per.ps</i>	1.12	2.81	0.52	2.67814	187	(0.20, 2.40)	(0.20, 2.40)
	0.84	2.88	0.37	2.79941	160	(0.20, 4.73)	(0.20, 4.73)
						(0.90, 5.00)	(N/A, N/A)

N/A = Not applicable.

¹ For a key to modeling abbreviations, see Chapter 5, [Exhibit 5.1](#).

² Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n] * CV^2$, where *CV* = coefficient of variation of weights.

³ Number of proposed covariates (XVAR) on top line and number finalized after modeling.

⁴ There are six sets of bounds for each modeling step. Nominal bounds are used in defining maximum/minimum values for the generalized exponential model (GEM) adjustment factors. The realized bound is the actual adjustment produced by the modeling. The set of three bounds listed for each step correspond to the high extreme values, the nonextreme values, and the low extreme values.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table D.7b Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (Model Group 7: West South Central)

	<i>sel.sdu.des</i> ¹	<i>res.sdu.nr</i> ¹		<i>res.sdu.ps</i> ¹		<i>sel.per.des</i> ¹		<i>sel.per.ps</i> ¹		<i>res.per.nr</i> ¹		<i>res.per.ps</i> ¹	
	1-7 ²	8 ³	1-8 ³	9 ⁴	1-9 ⁴	11 ⁵	1-11 ⁵	12 ⁵	1-12 ⁵	13 ⁶	1-13 ⁶	14 ⁶	1-14 ⁶
Minimum	270	0.75	409	0.20	90	1.01	94	0.28	36	0.47	36	0.09	10
1%	410	0.95	428	0.33	203	1.01	221	0.45	174	0.98	182	0.20	96
5%	526	1.01	545	0.75	463	1.01	609	0.66	538	1.00	615	0.20	333
10%	538	1.02	589	0.89	577	1.01	750	0.75	709	1.03	847	0.63	657
25%	629	1.05	692	1.01	765	1.14	1,188	0.88	1,188	1.09	1,360	0.94	1,253
Median	938	1.08	988	1.11	1,056	1.39	1,729	1.00	1,777	1.19	2,074	1.04	2,157
75%	993	1.12	1,104	1.23	1,276	5.14	5,297	1.11	4,927	1.34	5,536	1.20	5,347
90%	1,232	1.18	1,285	1.39	1,479	9.65	8,449	1.26	8,871	1.52	11,545	1.28	11,817
95%	1,250	1.21	1,382	1.53	1,639	11.69	13,434	1.38	13,694	1.69	17,357	1.30	17,448
99%	2,792	1.30	1,981	1.89	2,872	14.61	17,633	1.69	19,050	2.30	29,599	2.03	29,381
Maximum	3,607	2.46	3,296	4.02	5,291	23.28	39,570	4.28	52,443	14.47	52,443	4.73	62,206
n	13,612	12,503	12,503	12,500	12,500	7,839	7,839	7,839	7,839	6,318	6,318	6,318	6,318
Max/Mean	4.17	-	3.50	-	5.02	-	10.82	-	14.23	-	11.47	-	13.61

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.

Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.

Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 because of the built-in control for extreme values. For an explanation, see Chapter 2.

¹ Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, [Exhibit 5.1](#).

² Based on eligible dwelling units.

³ Based on screener-complete dwelling units.

⁴ Based on screener-complete dwelling units, occupants verified eligible.

⁵ Based on selected persons.

⁶ Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Model Group 7 Overview

Dwelling Unit Nonresponse

All 22 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing and dropping was present in the Rent/Housing \times percent Black or African American, State \times Population Density, State \times Group quarters, State \times percent Hispanic or Latino, and State \times Rent/Housing interactions. Out of 86 proposed variables, 76 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 96 proposed variables, 28 were included in the model.

In the final model, a total of 126 variables were included; see [Exhibit D7.1](#).

Dwelling Unit Poststratification

All 17 proposed one-factor effects were included in the model.

All 60 proposed two-factor effects were included in the model.

For three-factor effects, variable collapsing was present in the State \times Race \times Hispanicity interaction. Out of 85 proposed variables, 84 were included in the model.

In the final model, a total of 161 variables were included; see [Exhibit D7.2](#).

Selected Person-Level Poststratification

All 35 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing was present in percent Owner-Occupied \times percent Black or African American and State \times percent Hispanic or Latino interactions. Out of 122 proposed variables, 120 were included in the model.

For three-factor effects, variable collapsing and dropping were present in Age \times Race \times Hispanicity, State \times Age \times Race, and State \times Race \times Hispanicity interactions. Out of 85 proposed variables, 68 were included in the model.

In the final model, a total of 223 variables were included; see [Exhibit D7.3](#).

Respondent Person-Level Nonresponse

All 35 proposed one-factor effects were included in the model.

For two-factor effects, variable dropping was present in the Owner-Occupied \times percent Black or African American and State \times percent Hispanic or Latino interactions. Out of 122 proposed variables, 120 were included in the model.

Variable collapsing or dropping was present in Age \times Race \times Hispanicity, State \times Age \times Race, State \times Race \times Hispanicity, and State \times Race \times Gender interactions. Out of 85 proposed variables, 59 were included in the model.

In the final model, a total of 214 variables were included; see [Exhibit D7.4](#).

Respondent Person-Level Poststratification

All 18 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing was present in the Race \times Hispanicity and State \times Race interactions. Out of 67 proposed variables, 63 were included in the model.

For three-factor effects, variable collapsing and dropping were present in Age \times Race \times Hispanicity, Race \times Hispanicity \times Gender, State \times Age \times Race, State \times Age \times Hispanicity, and State \times Race \times Hispanicity interactions. Out of 102 proposed variables, 79 were included in the model.

In the final model, a total of 160 variables were included; see [Exhibit D7.5](#).

Exhibit D7.1 Covariates for 2010 NSDUH Person Weights (res.sdu.nr), Model Group 7: West South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		22	22	
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		86	76	
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	7	Coll. (4,1) & (4,2); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	4 × 4	9	9	All levels present.
State × Population Density	4 × 4	9	8	Coll. (2,1) & (2,2); sing.
State × Group Quarter	4 × 3	6	1	Coll. (4,1) & (4,2). Drop rest; zero.
State × % Black or African American	4 × 3	6	6	All levels present.
State × % Hispanic or Latino	4 × 3	6	5	Coll. (2,1) & (2,2); sing.
State × % Owner-Occupied	4 × 3	6	6	All levels present.
State × Rent/Housing	4 × 5	12	10	Coll. (2,1) & (2,2). Drop (2,4); conv.
Three-Factor Effects		96	28	
State × % Owner-Occupied × % Black or African American	4 × 3 × 3	12	5	Coll. (4,3,1) & (4,3,2), (2,2,1) & (2,2,2), & (2,3,1) & (2,3,2); conv. Coll. (3,2,1) & (3,2,2). Drop (3,3,1/2); sing.
State × % Owner-Occupied × % Hispanic or Latino	4 × 3 × 3	12	4	Coll. (2,2,1) & (2,2,2); heir. Coll. (4,2,1) & (4,2,2), (4,3,1) & (4,3,2), (3,2,1) & (3,2,2). Drop (3,3,1/2); sing. Drop (2,3,1/2); zero.
State × % Owner-Occupied × Rent/Housing	4 × 3 × 5	24	4	Drop (2,2/3,4); heir. Coll. (4,2,2) & (4,2,3). Drop (3,2/3,1); zero. Coll. (4,2,1) & (4,3,1), (4,2,3) & (4,3,3), (4,2,4) & (4,3,4). Drop (2,2/3,1), (3,2/3,4); sing. Drop (2/3,2/3,2/3); conv.
State × Rent/Housing × % Black or African American	4 × 3 × 5	24	7	Drop (2,4,1/2); heir. Coll. (4,1,1) & (4,1,2), (4,2,1) & (4,2,2). Coll. (2,1,1) & (2,1,2) & (2,2,1) & (2,2,2). Repeat for State OK. Coll. (2,3,1) & (2,3,2). Drop (3,3,1/2); conv. Coll. (4,3,1) & (4,3,2); zero. Coll. (4,4,1) & (4,4,2). Drop (3,4,1/2); sing.
State × Rent/Housing × % Hispanic or Latino	4 × 3 × 5	24	8	Coll. (2,3,1) & (2,3,2). Drop (2,4,1/2); heir. Coll. (4,1,1) & (4,1,2). Coll. (2,1,1) & (2,1,2) & (2,2,1) & (2,2,2); conv. Coll. (2,3,1) & (2,3,2), (2,4,1) & (2,4,2). Drop (3, 2/3/4, 1/2); sing. Coll. (3,1,1) & (3,1,2); zero.
Total		204	126	

Exhibit D7.2 Covariates for 2010 NSDUH Person Weights (res.sdu.ps), Model Group 7: West South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects				
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects				
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	4 × 4	9	9	All levels present.
State × Age	4 × 5	12	12	All levels present.
State × Race (5 levels)	4 × 5	12	12	All levels present.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
Three-Factor Effects				
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	8	All levels present.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	4 × 5 × 3	24	24	All levels present.
State × Age × Hispanicity	4 × 5 × 2	12	12	All levels present.
State × Age × Gender	4 × 5 × 2	12	12	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	5	Coll. (2,2,1) & (2,3,1); conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	6	All levels present.
State × Hispanicity × Gender	4 × 2 × 2	3	3	All levels present.
Total		162	161	

Exhibit D7.3 Covariates for 2010 NSDUH Person Weights (sel.per.ps), Model Group 7: West South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		35	35	
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		122	120	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	3	Coll. (4,1) & (4,2); sing;
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	4 × 4	9	9	All levels present.
State × Age	4 × 5	12	12	All levels present.
State × Race (5 levels)	4 × 5	12	12	All levels present.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
State × % Black or African American	4 × 3	6	6	All levels present.
State × % Hispanic or Latino	4 × 3	6	5	Coll. (2,1) & (2,2); zero.
State × % Owner-Occupied	4 × 3	6	6	All levels present.
State × Rent/Housing	4 × 5	12	12	All levels present.
Three-Factor Effects		85	68	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	7	Coll. (4,2,1) & (4,3,1); sing.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	4 × 5 × 3	24	12	Coll. (2,1,2) & (2,1,3). Repeat for all States and age levels; conv.
State × Age × Hispanicity	4 × 5 × 2	12	12	All levels present.
State × Age × Gender	4 × 5 × 2	12	12	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	2	Coll. (3,2,1) & (3,3,1), (4,2,1) & (4,3,1). Drop (2, 2/3,1); conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	6	All levels present.
State × Hispanicity × Gender	4 × 2 × 2	3	3	All levels present.
Total		242	223	

Exhibit D7.4 Covariates for 2010 NSDUH Person Weights (res.per.nr), Model Group 7: West South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		35	35	
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		122	120	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	7	Coll. (4,1) & (4,2); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	4 × 4	9	9	All levels present.
State × Age	4 × 5	12	12	All levels present.
State × Race (5 levels)	4 × 5	12	12	All levels present.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
State × % Black or African American	4 × 3	6	6	All levels present.
State × % Hispanic or Latino	4 × 3	6	5	Coll. (2,1) & (2,2); zero.
State × % Owner-Occupied	4 × 3	6	6	All levels present.
State × Rent/Housing	4 × 5	12	12	All levels present.
Three-Factor Effects		85	59	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	7	Coll. (4,2,1) & (4,3,1); sing.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	4 × 5 × 3	24	9	Coll. (2,1,2) & (2,1,3). Repeat for all States and age levels. Drop (2/3/4, 4, 2/3); conv.
State × Age × Hispanicity	4 × 5 × 2	12	12	All levels present.
State × Age × Gender	4 × 5 × 2	12	12	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	0	Drop all; conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	2	Coll. (2,2,1) & (2,3,1), (4,2,1) & (4,3,1). Drop (3,2/3,1); conv.
State × Hispanicity × Gender	4 × 2 × 2	3	3	All levels present.
Total		242	214	

Exhibit D7.5 Covariates for 2010 NSDUH Person Weights (res.per.ps), Model Group 7: West South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		18	18	
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Age	6	5	5	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		67	63	
Age × Race (3 levels)	6 × 3	10	10	All levels present.
Age × Hispanicity	6 × 2	5	5	All levels present.
Age × Gender	6 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	1	Coll. (2,1) & (3,1); conv.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	4 × 4	9	9	All levels present.
State × Age	4 × 6	15	15	All levels present.
State × Race (5 levels)	4 × 5	12	9	Coll. (1,3) & (1,4). Repeat for all States; conv.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
Three-Factor Effects		102	79	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	1	Coll. (1,2,1) & (1,3,1). Repeat for all age levels; hier. Coll. (1,*,*) & (2,*,*). Drop rest; conv.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	10	All levels present.
Age × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); heir.
State × Age × Race (3 levels)	4 × 6 × 3	30	25	Coll. (2,1,2) & (2,1,3). Repeat for all ages; conv.
State × Age × Hispanicity	4 × 6 × 2	15	12	Drop (2,5,1), (3,5,1); sing. Drop (4,5,1); conv.
State × Age × Gender	4 × 6 × 2	15	15	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	1	Coll. (3,2,1) & (3,3,1). Drop rest; conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	6	All levels present.
State × Hispanicity × Gender	4 × 2 × 2	3	3	All levels present.
Total		187	160	

Appendix D8: Model Group 8: Mountain
(Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming)

Table D.8a 2010 NSDUH Person Weight GEM Modeling Summary (Model Group 8: Mountain)

Modeling Step ¹	Extreme Weight Proportions			UWE ²	# XVAR ³	Bounds ⁴	
	% Unweighted	% Weighted	% Outwisor			Nominal	Realized
<i>res.sdu.nr</i>	5.29	16.98	9.49	3.39012	408	(1.00, 5.00)	(1.00, 5.00)
	3.64	11.91	2.82	2.45516	156	(1.00, 5.00)	(1.00, 5.00)
						(1.00, 5.00)	(1.00, 1.02)
<i>res.sdu.ps</i>	3.64	11.91	2.82	2.45535	302	(0.20, 1.10)	(0.20, 1.10)
	1.59	3.64	0.74	1.90882	292	(0.20, 5.00)	(0.20, 5.00)
						(0.90, 1.46)	(0.90, 1.46)
<i>sel.per.ps</i>	3.01	7.14	1.56	4.12544	422	(0.20, 3.00)	(0.20, 3.00)
	1.98	4.55	1.01	3.82826	374	(0.20, 5.00)	(0.20, 5.00)
						(0.90, 4.74)	(0.90, 4.74)
<i>res.per.nr</i>	2.85	6.32	1.38	3.79461	422	(1.00, 2.89)	(1.00, 2.88)
	1.69	4.53	0.81	4.57614	346	(1.00, 5.00)	(1.00, 5.00)
						(1.00, 3.03)	(1.00, 2.92)
<i>res.per.ps</i>	1.74	4.80	0.95	4.57614	347	(0.20, 1.30)	(0.20, 1.30)
	0.82	3.57	0.59	4.91794	302	(0.20, 5.00)	(0.20, 5.00)
						(0.90, 1.08)	(0.90, 1.07)

¹ For a key to modeling abbreviations, see Chapter 5, [Exhibit 5.1](#).

² Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n] * CV^2$, where CV = coefficient of variation of weights.

³ Number of proposed covariates (XVAR) on top line and number finalized after modeling.

⁴ There are six sets of bounds for each modeling step. Nominal bounds are used in defining maximum/minimum values for the generalized exponential model (GEM) adjustment factors. The realized bound is the actual adjustment produced by the modeling. The set of three bounds listed for each step correspond to the high extreme values, the nonextreme values, and the low extreme values.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table D.8b Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (Model Group 8: Mountain)

	<i>sel.sdu.des</i> ¹	<i>res.sdu.nr</i> ¹		<i>res.sdu.ps</i> ¹		<i>sel.per.des</i> ¹		<i>sel.per.ps</i> ¹		<i>res.per.nr</i> ¹		<i>res.per.ps</i> ¹	
	1-7 ²	8 ³	1-8 ³	9 ⁴	1-9 ⁴	11 ⁵	1-11 ⁵	12 ⁵	1-12 ⁵	13 ⁶	1-13 ⁶	14 ⁶	1-14 ⁶
Minimum	73	0.51	74	0.10	16	1.01	25	0.08	5	0.24	5	0.12	2
1%	75	0.85	78	0.34	74	1.01	91	0.25	57	0.87	60	0.20	38
5%	76	1.00	82	0.67	94	1.01	143	0.59	131	1.00	148	0.24	125
10%	91	1.00	94	0.83	105	1.01	196	0.72	188	1.00	214	0.73	185
25%	184	1.00	191	1.01	205	1.13	399	0.84	394	1.04	431	0.95	401
Median	291	1.02	293	1.12	359	1.50	916	0.98	898	1.16	1,006	1.01	979
75%	719	1.08	738	1.27	809	5.24	2,103	1.13	2,034	1.31	2,406	1.10	2,452
90%	848	1.16	967	1.47	1,150	9.19	4,747	1.34	4,746	1.56	5,882	1.28	5,752
95%	996	1.55	1,213	1.66	1,455	12.64	7,489	1.53	7,593	1.79	9,496	1.52	9,599
99%	3,457	2.78	3,486	2.30	2,860	14.36	18,261	2.25	17,617	2.57	22,146	2.04	22,601
Maximum	11,011	5.00	7,481	5.00	5,254	31.12	70,047	9.58	46,551	5.00	94,928	5.00	120,580
n	16,244	15,166	15,166	15,165	15,165	9,059	9,059	9,059	9,059	7,356	7,356	7,356	7,356
Max/Mean	22.95	-	14.56	-	9.51	-	34.32	-	23.38	-	38.72	-	49.18

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.

Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.

Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 because of the built-in control for extreme values. For an explanation, see Chapter 2.

¹ Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, [Exhibit 5.1](#).

² Based on eligible dwelling units.

³ Based on screener-complete dwelling units.

⁴ Based on screener-complete dwelling units, occupants verified eligible.

⁵ Based on selected persons.

⁶ Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Model Group 8 Overview

Dwelling Unit Nonresponse

All 26 proposed one-factor effects were included in the model.

For two-factor effects, all levels were present in the percent Owner-occupied \times percent Hispanic or Latino, percent Owner-occupied \times Rent/housing, Rent/housing \times percent Hispanic or Latino, and State \times Quarter interactions. All the others were affected by variable collapsing or dropping. Out of 158 proposed variables, 109 were included in the model.

All three-factor effects were affected by variable collapsing and dropping. Out of 224 proposed variables, 21 were included in the model.

In the final model, a total of 156 variables were included; see [Exhibit D8.1](#).

Dwelling Unit Poststratification

All 21 proposed one-factor effects were included in the model.

All 112 proposed two-factor effects were included in the model.

For three-factor effects, variable collapsing was present in the State \times Age \times Race, State \times Race \times Hispanicity, and State \times Race \times Gender interactions. Out of 169 proposed variables, 159 were included in the model.

In the final model, a total of 292 variables were included; see [Exhibit D8.2](#).

Selected Person-Level Poststratification

All 39 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the percent Owner-occupied \times percent Black or African American, Rent/housing \times percent Black or African American, State \times percent Black or African American, State \times percent Hispanic or Latino, and State \times percent Owner-occupied interactions. Out of 214 proposed variables, 193 were included in the model.

For three-factor effects, variable collapsing was present in the Age \times Race \times Hispanicity, State \times Age \times Race, State \times Age \times Hispanicity, State \times Race \times Hispanicity, and State \times Race \times Gender interactions. Out of 169 proposed variables, 142 were included in the model.

In the final model, a total of 374 variables were included; see [Exhibit D8.3](#).

Respondent Person-Level Nonresponse

All 39 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the percent Owner-occupied \times percent Black or African American, Rent/housing \times percent Black or African American, State \times percent Black or African American, State \times percent Hispanic or Latino, and State \times percent Owner-Occupied interactions. Out of 214 proposed variables, 194 were included in the model.

For three-factor effects, all levels are present in the Age \times Hispanicity \times Gender, Race \times Hispanicity \times Gender, State \times Age \times Gender, and State \times Hispanicity \times Gender interactions. All the others were affected by variable collapsing or dropping. Out of 169 proposed variables, 113 were included in the model.

In the final model, a total of 346 variables were included; see [Exhibit D8.4](#).

Respondent Person-Level Poststratification

All 22 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing was present in the Race \times Hispanicity interaction. Out of 123 proposed variables, 122 were included in the model.

Variable collapsing or dropping was present in all three-factor effects except the Age \times Race \times Gender, Age \times Hispanicity \times Gender, State \times Age \times Gender, and State \times Hispanicity \times Gender interactions. Out of 202 proposed variables, 158 were included in the model.

In the final model, a total of 302 variables were included; see [Exhibit D8.5](#).

Exhibit D8.1 Covariates for 2010 NSDUH Person Weights (res.sdu.nr), Model Group 8: Mountain

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		26	26	
Intercept	1	1	1	All levels present.
State	8	7	7	All levels present.
Quarter	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		158	109	
% Owner-Occupied × % Black or African American	3 × 3	4	2	Drop (*,1); zero.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	3	Drop (1,*), (2,1), (4,1); zero. Drop (3,1); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	8 × 4	21	21	All levels present.
State × Population Density	8 × 4	21	15	Drop (2,1), (3,1), (4,3), (5,1), (6,1), (7,1); zero.
State × Group Quarter	8 × 3	14	4	Drop (1,*), (3,2), (4,2), (5,*), (6,*), (7,2); zero. Drop (2,2); sing.
State × % Black or African American	8 × 3	14	4	Drop (1,1), (2,*), (3,*), (5,1), (6,*), (7,1); zero. Drop (4,1); sing.
State × % Hispanic or Latino	8 × 3	14	8	Coll. (5,1) & (5,2); conv. Drop (1,*), (4,1); conv. Drop (2,1), (3,1); zero.
State × % Owner-Occupied	8 × 3	14	10	Drop (4,*), (5,2); conv. Drop (5,3); sing.
State × Rent/Housing	8 × 5	28	22	Drop (4,3), (4,4), (5,*); conv.
Three-Factor Effects		224	21	
State × % Owner-Occupied × % Black or African American	8 × 3 × 3	28	1	Keep (1,3,2). Drop remainder; conv./zero/sing./hier.
State × % Owner-Occupied × % Hispanic or Latino	8 × 3 × 3	28	3	Keep (2,2,2), (3,3,2) & (6,2,2). Drop remainder; conv./zero/sing./hier.
State × % Owner-Occupied × Rent/Housing	8 × 3 × 5	56	11	Keep (1,2,1), (1,2,2), (1,3,4), (2,2,2), (2,3,2), (3,2,2), (3,3,2), (6,2,3), (6,3,3), (7,2,1) & (7,2,2). Drop remainder; conv./zero/sing./hier.
State × Rent/Housing × % Black or African American	8 × 3 × 5	56	1	Keep (1,3,2). Drop remainder; conv./zero/sing./hier.
State × Rent/Housing × % Hispanic or Latino	8 × 3 × 5	56	5	Keep (2,4,2), (4,2,1), (6,1,2), (6,2,2), ((7,3,2). Drop remainder; conv./zero/sing./hier.
Total		408	156	

Exhibit D8.2 Covariates for 2010 NSDUH Person Weights (res.sdu.ps), Model Group 8: Mountain

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		21	21	
Intercept	1	1	1	All levels present.
State	8	7	7	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		112	112	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	8 × 4	21	21	All levels present.
State × Age	8 × 5	28	28	All levels present.
State × Race (5 levels)	8 × 5	28	28	All levels present.
State × Hispanicity	8 × 2	7	7	All levels present.
State × Gender	8 × 2	7	7	All levels present.
Three-Factor Effects		169	159	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	8	All levels present.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	8 × 5 × 3	56	52	Coll. (2,1,2) & (2,1,3); zero. Coll. (2,2,2) & (2,2,3), (2,3,2) & (2,3,3), (6,1,2) & (6,1,3); conv.
State × Age × Hispanicity	8 × 5 × 2	28	28	All levels present.
State × Age × Gender	8 × 5 × 2	28	28	All levels present.
State × Race (3 levels) × Hispanicity	8 × 3 × 2	14	9	Coll. (2,2,1) & (2,3,1), (6,2,1) & (6,3,1); zero. Coll. (3,2,1) & (3,3,1), (4,2,1) & (4,3,1), (5,2,1) & (5,3,1); conv.
State × Race (3 levels) × Gender	8 × 3 × 2	14	13	Coll. (2,2,1) & (2,3,1); conv.
State × Hispanicity × Gender	8 × 2 × 2	7	7	All levels present.
Total		302	292	

Exhibit D8.3 Covariates for 2010 NSDUH Person Weights (sel.per.ps), Model Group 8: Mountain

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		39	39	
Intercept	1	1	1	All levels present.
State	8	7	7	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		214	193	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	2	Drop (*,1); zero.
% Owner-Occupied × % Hispanic	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	3	Drop (1,1), (2,1), (4,1), (1,2); zero. Drop (3,1); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	8 × 4	21	21	All levels present.
State × Age	8 × 5	28	28	All levels present.
State × Race (5 levels)	8 × 5	28	28	All levels present.
State × Hispanicity	8 × 2	7	7	All levels present.
State × Gender	8 × 2	7	7	All levels present.
State × % Black or African American	8 × 3	14	4	Drop (1,1), (2,*), (3,*), (4,1), (6,*), (7,1); zero. Drop (5,1); sing.
State × % Hispanic or Latino	8 × 3	14	11	Coll. (7,1) & (7,2); conv. Drop (2,1) & (3,1); zero.
State × % Owner-Occupied	8 × 3	14	13	Drop (5,3); sing.
State × Rent/Housing	8 × 5	28	28	All levels present.
Three-Factor Effects		169	142	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	6	Coll. (3,2,1) & (3,3,1); conv. Coll. (4,2,1) & (4,3,1); sing.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	8 × 5 × 3	56	41	Coll. (3,4,2) & (3,4,3), (4,4,2) & (4,4,3), (6,3,2) & (6,3,3); sing. Coll. (1,2,2) & (1,2,3), (2,2,2) & (2,2,3), (3,1,2) & (3,1,3), (7,1,2) & (7,1,3), (7,2,2) & (7,2,3); conv. Drop (2,4,*); sing/conv. Coll. (2,3,2) & (2,3,3), (3,2,2) & (3,2,3), (6,1,2) & (6,1,3), (6,4,2) & (6,4,3); zero. Drop (2,1,2), (2,3,2), (3,2,2), (6,1,2), (6,4,2); zero.
State × Age × Hispanicity	8 × 5 × 2	28	26	Drop (2,4,1); conv. Drop (3,4,1); sing.
State × Age × Gender	8 × 5 × 2	28	28	All levels present.
State × Race (3 levels) × Hispanicity	8 × 3 × 2	14	8	Coll. (1,2,1) & (1,3,1), (3,2,1) & (3,3,1), (4,2,1) & (4,3,1), (5,2,1) & (5,3,1); conv. Drop (2,2,1), (6,2,1); zero.
State × Race (3 levels) × Gender	8 × 3 × 2	14	12	Coll. (2,2,1) & (2,3,1); sing. Coll. (3,2,1) & (3,3,1); conv.
State × Hispanicity × Gender	8 × 2 × 2	7	7	All levels present.
Total		422	374	

Exhibit D8.4 Covariates for 2010 NSDUH Person Weights (res.per.nr), Model Group 8: Mountain

Variables	Levels	Proposed	Final	Comments
One-Factor Effects				
		39	39	
Intercept	1	1	1	All levels present.
State	8	7	7	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects				
		214	194	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	2	Drop (*,1); zero.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	3	Drop (1,1), (2,1), (4,1) & (1,2); zero. Drop (3,1); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	8 × 4	21	21	All levels present.
State × Age	8 × 5	28	28	All levels present.
State × Race (5 levels)	8 × 5	28	28	All levels present.
State × Hispanicity	8 × 2	7	7	All levels present.
State × Gender	8 × 2	7	7	All levels present.
State × % Black or African American	8 × 3	14	4	Drop (1,1), (2,*), (3,*), (4,1), (6,*), (7,1); zero. Drop (4,1); sing.
State × % Hispanic or Latino	8 × 3	14	12	Drop (2,1) & (3,1); zero.
State × % Owner-Occupied	8 × 3	14	13	Drop (4,3); sing.
State × Rent/Housing	8 × 5	28	28	All levels present.
Three-Factor Effects				
		169	113	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	6	Coll. (3,2,1) & (3,3,1); conv. Coll. (4,2,1) & (4,3,1); sing.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	7	Coll. (3,2,1) & (3,3,1); conv.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	8 × 5 × 3	56	17	Coll. (1,1,2) & (1,1,3), (1,2,2) & (1,2,3), (1,3,2) & (1,3,3), (1,4,2) & (1,4,3), (3,1,2) & (3,1,3), (3,3,2) & (3,3,3), (4,1,2) & (4,1,3), (4,2,2) & (4,2,3), (4,3,2) & (4,3,3); conv. Coll. (3,4,2) & (3,4,3), (4,4,2) & (4,4,3); sing. Drop (2,1,2), (2,3,2), (3,2,2), (6,1,2), (6,4,2); zero. Drop (2,4,2), (6,3,2); sing. Drop (5,*,*), (6,2,2), (6,*3), (7,*,*); conv.
State × Age × Hispanicity	8 × 5 × 2	28	27	Drop (3,4,1); sing.
State × Age × Gender	8 × 5 × 2	28	28	All levels present.
State × Race (3 levels) × Hispanicity	8 × 3 × 2	14	7	Coll. (3,2,1) & (3,3,1), (5,2,1) & (5,3,1); conv. Drop (2,2,1) & (6,2,1); zero. Drop (6,3,1) & (7,*1); conv.
State × Race (3 levels) × Gender	8 × 3 × 2	14	8	Coll. (1,2,1) & (1,3,1), (4,2,1) & (4,3,1), (5,2,1) & (5,3,1); conv. Drop (2,2,1); zero. Drop (7,*1); conv.
State × Hispanicity × Gender	8 × 2 × 2	7	7	All levels present.
Total		422	346	

Exhibit D8.5 Covariates for 2010 NSDUH Person Weights (res.per.ps), Model Group 8: Mountain

Variables	Levels	Proposed	Final	Comments
One-Factor Effects				
Intercept	1	1	1	All levels present.
State	8	7	7	All levels present.
Quarter	4	3	3	All levels present.
Age	6	5	5	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects				
Age × Race (3 levels)	6 × 3	10	10	All levels present.
Age × Hispanicity	6 × 2	5	5	All levels present.
Age × Gender	6 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	1	Coll. (2,1) & (2,2); conv.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	8 × 4	21	21	All levels present.
State × Age	8 × 6	35	35	All levels present.
State × Race (5 levels)	8 × 5	28	28	All levels present.
State × Hispanicity	8 × 2	7	7	All levels present.
State × Gender	8 × 2	7	7	All levels present.
Three-Factor Effects				
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	4	Coll. (1,2,1) & (1,3,1); hier. Repeat for all levels of age. Drop (5*,1); conv.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	10	All levels present.
Age × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (1,2,1) & (1,3,1); hier.
State × Age × Race (3 levels)	8 × 6 × 3	70	51	Coll. (2,3,2) & (2,3,3), (3,2,2) & (3,2,3), (3,4,2) & (3,4,3), (3,5,2) & (3,5,3), (4,5,2) & (4,5,3), (5,4,2) & (5,4,3), (5,5,2) & (5,5,3), (6,1,2) & (6,1,3), (6,3,2) & (6,3,3), (6,4,2) & (6,4,3), (7,3,2) & (7,3,3); zero/sing. Drop (2,5,*), (6,5,*), (7,5,*); zero/sing.
State × Age × Hispanicity	8 × 6 × 2	35	31	Coll. (4,3,2) & (4,3,3), (7,2,2) & (7,2,3); conv. Drop (2,5,1) & (7,5,1); sing. Drop (3,5,1); zero. Drop (3,4,1); conv.
State × Age × Gender	8 × 6 × 2	35	35	All levels present.
State × Race (3 levels) × Hispanicity	8 × 3 × 2	14	3	Coll. (1,2,1) & (1,3,1); hier. Repeat for all States. Drop (2*,1), (5*,1), (6*,1), (7*,1); conv.
State × Race (3 levels) × Gender	8 × 3 × 2	14	11	Coll. (2,2,1) & (2,3,1); sing. Coll. (3,2,1) & (3,3,1), (4,2,1) & (4,3,1); conv.
State × Hispanicity × Gender	8 × 2 × 2	7	7	All levels present.
Total		347	302	

Appendix D9: Model Group 9: Pacific
(Alaska, California, Hawaii, Oregon, and Washington)

Table D.9a 2010 NSDUH Person Weight GEM Modeling Summary (Model Group 9: Pacific)

Modeling Step ¹	Extreme Weight Proportions			UWE ²	# XVAR ³	Bounds ⁴	
	% Unweighted	% Weighted	% Outwisor			Nominal	Realized
<i>res.sdu.nr</i>	0.11	0.32	0.09	1.33488	255	(1.09, 1.39)	(1.10, 1.38)
	1.17	2.22	0.17	1.36013	148	(1.00, 1.46)	(1.00, 1.45)
						(1.10, 1.16)	(N/A, N/A)
<i>res.sdu.ps</i>	1.17	2.22	0.17	1.36013	197	(0.79, 1.38)	(0.79, 1.38)
	1.66	3.55	0.94	1.45673	185	(0.30, 4.50)	(0.30, 4.50)
						(0.90, 1.20)	(0.90, 1.19)
<i>sel.per.ps</i>	3.34	6.44	1.65	2.75430	287	(0.56, 2.90)	(0.56, 2.90)
	1.46	3.32	0.58	2.79505	260	(0.20, 2.93)	(0.20, 2.87)
						(0.94, 1.54)	(0.94, 1.54)
<i>res.per.nr</i>	1.60	3.76	0.65	2.88345	287	(1.00, 2.60)	(1.00, 2.60)
	1.34	3.98	0.71	3.37593	235	(1.00, 4.61)	(1.00, 4.57)
						(1.13, 1.40)	(1.13, 1.13)
<i>res.per.ps</i>	1.47	4.06	0.77	3.37593	227	(0.20, 2.33)	(0.20, 2.33)
	1.18	3.68	0.75	3.56064	199	(0.20, 4.10)	(0.20, 4.09)
						(0.90, 1.42)	(1.41, 1.41)

¹ For a key to modeling abbreviations, see Chapter 5, [Exhibit 5.1](#).

² Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n] * CV^2$, where CV = coefficient of variation of weights.

³ Number of proposed covariates (XVAR) on top line and number finalized after modeling.

⁴ There are six sets of bounds for each modeling step. Nominal bounds are used in defining maximum/minimum values for the generalized exponential model (GEM) adjustment factors. The realized bound is the actual adjustment produced by the modeling. The set of three bounds listed for each step correspond to the high extreme values, the nonextreme values, and the low extreme values.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table D.9b Distribution of Weight Adjustment Factors and Weight Products for the 2010 NSDUH Person Weight (Model Group 9: Pacific)

	<i>sel.sdu.des</i> ¹	<i>res.sdu.nr</i> ¹		<i>res.sdu.ps</i> ¹		<i>sel.per.des</i> ¹		<i>sel.per.ps</i> ¹		<i>res.per.nr</i> ¹		<i>res.per.ps</i> ¹	
	1-7 ²	8 ³	1-8 ³	9 ⁴	1-9 ⁴	11 ⁵	1-11 ⁵	12 ⁵	1-12 ⁵	13 ⁶	1-13 ⁶	14 ⁶	1-14 ⁶
Minimum	113	0.91	113	0.30	38	1.01	39	0.20	9	0.45	9	0.11	2
1%	115	1.00	122	0.47	104	1.01	106	0.48	78	1.00	84	0.20	52
5%	121	1.03	134	0.80	136	1.01	172	0.68	157	1.02	176	0.20	150
10%	129	1.04	144	0.88	158	1.01	232	0.77	229	1.04	267	0.32	236
25%	536	1.07	539	0.98	408	1.15	932	0.88	918	1.10	1,007	0.88	690
Median	1,112	1.11	1,206	1.11	1,211	1.46	2,073	0.98	2,069	1.20	2,360	1.03	2,425
75%	1,284	1.18	1,482	1.23	1,740	5.28	5,562	1.11	5,369	1.36	5,796	1.21	5,561
90%	1,575	1.27	1,756	1.43	2,104	10.91	11,177	1.27	11,298	1.60	14,780	1.43	15,298
95%	1,601	1.31	1,904	1.59	2,336	11.95	18,112	1.40	17,582	1.81	23,499	1.46	23,775
99%	1,647	1.42	2,138	2.46	3,055	13.95	24,654	1.80	26,710	2.64	39,638	2.23	41,416
Maximum	3,273	1.45	2,964	4.50	8,508	25.00	82,330	2.87	60,076	4.57	98,082	4.09	142,265
n	16,830	14,840	14,840	14,840	14,840	9,420	9,420	9,420	9,420	7,361	7,361	7,361	7,361
Max/Mean	3.64	-	2.90	-	7.28	-	19.11	-	13.89	-	17.72	-	25.70

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.

Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.

Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 because of the built-in control for extreme values. For an explanation, see Chapter 2.

¹ Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, Exhibit 5.1.

² Based on eligible dwelling units.

³ Based on screener-complete dwelling units.

⁴ Based on screener-complete dwelling units, occupants verified eligible.

⁵ Based on selected persons.

⁶ Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Model Group 9 Overview

Dwelling Unit Nonresponse

All 23 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the Rent/housing \times percent Black or African American, State \times Population density, State \times Group quarters, State \times percent Black or African American, State \times percent Hispanic or Latino, and State \times Rent/housing interactions. Out of 104 proposed variables, 82 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 128 proposed variables, 43 were included in the model.

In the final model, a total of 148 variables were included; see [Exhibit D9.1](#).

Dwelling Unit Poststratification

All 18 proposed one-factor effects were included in the model.

All 73 proposed two-factor effects were included in the model.

For the three-factor effects, variable collapsing or dropping was present in the Age \times Race \times Hispanicity, Race \times Hispanicity \times Gender, State \times Age \times Race, State \times Race \times Hispanicity, and State \times Race \times Gender interactions. Out of 106 proposed variables, 94 were included in the model.

In the final model, a total of 185 variables were included; see [Exhibit D9.2](#).

Selected Person-Level Poststratification

All 36 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the Rent/housing \times percent Black or African American, State \times percent Black or African American, State \times percent Hispanic or Latino, and State \times Rent/housing interactions. Out of 145 proposed variables, 135 were included in the model.

For three-factor effects, variable collapsing or dropping was present in the Age \times Race \times Hispanicity, State \times Age \times Race, State \times Race \times Hispanicity, and State \times Race \times Gender interactions. Out of 106 proposed variables, 89 were included in the model.

In the final model, a total of 260 variables were included; see [Exhibit D9.3](#).

Respondent Person-Level Nonresponse

All 36 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the Rent/housing \times percent Black or African American, State \times Race, State \times percent Black or African American, State \times percent Hispanic or Latino, and State \times Rent/housing interactions. Out of 145 proposed variables, 131 were included in the model.

For three-factor effects, all levels were present for the Age \times Hispanicity \times Gender, State \times Age \times Gender, and State \times Hispanicity \times Gender interactions. All the others were affected by variable collapsing or dropping. Out of 106 proposed variables, 68 were included in the model.

In the final model, a total of 235 variables were included; see [Exhibit D9.4](#).

Respondent Person-Level Poststratification

All 19 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing was present in the Race \times Hispanicity and State \times Race interactions. Out of 81 proposed variables, 76 were included in the model.

For three-factor effects, all levels were present for the Age \times Race \times Gender, Age \times Hispanicity \times Gender, State \times Age \times Gender, and State \times Hispanicity \times Gender interactions. All the others were affected by variable collapsing or dropping. Out of 127 proposed variables, 104 were included in the model.

In the final model, a total of 199 variables were included; see [Exhibit D9.5](#).

Exhibit D9.1 Covariates for 2010 NSDUH Person Weights (res.sdu.nr), Model Group 9: Pacific

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		23	23	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		104	82	
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	5	Drop (1,1), (4,1); zero. Drop (3,1); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Population Density	5 × 4	12	6	Drop (1,1), (2,1), (2,3); zero. Drop (2,2), (3,2), (3,3); sing.
State × Group Quarter	5 × 3	8	2	Keep (1,2), (3,2). Drop all others; zero, sing.
State × % Black or African American	5 × 3	8	4	Drop (1,1). Repeat for all States; zero, sing.
State × % Hispanic or Latino	5 × 3	8	6	Drop (1,1), (2,1); zero.
State × % Owner-Occupied	5 × 3	8	8	All levels present.
State × Rent/Housing	5 × 5	16	15	Drop (3,4); sing.
Three-Factor Effects		128	43	
State × % Owner-Occupied × % Black or African American	5 × 3 × 3	16	3	Keep (3,2,2), (5,3,2), (5,2,2). Drop all others; zero, sing.
State × % Owner-Occupied × % Hispanic	5 × 3 × 3	16	7	Coll. (2,2,2) & (2,3,2); sing. Keep (1,3,2), (1,2,2), (2,2/3,2), (3,2,2), (5,3,1), (5,3,2), (5,2,2). Drop all others; zero, sing.
State × % Owner-Occupied × Rent/Housing	5 × 3 × 5	32	20	Drop (1,3,1), (2,3,2), (2,3,4), (3,3,4); zero. Coll. (1,2,2) & (1,3,2), (1,2,3) & (1,3,3), (2,2,3) & (2,3,3); sing. Drop (1,3,4), (1,2,4), (2,2,4), (3,3,3), (3,2,4); sing.
State × Rent/Housing × % Black or African American	5 × 3 × 5	32	3	Keep (5,1,2), (5,2,2), (5,3,2). Drop all others; zero, sing.
State × Rent/Housing × % Hispanic or Latino	5 × 3 × 5	32	10	Keep (1,2,2), (1,4,2), (2,1,2), (2,2,2), (3,1,2), (3,2,2), (5,1,2), (5,2,2), (5,3,2), (5,4,2). Drop all others; zero, sing.
Total		255	148	

Exhibit D9.2 Covariates for 2010 NSDUH Person Weights (res.sdu.ps), Model Group 9: Pacific

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		18	18	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		73	73	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Age	5 × 5	16	16	All levels present.
State × Race (5 levels)	5 × 5	16	16	All levels present.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
Three-Factor-Effects		106	94	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1). Repeat for all age levels; conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	5 × 5 × 3	32	28	Coll. (2,1,2) & (2,1,3), (2,2,2) & (2,2,3), (2,3,2) & (2,3,3), (2,4,2) & (2,4,3); conv.
State × Age × Hispanicity	5 × 5 × 2	16	16	All levels present.
State × Age × Gender	5 × 5 × 2	16	16	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	8	6	Coll. (3,2,1) & (3,3,1); zero. Coll. (2,2,1) & (2,3,1); conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	7	Coll. (2,2,1) & (2,3,1); conv.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Total		197	185	

Exhibit D9.3 Covariates for 2010 NSDUH Person Weights (sel.per.ps), Model Group 9: Pacific

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		36	36	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		145	135	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	5	Coll. (1,1) & (1,2), (4,1) & (4,2); zero. Coll. (3,1) & (3,2); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Age	5 × 5	16	16	All levels present.
State × Race (5 levels)	5 × 5	16	16	All levels present.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
State × % Black or African American	5 × 3	8	4	Coll. (1,1) & (1,2). Repeat for all States; zero, sing.
State × % Hispanic or Latino	5 × 3	8	6	Coll. (1,1) & (1,2); (2,1) & (2,2); zero.
State × % Owner-Occupied	5 × 3	8	8	All levels present.
State × Rent/Housing	5 × 5	16	15	Drop (3,4); sing.
Three-Factor Effects		106	89	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	6	Coll. (3,2,1) & (3,3,1); conv. Coll. (4,2,1) & (4,3,1); zero.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	5 × 5 × 3	32	27	Coll. (2,1,2) & (2,1,3), (2,2,2) & (2,2,3); conv. Coll. (2,3,2) & (2,3,3), (3,4,2) & (3,4,3); sing. Coll. (2,4,2) & (2,4,3); zero.
State × Age × Hispanicity	5 × 5 × 2	16	16	All levels present.
State × Age × Gender	5 × 5 × 2	16	16	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	8	2	Keep (2,2/3,1), (5,2/3,1). Drop all others; zero, conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1). Repeat for all States; conv.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Total		287	260	

Exhibit D9.4 Covariates for 2010 NSDUH Person Weights (res.per.nr), Model Group 9: Pacific

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		36	36	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		145	131	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	5	Drop (1,1), (4,1); zero. Drop (3,1); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Age	5 × 5	16	16	All levels present.
State × Race (5 levels)	5 × 5	16	12	Coll. (1,3) & (1,4). Repeat for all States; conv.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
State × % Black or African American	5 × 3	8	4	Drop (1,1), (2,1), (3,1); zero. Drop (5,1); sing.
State × % Hispanic or Latino	5 × 3	8	6	Drop (1,1), (2,1); zero.
State × % Owner-Occupied	5 × 3	8	8	All levels present.
State × Rent/Housing	5 × 5	16	15	Drop (3,4); sing.
Three-Factor Effects		106	68	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Drop (4,2,1); zero. Coll. (1,2,1) & (1,3,1), (2,2,1) & (2,3,1), (3,2,1) & (3,3,1); conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1). Repeat for all age levels; conv.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	5 × 5 × 3	32	16	Coll. (1,1,2) & (1,1,3). Repeat for all States and all age levels; zero, sing., conv.
State × Age × Hispanicity	5 × 5 × 2	16	13	Drop (1,3,1), (2,4,1); conv. Drop (1,4,1); sing.
State × Age × Gender	5 × 5 × 2	16	16	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	8	0	Coll. (1,2,1) & (1,3,1). Repeat for all States; zero, sing., conv. Drop all collapsed variables; conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	6	Coll. (2,2,1) & (2,3,1), (3,2,1) & (3,3,1); conv.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Total		287	235	

Exhibit D9.5 Covariates for 2010 NSDUH Person Weights (res.per.ps), Model Group 9: Pacific

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		19	19	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Age	6	5	5	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		81	76	
Age × Race (3 levels)	6 × 3	10	10	All levels present.
Age × Hispanicity	6 × 2	5	5	All levels present.
Age × Gender	6 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	1	Coll (2,1) & (3,1); conv.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Age	5 × 6	20	20	All levels present.
State × Race (5 levels)	5 × 5	16	12	Coll. (1,3) & (1,4). Repeat for all States; conv.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
Three-Factor Effects		127	104	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	5	Coll. (1,2,1) & (1,3,1). Repeat for all age levels; hier.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	10	All levels present.
Age × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); hier.
State × Age × Race (3 levels)	5 × 6 × 3	40	32	Coll. (2,4,2) & (2,4,3), (2,5,2) & (2,5,3), (3,5,2) & (3,5,3); zero. Coll. (1,5,2) & (1,5,3), (2,3,2) & (2,3,3), (3,4,2) & (3,4,3); sing. Coll. (2,1,2) & (2,1,3), (2,2,2) & (2,2,3); conv.
State × Age × Hispanicity	5 × 6 × 2	20	16	Drop (1,5,1); zero. Drop (1,4,1), (3,5,1); sing. Coll. (2,3,1) & (2,4,1); conv.
State × Age × Gender	5 × 6 × 2	20	20	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1). Repeat for all States; hier.
State × Race (3 levels) × Gender	5 × 3 × 2	8	7	Coll. (2,2,1) & (2,3,1); conv.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Total		227	199	

**Appendix E: Evaluation of Calibration Weights:
Response Rates**

Table E.1 2010 NSDUH Weighted Response Rates: United States, District of Columbia, and the 50 States

Domain	Dwelling Unit (DU)					Person Level		Interview Response Rate	
	Selected DUs	Eligible DUs	Completed DUs	Eligibility Rate	Screening Rate	Selected Persons	Respondents	Weight 1-11 ¹	Weight 1-12 ²
United States	201,865	166,532	147,010	82.80%	88.42%	84,997	67,804	74.57%	74.64%
Alabama	2,879	2,284	2,099	79.41%	91.94%	1,121	878	71.86%	73.28%
Alaska	2,226	1,719	1,583	76.86%	92.02%	1,057	868	77.75%	77.81%
Arizona	2,655	2,059	1,861	75.02%	90.14%	1,149	925	72.97%	72.60%
Arkansas	2,595	2,108	1,948	81.22%	92.51%	1,123	899	75.16%	75.50%
California	9,282	8,087	6,910	86.15%	85.48%	4,739	3,715	71.96%	72.20%
Colorado	2,529	2,084	1,912	81.53%	92.20%	1,117	904	79.29%	78.87%
Connecticut	2,474	2,158	1,812	87.08%	83.73%	1,151	926	75.17%	76.40%
Delaware	2,621	2,118	1,857	80.87%	87.67%	1,099	889	77.52%	77.71%
District of Columbia	5,113	4,192	3,403	79.55%	79.88%	1,110	935	81.34%	82.29%
Florida	13,206	9,961	8,891	74.07%	89.01%	4,460	3,655	77.37%	76.96%
Georgia	2,385	1,978	1,804	83.01%	91.21%	1,131	910	75.51%	75.28%
Hawaii	2,861	2,443	2,098	84.96%	85.56%	1,296	974	66.88%	66.44%
Idaho	2,624	2,046	1,932	76.94%	94.43%	1,113	912	78.24%	79.26%
Illinois	10,614	9,121	7,392	86.14%	80.95%	4,762	3,609	70.77%	70.81%
Indiana	2,743	2,281	2,104	83.61%	91.97%	1,142	916	73.88%	74.13%
Iowa	2,574	2,187	2,069	84.95%	94.61%	1,113	925	78.90%	79.14%
Kansas	2,340	1,988	1,824	84.99%	91.75%	1,101	885	74.78%	73.99%
Kentucky	2,583	2,147	1,991	83.18%	92.73%	1,109	900	76.88%	77.68%
Louisiana	2,605	2,092	1,955	80.13%	93.42%	1,112	906	77.97%	78.12%
Maine	3,327	2,404	2,197	69.49%	90.98%	1,100	924	80.65%	81.01%
Maryland	2,415	2,061	1,692	83.45%	82.13%	1,096	883	77.66%	77.48%
Massachusetts	3,116	2,716	2,365	87.46%	87.32%	1,149	930	78.23%	77.48%
Michigan	10,828	8,669	7,623	79.41%	87.81%	4,561	3,690	75.65%	75.57%
Minnesota	2,532	2,087	1,949	81.66%	93.42%	1,149	946	78.32%	77.52%
Mississippi	2,485	1,976	1,839	79.53%	93.07%	1,087	893	76.50%	77.32%

(continued)

Table E.1 2010 NSDUH Weighted Response Rates: United States, District of Columbia, and the 50 States (continued)

Domain	Dwelling Unit (DU)					Person Level		Interview Response Rate	
	Selected DUs	Eligible DUs	Completed DUs	Eligibility Rate	Screening Rate	Selected Persons	Respondents	Weight 1-11 ¹	Weight 1-12 ²
Missouri	2,642	2,170	2,031	81.81%	93.58%	1,142	921	75.89%	76.12%
Montana	2,713	2,255	2,128	83.20%	94.34%	1,137	919	76.91%	77.87%
Nebraska	2,336	1,996	1,883	85.89%	94.30%	1,120	906	73.19%	72.70%
Nevada	2,674	2,063	1,935	72.24%	94.68%	1,183	958	71.81%	73.61%
New Hampshire	3,232	2,558	2,219	76.42%	86.80%	1,160	918	74.48%	74.75%
New Jersey	2,382	2,061	1,831	85.84%	88.85%	1,157	923	78.46%	78.15%
New Mexico	2,610	2,078	1,959	79.62%	94.26%	1,117	912	77.09%	77.41%
New York	13,218	11,170	8,452	84.14%	75.25%	5,061	3,626	66.82%	66.60%
North Carolina	2,674	2,303	2,118	86.85%	92.18%	1,103	904	76.53%	76.34%
North Dakota	3,053	2,567	2,420	83.98%	94.30%	1,188	954	76.32%	76.35%
Ohio	10,268	8,717	7,947	84.88%	91.17%	4,633	3,731	74.81%	74.83%
Oklahoma	2,626	2,122	1,903	80.87%	89.71%	1,173	923	73.17%	73.14%
Oregon	2,603	2,293	2,146	88.14%	93.61%	1,134	907	74.87%	75.43%
Pennsylvania	10,193	8,715	6,952	85.50%	79.79%	3,853	2,985	73.24%	73.67%
Rhode Island	2,574	2,094	1,866	81.53%	89.19%	1,117	915	74.52%	73.74%
South Carolina	2,616	2,152	1,927	82.63%	89.56%	1,138	927	75.68%	75.63%
South Dakota	2,399	2,048	1,945	85.15%	95.06%	1,115	929	80.45%	80.27%
Tennessee	2,588	2,149	1,968	83.08%	91.41%	1,117	901	73.38%	74.39%
Texas	8,885	7,290	6,697	81.83%	91.78%	4,431	3,590	76.61%	76.50%
Utah	1,507	1,324	1,252	87.65%	94.58%	1,105	919	79.81%	79.84%
Vermont	2,904	2,157	1,951	73.80%	90.39%	1,034	870	82.45%	81.25%
Virginia	2,609	2,284	2,037	87.58%	89.17%	1,096	888	76.48%	76.53%
Washington	2,636	2,288	2,103	86.29%	91.87%	1,194	897	70.16%	69.97%
West Virginia	2,928	2,316	2,112	78.91%	91.30%	1,091	888	78.37%	78.22%
Wisconsin	2,438	2,061	1,931	84.95%	93.62%	1,113	889	76.78%	76.97%
Wyoming	2,945	2,335	2,187	79.42%	93.74%	1,138	907	73.07%	72.90%

¹ Includes DU-level and person-level design weights, DU nonresponse adjustment, and DU poststratification adjustment.

² Includes a selected person poststratification weight.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010 (Revised March 2012).

**Appendix F: Evaluation of Calibration Weights: Dwelling
Unit–Level Percentages of Extreme Weights and Outwinsors**

Table F.1 2010 NSDUH Dwelling Unit–Level Percentages of Extreme Weights and Outwinsors: United States, District of Columbia, and the 50 States

Domain	n	Before nr ¹ (Weight1*…*Weight7)			After nr ¹ & Before ps ² (Weight1*…*Weight8)			After ps ² (Weight1*…*Weight9)		
		% Unweighted	% Weighted ³	% Outwisor ⁴	% Unweighted	% Weighted ³	% Outwisor ⁴	% Unweighted	% Weighted ³	% Outwisor ⁴
United States	147,010	3.46%	5.37%	1.20%	1.96%	2.97%	0.37%	1.89%	2.97%	0.73%
Alabama	2,099	1.33%	1.71%	0.13%	1.38%	1.72%	0.06%	1.67%	3.64%	0.75%
Alaska	1,583	0.00%	0.00%	0.00%	0.82%	0.97%	0.02%	2.65%	6.01%	1.93%
Arizona	1,861	8.60%	21.77%	10.57%	6.07%	12.07%	1.84%	2.63%	5.82%	1.02%
Arkansas	1,948	9.91%	8.69%	1.08%	5.13%	4.54%	0.48%	2.57%	2.74%	0.53%
California	6,910	0.16%	0.39%	0.12%	2.24%	3.05%	0.24%	1.45%	3.35%	0.92%
Colorado	1,912	6.96%	7.58%	1.00%	4.34%	6.89%	2.39%	1.10%	1.75%	0.23%
Connecticut	1,812	11.92%	14.13%	1.40%	3.09%	4.14%	0.49%	2.87%	5.87%	1.94%
Delaware	1,857	0.16%	0.10%	0.01%	4.85%	5.38%	0.34%	1.40%	1.13%	0.16%
District of Columbia	3,403	5.00%	8.84%	3.19%	7.58%	12.20%	2.64%	1.35%	2.44%	0.47%
Florida	8,891	8.84%	10.66%	1.78%	1.18%	1.21%	0.05%	0.67%	1.17%	0.32%
Georgia	1,804	4.05%	3.98%	0.60%	3.99%	4.18%	0.28%	0.50%	1.09%	0.19%
Hawaii	2,098	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.86%	5.15%	1.14%
Idaho	1,932	14.96%	17.57%	1.77%	6.99%	9.46%	1.04%	1.50%	3.23%	0.94%
Illinois	7,392	0.09%	0.02%	0.00%	0.69%	0.94%	0.09%	0.45%	0.73%	0.18%
Indiana	2,104	2.57%	2.67%	0.58%	0.00%	0.00%	0.00%	1.00%	2.09%	0.56%
Iowa	2,069	1.50%	1.36%	0.02%	0.97%	0.92%	0.00%	4.98%	4.58%	1.24%
Kansas	1,824	0.82%	0.83%	0.03%	0.71%	0.80%	0.01%	5.37%	8.17%	2.22%
Kentucky	1,991	0.45%	0.27%	0.11%	0.75%	0.92%	0.03%	4.47%	4.98%	1.42%
Louisiana	1,955	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.66%	1.34%	0.42%
Maine	2,197	0.64%	1.60%	0.79%	0.46%	0.55%	0.02%	5.33%	3.45%	1.03%
Maryland	1,692	11.35%	11.34%	1.40%	4.31%	4.96%	0.48%	0.83%	1.64%	0.21%
Massachusetts	2,365	2.54%	5.05%	1.22%	2.54%	4.58%	0.60%	1.90%	3.87%	1.22%
Michigan	7,623	0.10%	0.14%	0.05%	0.41%	0.51%	0.01%	2.03%	2.81%	0.53%
Minnesota	1,949	1.85%	2.17%	0.08%	3.39%	3.45%	0.12%	2.21%	3.82%	0.81%
Mississippi	1,839	1.96%	1.73%	0.08%	0.00%	0.00%	0.00%	2.01%	4.19%	1.37%

(continued)

Table F.1 2010 NSDUH Dwelling Unit–Level Percentages of Extreme Weights and Outwinsors: United States, District of Columbia, and the 50 States (continued)

Domain	n	Before nr ¹ (Weight1*…*Weight7)			After nr ¹ & Before ps ² (Weight1*…*Weight8)			After ps ² (Weight1*…*Weight9)		
		% Unweighted	% Weighted ³	% Outwisor ⁴	% Unweighted	% Weighted ³	% Outwisor ⁴	% Unweighted	% Weighted ³	% Outwisor ⁴
Missouri	2,031	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.33%	2.41%	0.47%
Montana	2,128	6.77%	7.69%	0.25%	3.20%	3.92%	0.12%	1.83%	2.92%	0.39%
Nebraska	1,883	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.09%	7.11%	1.73%
Nevada	1,935	3.98%	44.98%	36.16%	4.81%	32.73%	8.49%	1.60%	5.99%	1.79%
New Hampshire	2,219	12.53%	14.27%	1.18%	2.03%	2.02%	0.04%	7.21%	5.68%	1.57%
New Jersey	1,831	1.31%	1.46%	0.21%	2.13%	2.20%	0.02%	3.00%	6.56%	2.00%
New Mexico	1,959	0.00%	0.00%	0.00%	3.06%	6.86%	2.66%	1.74%	4.15%	1.04%
New York	8,452	0.28%	0.56%	0.09%	0.30%	0.49%	0.08%	1.15%	3.21%	1.15%
North Carolina	2,118	10.43%	11.86%	1.09%	2.79%	3.26%	0.36%	1.75%	2.72%	0.67%
North Dakota	2,420	5.45%	6.06%	0.17%	1.40%	1.49%	0.01%	5.25%	8.98%	1.82%
Ohio	7,947	0.05%	0.02%	0.01%	0.53%	0.47%	0.02%	0.82%	1.21%	0.30%
Oklahoma	1,903	5.89%	5.27%	0.28%	0.00%	0.00%	0.00%	1.94%	1.49%	0.41%
Oregon	2,146	0.23%	0.45%	0.08%	0.23%	0.42%	0.07%	1.07%	2.47%	0.58%
Pennsylvania	6,952	0.76%	0.61%	0.10%	3.21%	4.48%	0.54%	1.83%	2.95%	0.51%
Rhode Island	1,866	0.38%	0.04%	0.25%	0.11%	0.34%	0.17%	1.61%	3.78%	1.16%
South Carolina	1,927	16.97%	22.37%	2.84%	10.79%	14.34%	0.52%	2.02%	3.85%	0.51%
South Dakota	1,945	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.93%	2.77%	0.82%
Tennessee	1,968	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.42%	3.26%	0.74%
Texas	6,697	10.02%	13.75%	1.36%	2.94%	3.11%	0.27%	1.43%	2.26%	0.35%
Utah	1,252	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Vermont	1,951	3.08%	2.69%	0.40%	0.82%	0.90%	0.05%	2.82%	3.32%	0.57%
Virginia	2,037	8.30%	9.29%	0.39%	0.83%	1.08%	0.03%	1.87%	1.41%	0.37%
Washington	2,103	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.00%	4.68%	1.16%
West Virginia	2,112	9.28%	11.70%	0.40%	4.59%	5.68%	0.16%	3.08%	2.69%	0.56%
Wisconsin	1,931	3.16%	3.82%	0.17%	5.70%	6.78%	0.31%	3.57%	5.02%	0.96%
Wyoming	2,187	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.78%	1.78%	0.64%

¹ nr = nonresponse adjustment.

² ps = poststratification adjustment.

³ Weighted extreme value percentage = $100 * \frac{\sum_k w_{ek}}{\sum_k w_k}$, where w_{ek} denotes the weight for extreme weights and w_k denotes the weight for both extreme weights and nonextreme weights.

⁴ Outwisor weight percentage = $100 * \frac{\sum_k (w_{ek} - b_k)}{\sum_k w_k}$, where b_k denotes the cutoff point for defining the extreme weight.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010 (Revised March 2012).

Appendix G: Evaluation of Calibration Weights: Person-Level Percentages of Extreme Weights and Outwinsors

Table G.1 2010 NSDUH Selected Person-Level Percentages of Extreme Weights and Outwinors: United States, District of Columbia, and the 50 States

Domain	n	Before sel.per.ps ¹ (Weight1*...*Weight11)			After sel.per.ps ¹ (Weight1*...*Weight12)		
		% Unweighted	% Weighted ²	% Outwinor ³	% Unweighted	% Weighted ²	% Outwinor ³
United States	84,997	3.59%	6.79%	1.71%	1.85%	3.82%	0.83%
Alabama	1,121	2.05%	4.43%	0.93%	1.34%	4.11%	0.88%
Alaska	1,057	4.64%	9.24%	3.10%	2.08%	3.79%	0.63%
Arizona	1,149	2.44%	6.70%	0.89%	1.48%	2.35%	0.39%
Arkansas	1,123	1.78%	4.14%	1.13%	4.10%	6.48%	1.50%
California	4,739	2.87%	6.58%	1.66%	1.41%	3.70%	0.55%
Colorado	1,117	5.55%	10.88%	2.54%	4.66%	10.17%	3.18%
Connecticut	1,151	3.65%	6.16%	1.38%	2.09%	6.53%	1.92%
Delaware	1,099	1.64%	1.61%	0.19%	0.91%	2.74%	0.53%
District of Co	1,110	2.52%	5.99%	0.81%	0.63%	2.23%	0.83%
Florida	4,460	3.18%	7.07%	2.07%	1.21%	2.44%	0.83%
Georgia	1,131	2.03%	4.46%	0.71%	1.15%	1.82%	0.25%
Hawaii	1,296	3.94%	7.43%	1.97%	2.31%	5.21%	1.74%
Idaho	1,113	4.13%	8.94%	2.26%	1.98%	3.83%	0.82%
Illinois	4,762	2.65%	4.23%	1.01%	0.67%	1.16%	0.12%
Indiana	1,142	4.12%	7.57%	2.06%	1.58%	3.64%	0.85%
Iowa	1,113	6.56%	9.40%	2.55%	1.71%	2.34%	0.51%
Kansas	1,101	4.90%	10.13%	3.13%	1.82%	4.57%	1.30%
Kentucky	1,109	4.24%	6.85%	1.28%	1.71%	6.06%	1.55%
Louisiana	1,112	2.34%	2.80%	0.35%	0.81%	4.44%	0.75%
Maine	1,100	7.55%	8.28%	2.16%	1.09%	1.87%	0.54%
Maryland	1,096	1.92%	4.07%	0.75%	0.46%	1.17%	0.11%
Massachusetts	1,149	2.87%	6.91%	2.97%	1.39%	2.27%	0.44%
Michigan	4,561	4.93%	6.27%	1.37%	2.21%	2.54%	0.49%
Minnesota	1,149	5.31%	11.31%	2.78%	2.44%	4.79%	1.12%
Mississippi	1,087	3.68%	8.95%	2.66%	1.56%	4.57%	0.99%

(continued)

Table G.1 2010 NSDUH Selected Person-Level Percentages of Extreme Weights and Outwinors: United States, District of Columbia, and the 50 States (continued)

Domain	n	Before sel.per.ps ¹ (Weight1*...*Weight11)			After sel.per.ps ¹ (Weight1*...*Weight12)		
		% Unweighted	% Weighted ²	% Outwinor ³	% Unweighted	% Weighted ²	% Outwinor ³
Missouri	1,142	3.06%	6.09%	1.40%	2.36%	2.89%	0.85%
Montana	1,137	2.11%	3.46%	0.76%	1.32%	2.69%	0.93%
Nebraska	1,120	5.89%	14.41%	5.29%	3.66%	7.42%	2.08%
Nevada	1,183	4.82%	12.73%	3.87%	4.40%	9.77%	2.00%
New Hampshire	1,160	8.10%	7.49%	1.44%	0.95%	2.86%	0.87%
New Jersey	1,157	4.75%	9.74%	3.15%	2.94%	4.51%	0.88%
New Mexico	1,117	2.78%	5.81%	1.52%	2.33%	5.51%	1.33%
New York	5,061	2.23%	4.12%	1.15%	1.46%	3.89%	1.58%
North Carolina	1,103	5.35%	10.66%	1.99%	3.08%	4.34%	0.48%
North Dakota	1,188	5.56%	6.73%	1.39%	2.95%	6.27%	2.25%
Ohio	4,633	3.41%	4.59%	0.81%	2.83%	6.03%	0.90%
Oklahoma	1,173	1.79%	2.91%	0.63%	0.77%	3.15%	0.71%
Oregon	1,134	3.26%	5.04%	1.01%	1.06%	1.57%	0.21%
Pennsylvania	3,853	3.40%	5.17%	1.17%	1.35%	3.15%	0.48%
Rhode Island	1,117	2.69%	7.04%	2.10%	1.70%	3.96%	1.46%
South Carolina	1,138	4.48%	10.11%	1.97%	2.46%	3.91%	0.59%
South Dakota	1,115	2.24%	4.09%	1.26%	2.15%	5.08%	1.44%
Tennessee	1,117	3.85%	7.15%	1.30%	0.90%	2.76%	0.35%
Texas	4,431	4.87%	10.57%	2.74%	3.00%	6.00%	0.98%
Utah	1,105	1.54%	2.94%	0.57%	1.27%	2.89%	0.72%
Vermont	1,034	4.06%	6.02%	1.78%	2.13%	4.81%	0.57%
Virginia	1,096	1.00%	2.24%	0.40%	1.09%	2.10%	0.67%
Washington	1,194	3.52%	6.54%	1.70%	2.01%	3.88%	1.01%
West Virginia	1,091	4.40%	6.36%	2.22%	0.73%	1.34%	0.12%
Wisconsin	1,113	4.76%	11.51%	4.19%	2.61%	4.06%	1.11%
Wyoming	1,138	2.11%	2.86%	1.23%	2.20%	4.98%	0.76%

¹ Before sel.per.ps (Weight1*...*Weight11) and after sel.per.ps (Weight1*...*Weight12) used demographic variables from screener data for all selected persons; ps = poststratification adjustment.

² Weighted extreme value percentage = $100 * \frac{\sum_k w_{ek}}{\sum_k w_k}$, where w_{ek} denotes the weight for extreme weights and w_k denotes the weight for both extreme weights and nonextreme weights.

³ Outwinor weight percentage = $100 * \frac{\sum_k (w_{ek} - b_k)}{\sum_k w_k}$, where b_k denotes the cutoff point for defining the extreme weight.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010 (Revised March 2012).

Table G.2 2010 NSDUH Respondent Person-Level Percentages of Extreme Weights and Outwinsors: United States, District of Columbia, and the 50 States

Domain	n	Before res.per.nr ¹ (Weight1*...*Weight12)			After res.per.nr ¹ (Weight1*...*Weight13)			Before res.per.ps ² (Weight1*...*Weight13)			After res.per.ps ² (Weight1*...*Weight14)		
		%	%	%	%	%	%	%	%	%	%	%	%
		Unweighted	Weighted ³	Outwinsor ⁴	Unweighted	Weighted ³	Outwinsor ⁴	Unweighted	Weighted ³	Outwinsor ⁴	Unweighted	Weighted ³	Outwinsor ⁴
United States	67,804	1.86%	3.97%	0.88%	1.51%	3.80%	0.82%	1.60%	4.05%	0.90%	1.21%	3.25%	0.69%
Alabama	878	1.37%	3.97%	0.84%	0.46%	2.17%	0.41%	0.57%	2.40%	0.51%	0.46%	3.80%	0.94%
Alaska	868	1.96%	4.04%	0.68%	2.30%	6.15%	1.32%	2.76%	7.66%	1.51%	3.23%	10.60%	2.67%
Arizona	925	1.41%	2.70%	0.41%	1.19%	4.20%	0.76%	1.19%	4.20%	0.71%	0.54%	5.52%	1.09%
Arkansas	899	4.34%	6.12%	1.74%	2.22%	2.76%	0.60%	2.22%	2.76%	0.60%	2.78%	3.20%	0.89%
California	3,715	1.45%	3.97%	0.64%	1.10%	4.43%	0.84%	1.10%	4.44%	0.89%	0.65%	3.57%	0.78%
Colorado	904	4.31%	10.15%	3.05%	1.99%	2.99%	0.63%	2.32%	4.32%	1.21%	0.44%	1.18%	0.22%
Connecticut	926	2.05%	6.53%	1.94%	1.84%	7.47%	2.54%	2.05%	8.63%	2.61%	1.30%	5.32%	1.17%
Delaware	889	1.12%	3.52%	0.66%	1.24%	3.28%	0.37%	1.35%	3.49%	0.47%	0.90%	4.24%	0.75%
District of Co	935	0.75%	2.71%	0.98%	1.39%	4.92%	0.87%	1.60%	5.50%	1.26%	0.64%	0.65%	0.21%
Florida	3,655	1.26%	2.52%	0.94%	0.98%	2.85%	0.93%	1.01%	2.95%	0.94%	0.66%	1.09%	0.50%
Georgia	910	0.99%	1.23%	0.34%	0.66%	1.55%	0.22%	0.77%	1.73%	0.28%	0.22%	0.23%	0.01%
Hawaii	974	2.16%	5.79%	2.34%	1.95%	4.62%	1.43%	2.26%	5.41%	1.56%	2.46%	5.65%	1.61%
Idaho	912	1.75%	3.86%	0.87%	1.43%	2.89%	0.55%	1.54%	3.10%	0.67%	0.33%	2.13%	0.64%
Illinois	3,609	0.72%	1.45%	0.11%	0.72%	2.30%	0.26%	0.78%	2.37%	0.34%	1.14%	3.77%	0.78%
Indiana	916	1.86%	4.40%	0.80%	3.49%	7.73%	1.88%	3.60%	8.59%	1.91%	1.31%	4.07%	1.34%
Iowa	925	1.73%	1.96%	0.42%	1.41%	3.41%	0.39%	1.84%	3.63%	0.47%	3.35%	10.16%	4.38%
Kansas	885	2.03%	4.80%	1.53%	1.13%	2.51%	0.54%	1.13%	2.51%	0.53%	1.24%	2.07%	0.49%
Kentucky	900	1.56%	6.55%	1.76%	2.22%	5.86%	1.71%	2.22%	5.86%	1.67%	2.22%	2.84%	0.95%
Louisiana	906	0.88%	4.50%	0.64%	1.43%	4.43%	0.66%	1.66%	4.86%	0.87%	0.66%	2.92%	0.28%
Maine	924	1.08%	2.11%	0.57%	0.22%	0.87%	0.16%	0.22%	0.87%	0.16%	0.22%	1.62%	0.38%
Maryland	883	0.23%	0.56%	0.06%	0.34%	1.32%	0.20%	0.34%	1.32%	0.18%	0.45%	1.99%	0.29%
Massachusetts	930	1.40%	2.64%	0.60%	1.72%	4.20%	0.90%	1.83%	4.56%	1.14%	0.97%	3.40%	0.50%
Michigan	3,690	2.25%	2.54%	0.49%	1.65%	2.63%	0.35%	1.65%	2.65%	0.36%	1.95%	1.38%	0.24%
Minnesota	946	2.43%	3.72%	0.74%	2.64%	6.17%	2.44%	2.64%	6.17%	2.54%	2.96%	5.91%	1.69%
Mississippi	893	1.57%	4.31%	0.93%	1.46%	2.45%	0.40%	1.46%	2.80%	0.37%	1.12%	3.16%	0.98%

(continued)

Table G.2 2010 NSDUH Respondent Person-Level Percentages of Extreme Weights and Outwinsors: United States, District of Columbia, and the 50 States (continued)

Domain	n	Before res.per.nr ¹ (Weight1*...*Weight12)			After res.per.nr ¹ (Weight1*...*Weight13)			Before res.per.ps ² (Weight1*...*Weight13)			After res.per.ps ² (Weight1*...*Weight14)		
		%	%	%	%	%	%	%	%	%	%	%	%
		Unweighted	Weighted ³	Outwinsor ⁴	Unweighted	Weighted ³	Outwinsor ⁴	Unweighted	Weighted ³	Outwinsor ⁴	Unweighted	Weighted ³	Outwinsor ⁴
Missouri	921	2.50%	3.35%	1.06%	1.74%	3.51%	1.07%	2.06%	5.75%	1.46%	0.87%	2.59%	0.42%
Montana	919	1.52%	3.39%	1.15%	0.65%	1.77%	0.47%	0.65%	1.77%	0.46%	0.98%	1.79%	0.27%
Nebraska	906	3.53%	6.80%	1.91%	4.75%	10.63%	2.65%	4.75%	10.82%	2.63%	2.43%	5.49%	1.59%
Nevada	958	5.43%	14.81%	2.13%	4.49%	10.42%	2.12%	4.70%	10.65%	2.34%	1.88%	9.52%	1.41%
New Hampshire	918	0.76%	1.84%	0.54%	1.96%	3.33%	0.94%	1.96%	3.33%	0.94%	1.85%	2.47%	0.66%
New Jersey	923	3.03%	4.93%	0.87%	1.63%	3.67%	0.97%	1.52%	4.24%	1.39%	0.98%	2.33%	0.37%
New Mexico	912	2.63%	6.65%	1.40%	2.30%	6.14%	0.94%	2.19%	5.67%	0.84%	1.21%	3.57%	0.36%
New York	3,626	1.60%	4.06%	1.88%	1.90%	5.57%	1.38%	1.96%	5.67%	1.40%	0.83%	2.59%	0.42%
North Carolina	904	3.32%	5.17%	0.48%	0.66%	2.64%	0.21%	0.77%	3.63%	0.27%	0.44%	1.49%	0.18%
North Dakota	954	3.04%	7.23%	2.66%	2.94%	6.13%	1.62%	2.83%	6.02%	1.58%	2.10%	4.63%	1.61%
Ohio	3,731	2.41%	5.53%	0.86%	1.77%	4.41%	0.50%	2.06%	4.54%	0.62%	1.26%	3.59%	0.89%
Oklahoma	923	0.65%	2.68%	0.58%	1.19%	5.54%	1.47%	1.30%	5.77%	1.55%	0.87%	4.70%	1.10%
Oregon	907	1.21%	2.16%	0.30%	0.99%	3.17%	0.58%	1.10%	3.10%	0.60%	0.88%	2.95%	0.86%
Pennsylvania	2,985	1.11%	2.43%	0.42%	1.21%	2.33%	0.43%	1.31%	2.50%	0.47%	1.61%	3.79%	0.61%
Rhode Island	915	1.97%	5.18%	1.82%	0.87%	2.32%	0.88%	1.09%	2.95%	0.99%	1.09%	2.92%	0.64%
South Carolina	927	2.16%	3.98%	0.55%	2.16%	3.33%	0.70%	2.27%	3.70%	0.67%	2.91%	6.96%	0.96%
South Dakota	929	1.72%	5.17%	1.64%	1.83%	6.90%	2.36%	1.94%	6.98%	2.52%	1.61%	8.18%	4.52%
Tennessee	901	0.89%	1.88%	0.36%	1.66%	5.23%	0.73%	1.78%	5.31%	0.72%	0.89%	3.70%	1.35%
Texas	3,590	3.06%	6.48%	1.10%	1.42%	3.25%	0.59%	1.45%	3.40%	0.66%	0.86%	3.64%	0.43%
Utah	919	1.41%	3.46%	0.89%	1.20%	4.94%	1.06%	1.20%	4.94%	1.04%	0.44%	0.87%	0.15%
Vermont	870	1.72%	3.52%	0.62%	1.49%	2.55%	0.53%	1.61%	2.62%	0.54%	0.57%	1.86%	0.29%
Virginia	888	1.24%	2.62%	0.93%	0.34%	3.57%	1.31%	0.56%	3.79%	1.32%	0.34%	2.47%	0.09%
Washington	897	2.01%	4.05%	0.82%	1.00%	1.78%	0.11%	1.00%	1.89%	0.19%	0.89%	3.85%	0.30%
West Virginia	888	0.90%	1.71%	0.16%	0.34%	0.84%	0.08%	0.45%	1.16%	0.36%	0.56%	0.84%	0.13%
Wisconsin	889	2.59%	4.59%	1.25%	1.57%	3.17%	0.79%	1.69%	3.68%	0.99%	2.36%	5.64%	1.37%
Wyoming	907	1.98%	3.90%	0.62%	0.99%	4.65%	0.48%	0.77%	3.90%	0.48%	0.99%	1.08%	0.15%

¹ Before res.per.nr (Weight1*...*Weight12) and after res.per.nr (Weight1*...*Weight13) used demographic variables from screener data for all respondents; nr = nonresponse adjustment.

² Before res.per.ps (Weight1*...*Weight13) and after res.per.ps (Weight1*...*Weight14) used demographic variables from questionnaire data for all respondents; ps = poststratification adjustment.

³ Weighted outlier percentage = $100 * \frac{\sum_k w_{ok}}{\sum_k w_k}$, where w_{ok} denotes the weight for outliers and w_k denotes the weight for both outliers and nonoutliers.

⁴ Outwinsor weight percentage = $100 * \frac{\sum_k (w_{ok} - b_k)}{\sum_k w_k}$, where b_k denotes the cutoff point for defining the extreme weight.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010 (Revised March 2012).

Appendix H: Evaluation of Calibration Weights: Slippage Rates

Table H.1 2010 NSDUH Slippage Rates: UNITED STATES

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		67,804	253,619,107	253,619,107	253,619,107	0.00	-0.00
Quarter	Quarter 1	16,019	63,208,759	63,208,759	63,208,759	0.00	0.00
	Quarter 2	17,946	63,331,041	63,331,040	63,331,040	0.00	0.00
	Quarter 3	17,465	63,472,232	63,472,232	63,472,232	0.00	-0.00
	Quarter 4	16,374	63,607,076	63,607,075	63,607,076	0.00	-0.00
Age Group	12-17	21,960	24,328,214	24,346,528	24,346,528	-0.08	-0.00
	18-25	22,793	33,892,708	34,072,349	34,072,349	-0.53	-0.00
	26-34	6,780	36,513,283	36,523,574	36,523,574	-0.03	0.00
	35-49	9,668	62,190,697	62,042,733	62,042,733	0.24	0.00
	50-64	4,094	60,285,555	57,695,892	57,695,892	4.49	-0.00
	65+	2,509	36,408,649	38,938,030	38,938,030	-6.50	0.00
Race	White	50,393	195,038,972	204,032,160	204,032,161	-4.41	-0.00
	Black or African American	8,951	31,339,479	31,168,385	31,168,385	0.55	-0.00
	Other	8,460	27,240,656	18,418,561	18,418,561	47.90	0.00
Hispanicity	Hispanic or Latino	10,917	37,415,890	36,769,252	36,769,252	1.76	-0.00
	Non-Hispanic or Latino	56,887	216,203,218	216,849,855	216,849,855	-0.30	0.00
Gender	Male	32,837	123,452,396	123,430,407	123,430,407	0.02	-0.00
	Female	34,967	130,166,711	130,188,700	130,188,700	-0.02	-0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010 (Revised March 2012).

Table H.2 2010 NSDUH Slippage Rates: ALABAMA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		878	3,893,688	3,893,688	3,893,688	0.00	0.00
Quarter	Quarter 1	172	971,382	971,383	971,383	-0.00	0.00
	Quarter 2	300	972,610	972,610	972,610	0.00	0.00
	Quarter 3	202	974,102	974,102	974,102	0.00	0.00
	Quarter 4	204	975,593	975,593	975,593	0.00	0.00
Age Group	12-17	302	368,540	374,067	374,067	-1.48	0.00
	18-25	286	528,358	520,974	520,974	1.42	0.00
	26-34	68	529,508	540,003	540,003	-1.94	0.00
	35-49	131	926,103	920,663	920,663	0.59	0.00
	50-64	48	824,261	898,957	898,957	-8.31	0.00
	65+	43	716,918	639,024	639,024	12.19	0.00
Race	White	505	2,791,676	2,794,525	2,794,525	-0.10	0.00
	Black or African American	336	991,305	998,851	998,851	-0.76	0.00
	Other	37	110,707	100,311	100,311	10.36	0.00
Hispanicity	Hispanic or Latino	29	109,391	104,449	104,449	4.73	0.00
	Non-Hispanic or Latino	849	3,784,296	3,789,239	3,789,239	-0.13	0.00
Gender	Male	416	1,852,606	1,852,606	1,852,606	0.00	0.00
	Female	462	2,041,081	2,041,081	2,041,081	0.00	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.3 2010 NSDUH Slippage Rates: ALASKA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		868	555,964	555,964	555,964	-0.00	0.00
Quarter	Quarter 1	244	138,156	138,156	138,156	-0.00	0.00
	Quarter 2	277	138,607	138,607	138,607	0.00	0.00
	Quarter 3	161	139,315	139,315	139,315	-0.00	0.00
	Quarter 4	186	139,886	139,886	139,886	-0.00	0.00
Age Group	12-17	264	56,946	57,362	57,362	-0.72	0.00
	18-25	309	85,195	85,086	85,086	0.13	0.00
	26-34	110	91,779	90,776	90,776	1.11	0.00
	35-49	118	133,478	134,175	134,175	-0.52	-0.00
	50-64	54	159,595	133,710	133,710	19.36	0.00
	65+	13	28,971	54,856	54,856	-47.19	0.00
Race	White	542	380,316	398,989	398,989	-4.68	0.00
	Black or African American	28	21,519	20,412	20,412	5.42	0.00
	Other	298	154,129	136,563	136,563	12.86	0.00
Hispanicity	Hispanic or Latino	71	32,666	31,691	31,691	3.08	0.00
	Non-Hispanic or Latino	797	523,298	524,273	524,273	-0.19	0.00
Gender	Male	445	283,038	282,861	282,861	0.06	0.00
	Female	423	272,926	273,102	273,102	-0.06	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.4 2010 NSDUH Slippage Rates: ARIZONA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		925	5,386,782	5,386,782	5,386,782	0.00	0.00
Quarter	Quarter 1	241	1,339,714	1,339,714	1,339,714	0.00	0.00
	Quarter 2	316	1,344,341	1,344,341	1,344,341	0.00	0.00
	Quarter 3	159	1,349,138	1,349,138	1,349,138	-0.00	0.00
	Quarter 4	209	1,353,588	1,353,588	1,353,588	0.00	0.00
Age Group	12-17	289	530,775	538,540	538,540	-1.44	0.00
	18-25	345	694,557	701,269	701,269	-0.96	0.00
	26-34	95	848,830	839,755	839,755	1.08	0.00
	35-49	118	1,286,925	1,276,585	1,276,585	0.81	0.00
	50-64	38	948,207	1,144,635	1,144,635	-17.16	0.00
	65+	40	1,077,486	885,998	885,998	21.61	0.00
Race	White	647	4,271,545	4,703,359	4,703,359	-9.18	0.00
	Black or African American	47	236,624	206,088	206,088	14.82	0.00
	Other	231	878,612	477,335	477,335	84.07	0.00
Hispanicity	Hispanic or Latino	360	1,516,348	1,515,599	1,515,599	0.05	0.00
	Non-Hispanic or Latino	565	3,870,434	3,871,182	3,871,182	-0.02	0.00
Gender	Male	456	2,678,253	2,672,680	2,672,680	0.21	0.00
	Female	469	2,708,528	2,714,102	2,714,102	-0.21	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.5 2010 NSDUH Slippage Rates: ARKANSAS

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		899	2,375,992	2,375,992	2,375,992	0.00	0.00
<i>Quarter</i>	Quarter 1	215	592,094	592,094	592,094	0.00	0.00
	Quarter 2	238	593,245	593,245	593,245	0.00	0.00
	Quarter 3	239	594,631	594,631	594,631	0.00	0.00
	Quarter 4	207	596,022	596,022	596,022	0.00	0.00
<i>Age Group</i>	12-17	284	232,460	232,460	232,460	0.00	0.00
	18-25	291	298,834	305,518	305,518	-2.19	0.00
	26-34	82	350,292	342,898	342,898	2.16	0.00
	35-49	152	548,338	553,620	553,620	-0.95	0.00
	50-64	55	545,819	539,697	539,697	1.13	0.00
	65+	35	400,249	401,800	401,800	-0.39	-0.00
<i>Race</i>	White	640	1,882,323	1,941,253	1,941,253	-3.04	-0.00
	Black or African American	184	348,626	356,357	356,358	-2.17	-0.00
	Other	75	145,042	78,382	78,382	85.05	0.00
<i>Hispanicity</i>	Hispanic or Latino	71	118,667	124,905	124,905	-4.99	0.00
	Non-Hispanic or Latino	828	2,257,325	2,251,087	2,251,087	0.28	0.00
<i>Gender</i>	Male	441	1,148,559	1,148,559	1,148,559	0.00	0.00
	Female	458	1,227,433	1,227,433	1,227,433	0.00	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.6 2010 NSDUH Slippage Rates: CALIFORNIA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		3,715	30,322,142	30,322,142	30,322,142	0.00	0.00
<i>Quarter</i>	Quarter 1	989	7,552,125	7,552,125	7,552,125	0.00	0.00
	Quarter 2	795	7,570,806	7,570,806	7,570,806	0.00	0.00
	Quarter 3	973	7,590,455	7,590,455	7,590,455	0.00	0.00
	Quarter 4	958	7,608,756	7,608,756	7,608,756	0.00	0.00
<i>Age Group</i>	12-17	1,307	3,100,367	3,086,730	3,086,730	0.44	0.00
	18-25	1,129	4,233,601	4,268,110	4,268,110	-0.81	0.00
	26-34	391	4,777,753	4,715,826	4,715,826	1.31	0.00
	35-49	569	7,590,245	7,626,928	7,626,928	-0.48	0.00
	50-64	201	6,718,971	6,457,630	6,457,630	4.05	0.00
	65+	118	3,901,205	4,166,918	4,166,918	-6.38	0.00
<i>Race</i>	White	2,443	20,543,573	23,151,700	23,151,700	-11.27	0.00
	Black or African American	217	1,886,848	1,931,722	1,931,722	-2.32	0.00
	Other	1,055	7,891,721	5,238,720	5,238,720	50.64	0.00
<i>Hispanicity</i>	Hispanic or Latino	1,906	10,454,161	10,451,520	10,451,520	0.03	0.00
	Non-Hispanic or Latino	1,809	19,867,981	19,870,622	19,870,622	-0.01	0.00
<i>Gender</i>	Male	1,835	14,966,760	14,977,079	14,977,079	-0.07	0.00
	Female	1,880	15,355,382	15,345,063	15,345,063	0.07	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.7 2010 NSDUH Slippage Rates: COLORADO

Domain	<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%	
Total	904	4,151,930	4,151,930	4,151,930	0.00	0.00	
Quarter	Quarter 1	211	1,032,200	1,032,200	1,032,200	0.00	0.00
	Quarter 2	230	1,035,988	1,035,988	1,035,988	0.00	0.00
	Quarter 3	215	1,040,055	1,040,055	1,040,055	0.00	0.00
	Quarter 4	248	1,043,687	1,043,687	1,043,687	0.00	0.00
Age Group	12-17	230	377,830	379,157	379,157	-0.35	0.00
	18-25	344	590,925	566,389	566,389	4.33	0.00
	26-34	126	628,454	651,664	651,664	-3.56	0.00
	35-49	125	1,074,121	1,053,251	1,053,251	1.98	0.00
	50-64	57	1,099,662	961,594	961,594	14.36	0.00
	65+	22	380,938	539,875	539,875	-29.44	0.00
Race	White	737	3,641,361	3,754,246	3,754,246	-3.01	0.00
	Black or African American	50	164,363	161,655	161,655	1.68	0.00
	Other	117	346,205	236,028	236,028	46.68	0.00
Hispanicity	Hispanic or Latino	252	754,477	755,508	755,508	-0.14	0.00
	Non-Hispanic or Latino	652	3,397,453	3,396,422	3,396,422	0.03	0.00
Gender	Male	470	2,064,674	2,065,501	2,065,501	-0.04	0.00
	Female	434	2,087,256	2,086,429	2,086,429	0.04	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.8 2010 NSDUH Slippage Rates: CONNECTICUT

Domain	<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%	
Total	926	2,951,217	2,951,217	2,951,217	0.00	0.00	
Quarter	Quarter 1	203	736,275	736,275	736,275	0.00	0.00
	Quarter 2	226	737,110	737,110	737,110	0.00	-0.00
	Quarter 3	253	738,303	738,303	738,303	0.00	0.00
	Quarter 4	244	739,529	739,529	739,529	0.00	0.00
Age Group	12-17	288	282,224	281,757	281,757	0.17	0.00
	18-25	324	381,203	381,359	381,359	-0.04	0.00
	26-34	84	342,732	362,330	362,330	-5.41	0.00
	35-49	137	763,935	746,412	746,412	2.35	0.00
	50-64	55	682,894	709,674	709,674	-3.77	0.00
	65+	38	498,229	469,684	469,684	6.08	0.00
Race	White	738	2,419,623	2,507,734	2,507,734	-3.51	0.00
	Black or African American	111	302,697	290,840	290,841	4.08	-0.00
	Other	77	228,898	152,642	152,642	49.96	0.00
Hispanicity	Hispanic or Latino	171	339,929	336,124	336,124	1.13	0.00
	Non-Hispanic or Latino	755	2,611,288	2,615,092	2,615,093	-0.15	-0.00
Gender	Male	453	1,432,091	1,427,253	1,427,253	0.34	0.00
	Female	473	1,519,126	1,523,964	1,523,964	-0.32	-0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.9 2010 NSDUH Slippage Rates: DELAWARE

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		889	737,571	737,571	737,571	0.00	0.00
Quarter	Quarter 1	208	183,765	183,765	183,765	0.00	-0.00
	Quarter 2	262	184,183	184,183	184,183	0.00	0.00
	Quarter 3	225	184,614	184,614	184,614	0.00	0.00
	Quarter 4	194	185,009	185,009	185,009	-0.00	0.00
Age Group	12-17	267	68,240	67,234	67,234	1.50	0.00
	18-25	287	93,524	93,677	93,677	-0.16	0.00
	26-34	108	100,937	101,816	101,816	-0.86	-0.00
	35-49	124	176,044	177,114	177,114	-0.60	0.00
	50-64	70	206,112	172,695	172,695	19.35	0.00
	65+	33	92,713	125,035	125,035	-25.85	0.00
Race	White	557	537,590	553,636	553,636	-2.90	0.00
	Black or African American	221	143,783	149,901	149,901	-4.08	-0.00
	Other	111	56,198	34,033	34,033	65.13	-0.00
Hispanicity	Hispanic or Latino	89	48,219	47,062	47,062	2.46	0.00
	Non-Hispanic or Latino	800	689,352	690,509	690,509	-0.17	-0.00
Gender	Male	424	353,067	353,067	353,067	0.00	-0.00
	Female	465	384,504	384,504	384,504	0.00	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.10 2010 NSDUH Slippage Rates: DISTRICT OF COLUMBIA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		935	517,942	517,942	517,942	0.00	-0.00
Quarter	Quarter 1	252	128,629	128,629	128,629	-0.00	0.00
	Quarter 2	239	129,188	129,188	129,188	0.00	-0.00
	Quarter 3	158	129,776	129,776	129,776	0.00	-0.00
	Quarter 4	286	130,349	130,349	130,349	0.00	0.00
Age Group	12-17	323	35,031	34,239	34,240	2.31	-0.00
	18-25	319	87,368	84,993	84,993	2.79	-0.00
	26-34	101	98,943	104,367	104,367	-5.20	-0.00
	35-49	126	122,381	121,711	121,711	0.55	-0.00
	50-64	40	110,189	104,036	104,036	5.91	-0.00
	65+	26	64,030	68,596	68,596	-6.66	0.00
Race	White	358	208,868	222,058	222,058	-5.94	-0.00
	Black or African American	487	268,089	267,977	267,977	0.04	0.00
	Other	90	40,984	27,908	27,908	46.86	0.00
Hispanicity	Hispanic or Latino	88	41,973	44,299	44,299	-5.25	-0.00
	Non-Hispanic or Latino	847	475,969	473,643	473,643	0.49	-0.00
Gender	Male	400	240,190	239,805	239,805	0.16	0.00
	Female	535	277,752	278,138	278,138	-0.14	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.11 2010 NSDUH Slippage Rates: FLORIDA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		3,655	15,611,774	15,611,774	15,611,774	0.00	-0.00
Quarter	Quarter 1	823	3,889,510	3,889,510	3,889,510	0.00	-0.00
	Quarter 2	953	3,897,885	3,897,885	3,897,885	0.00	0.00
	Quarter 3	907	3,907,532	3,907,532	3,907,532	0.00	-0.00
	Quarter 4	972	3,916,847	3,916,847	3,916,847	0.00	0.00
Age Group	12-17	1,214	1,332,418	1,329,956	1,329,956	0.19	-0.00
	18-25	1,199	1,846,893	1,870,501	1,870,501	-1.26	-0.00
	26-34	320	2,109,205	2,051,454	2,051,454	2.82	0.00
	35-49	504	3,588,967	3,638,934	3,638,934	-1.37	0.00
	50-64	253	3,969,038	3,529,355	3,529,355	12.46	-0.00
	65+	165	2,765,253	3,191,574	3,191,574	-13.36	0.00
Race	White	2,566	12,067,037	12,633,750	12,633,750	-4.49	-0.00
	Black or African American	701	2,413,715	2,333,823	2,333,823	3.42	0.00
	Other	388	1,131,022	644,201	644,201	75.57	0.00
Hispanicity	Hispanic or Latino	1,077	3,334,393	3,238,408	3,238,408	2.96	-0.00
	Non-Hispanic or Latino	2,578	12,277,381	12,373,366	12,373,366	-0.78	-0.00
Gender	Male	1,833	7,573,442	7,573,962	7,573,962	-0.01	0.00
	Female	1,822	8,038,332	8,037,812	8,037,812	0.01	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.12 2010 NSDUH Slippage Rates: GEORGIA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		910	7,940,651	7,940,651	7,940,651	0.00	-0.00
Quarter	Quarter 1	181	1,976,934	1,976,934	1,976,934	0.00	-0.00
	Quarter 2	285	1,982,644	1,982,644	1,982,644	0.00	-0.00
	Quarter 3	217	1,988,044	1,988,044	1,988,044	0.00	0.00
	Quarter 4	227	1,993,029	1,993,029	1,993,029	0.00	-0.00
Age Group	12-17	311	807,423	818,462	818,462	-1.35	0.00
	18-25	303	1,099,757	1,076,087	1,076,087	2.20	0.00
	26-34	97	1,186,523	1,199,154	1,199,154	-1.05	-0.00
	35-49	123	2,068,995	2,096,148	2,096,148	-1.30	-0.00
	50-64	51	1,809,197	1,736,427	1,736,427	4.19	0.00
	65+	25	968,756	1,014,372	1,014,373	-4.50	-0.00
Race	White	508	4,991,861	5,211,208	5,211,208	-4.21	-0.00
	Black or African American	320	2,369,666	2,368,905	2,368,905	0.03	-0.00
	Other	82	579,124	360,538	360,538	60.63	0.00
Hispanicity	Hispanic or Latino	106	605,357	576,789	576,789	4.95	-0.00
	Non-Hispanic or Latino	804	7,335,294	7,363,862	7,363,862	-0.39	-0.00
Gender	Male	432	3,810,914	3,810,914	3,810,914	0.00	0.00
	Female	478	4,129,738	4,129,737	4,129,738	0.00	-0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.13 2010 NSDUH Slippage Rates: HAWAII

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		974	1,047,745	1,047,745	1,047,745	-0.00	-0.00
<i>Quarter</i>	Quarter 1	303	261,240	261,240	261,240	-0.00	-0.00
	Quarter 2	199	261,677	261,677	261,678	-0.00	-0.00
	Quarter 3	214	262,209	262,209	262,209	-0.00	-0.00
	Quarter 4	258	262,619	262,619	262,619	-0.00	-0.00
<i>Age Group</i>	12-17	333	88,565	89,845	89,846	-1.43	-0.00
	18-25	332	131,122	130,340	130,340	0.60	-0.00
	26-34	94	164,981	156,034	156,034	5.73	0.00
	35-49	118	226,525	237,975	237,975	-4.81	0.00
	50-64	64	265,200	240,893	240,893	10.09	0.00
	65+	33	171,352	192,658	192,658	-11.06	0.00
<i>Race</i>	White	208	256,999	298,509	298,509	-13.91	-0.00
	Black or African American	13	23,075	25,732	25,732	-10.33	-0.00
	Other	753	767,671	723,504	723,504	6.10	0.00
<i>Hispanicity</i>	Hispanic or Latino	142	95,438	81,417	81,417	17.22	-0.00
	Non-Hispanic or Latino	832	952,307	966,328	966,328	-1.45	-0.00
<i>Gender</i>	Male	444	515,562	513,968	513,968	0.31	-0.00
	Female	530	532,183	533,777	533,777	-0.30	-0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.14 2010 NSDUH Slippage Rates: IDAHO

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		912	1,250,238	1,250,238	1,250,238	0.00	0.00
<i>Quarter</i>	Quarter 1	222	311,409	311,409	311,409	-0.00	0.00
	Quarter 2	218	312,173	312,173	312,173	0.00	0.00
	Quarter 3	252	312,968	312,968	312,968	0.00	0.00
	Quarter 4	220	313,688	313,688	313,688	0.00	0.00
<i>Age Group</i>	12-17	295	131,561	130,819	130,819	0.57	0.00
	18-25	301	177,205	177,534	177,534	-0.19	0.00
	26-34	97	184,646	185,059	185,059	-0.22	0.00
	35-49	137	280,366	285,594	285,594	-1.83	0.00
	50-64	53	314,429	282,682	282,682	11.23	0.00
	65+	29	162,031	188,550	188,550	-14.06	0.00
<i>Race</i>	White	824	1,150,229	1,190,832	1,190,832	-3.41	0.00
	Black or African American	5	14,420	8,528	8,528	69.10	0.00
	Other	83	85,589	50,879	50,879	68.22	0.00
<i>Hispanicity</i>	Hispanic or Latino	120	124,843	118,417	118,417	5.43	0.00
	Non-Hispanic or Latino	792	1,125,395	1,131,821	1,131,821	-0.57	0.00
<i>Gender</i>	Male	433	620,672	620,672	620,672	0.00	0.00
	Female	479	629,566	629,566	629,566	0.00	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.15 2010 NSDUH Slippage Rates: ILLINOIS

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		3,609	10,629,517	10,629,517	10,629,517	0.00	0.00
Quarter	Quarter 1	820	2,652,512	2,652,512	2,652,512	0.00	0.00
	Quarter 2	953	2,655,230	2,655,230	2,655,230	0.00	0.00
	Quarter 3	1,055	2,658,995	2,658,995	2,658,995	0.00	0.00
	Quarter 4	781	2,662,781	2,662,781	2,662,781	0.00	0.00
Age Group	12-17	1,124	1,051,854	1,049,679	1,049,679	0.21	0.00
	18-25	1,210	1,428,627	1,453,014	1,453,014	-1.68	0.00
	26-34	420	1,592,007	1,574,917	1,574,917	1.09	0.00
	35-49	527	2,635,876	2,628,945	2,628,945	0.26	0.00
	50-64	206	2,499,342	2,381,503	2,381,503	4.95	0.00
	65+	122	1,421,811	1,541,460	1,541,460	-7.76	0.00
Race	White	2,523	8,039,928	8,498,916	8,498,916	-5.40	-0.00
	Black or African American	670	1,545,601	1,506,049	1,506,049	2.63	0.00
	Other	416	1,043,988	624,552	624,552	67.16	0.00
Hispanicity	Hispanic or Latino	614	1,514,367	1,478,212	1,478,212	2.45	0.00
	Non-Hispanic or Latino	2,995	9,115,150	9,151,305	9,151,305	-0.40	-0.00
Gender	Male	1,715	5,175,101	5,179,914	5,179,914	-0.09	0.00
	Female	1,894	5,454,416	5,449,603	5,449,603	0.09	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.16 2010 NSDUH Slippage Rates: INDIANA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		916	5,286,018	5,286,018	5,286,018	-0.00	-0.00
Quarter	Quarter 1	197	1,318,655	1,318,656	1,318,656	-0.00	0.00
	Quarter 2	281	1,320,292	1,320,292	1,320,292	0.00	0.00
	Quarter 3	212	1,322,453	1,322,453	1,322,453	-0.00	-0.00
	Quarter 4	226	1,324,617	1,324,617	1,324,617	0.00	-0.00
Age Group	12-17	341	523,789	523,789	523,789	0.00	0.00
	18-25	276	707,320	719,041	719,041	-1.63	0.00
	26-34	87	747,037	741,756	741,756	0.71	0.00
	35-49	131	1,285,204	1,285,099	1,285,099	0.01	-0.00
	50-64	54	1,346,099	1,219,528	1,219,528	10.38	0.00
	65+	27	676,568	796,803	796,803	-15.09	-0.00
Race	White	783	4,599,692	4,687,212	4,687,212	-1.87	-0.00
	Black or African American	78	419,475	450,447	450,447	-6.88	0.00
	Other	55	266,851	148,359	148,359	79.87	0.00
Hispanicity	Hispanic or Latino	55	215,669	252,317	252,318	-14.52	-0.00
	Non-Hispanic or Latino	861	5,070,349	5,033,700	5,033,700	0.73	-0.00
Gender	Male	456	2,576,394	2,578,859	2,578,859	-0.10	-0.00
	Female	460	2,709,624	2,707,158	2,707,158	0.09	-0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.17 2010 NSDUH Slippage Rates: IOWA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		925	2,502,115	2,502,114	2,502,115	0.00	-0.00
Quarter	Quarter 1	221	624,150	624,150	624,150	0.00	0.00
	Quarter 2	249	624,848	624,848	624,848	0.00	-0.00
	Quarter 3	228	625,947	625,947	625,947	0.00	0.00
	Quarter 4	227	627,171	627,171	627,171	0.00	0.00
Age Group	12-17	288	235,625	234,049	234,049	0.67	0.00
	18-25	317	358,416	359,379	359,379	-0.27	0.00
	26-34	109	335,870	332,080	332,080	1.14	0.00
	35-49	133	565,742	570,146	570,146	-0.77	0.00
	50-64	52	715,822	585,914	585,914	22.17	-0.00
	65+	26	290,639	420,548	420,548	-30.89	0.00
Race	White	828	2,353,917	2,368,846	2,368,846	-0.63	0.00
	Black or African American	32	59,167	34,681	60,006	-1.40	-42.20
	Other	65	89,030	98,588	73,262	21.52	34.57
Hispanicity	Hispanic or Latino	70	92,407	96,345	96,345	-4.09	0.00
	Non-Hispanic or Latino	855	2,409,707	2,405,770	2,405,770	0.16	-0.00
Gender	Male	440	1,230,851	1,230,850	1,230,851	0.00	-0.00
	Female	485	1,271,264	1,271,264	1,271,264	0.00	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.18 2010 NSDUH Slippage Rates: KANSAS

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		885	2,296,286	2,296,286	2,296,286	0.00	0.00
Quarter	Quarter 1	243	572,277	572,277	572,277	0.00	0.00
	Quarter 2	212	573,301	573,301	573,301	0.00	0.00
	Quarter 3	233	574,653	574,653	574,653	0.00	0.00
	Quarter 4	197	576,055	576,055	576,055	0.00	0.00
Age Group	12-17	295	224,682	225,398	225,398	-0.32	0.00
	18-25	284	337,398	338,453	338,453	-0.31	0.00
	26-34	84	331,584	325,432	325,432	1.89	0.00
	35-49	134	520,296	529,303	529,303	-1.70	0.00
	50-64	53	559,877	527,196	527,196	6.20	0.00
	65+	35	322,450	350,505	350,505	-8.00	0.00
Race	White	766	2,022,151	2,057,887	2,057,887	-1.74	0.00
	Black or African American	45	129,990	127,516	127,516	1.94	0.00
	Other	74	144,145	110,883	110,883	30.00	0.00
Hispanicity	Hispanic or Latino	134	200,685	191,274	191,274	4.92	0.00
	Non-Hispanic or Latino	751	2,095,601	2,105,012	2,105,012	-0.45	0.00
Gender	Male	426	1,126,616	1,126,616	1,126,616	0.00	0.00
	Female	459	1,169,670	1,169,670	1,169,670	0.00	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.19 2010 NSDUH Slippage Rates: KENTUCKY

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		900	3,574,784	3,574,784	3,574,784	-0.00	0.00
Quarter	Quarter 1	267	891,279	891,279	891,279	0.00	0.00
	Quarter 2	226	892,761	892,761	892,761	-0.00	0.00
	Quarter 3	210	894,505	894,505	894,505	-0.00	0.00
	Quarter 4	197	896,239	896,239	896,239	-0.00	0.00
Age Group	12-17	299	332,970	333,232	333,232	-0.08	0.00
	18-25	299	454,654	461,899	461,899	-1.57	0.00
	26-34	96	511,844	506,232	506,232	1.11	0.00
	35-49	113	868,801	875,515	875,515	-0.77	0.00
	50-64	64	947,536	843,556	843,556	12.33	0.00
	65+	29	458,980	554,351	554,351	-17.20	0.00
Race	White	787	3,146,126	3,237,936	3,237,936	-2.84	0.00
	Black or African American	63	256,467	257,671	257,671	-0.47	0.00
	Other	50	172,191	79,177	79,177	117.48	0.00
Hispanicity	Hispanic or Latino	23	46,692	80,759	80,759	-42.18	0.00
	Non-Hispanic or Latino	877	3,528,093	3,494,026	3,494,026	0.98	0.00
Gender	Male	438	1,726,337	1,726,337	1,726,337	-0.00	0.00
	Female	462	1,848,448	1,848,448	1,848,448	-0.00	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.20 2010 NSDUH Slippage Rates: LOUISIANA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		906	3,661,821	3,661,821	3,661,821	-0.00	0.00
Quarter	Quarter 1	245	912,360	912,360	912,360	0.00	0.00
	Quarter 2	249	914,216	914,216	914,216	-0.00	0.00
	Quarter 3	195	916,502	916,502	916,502	0.00	0.00
	Quarter 4	217	918,743	918,743	918,743	0.00	0.00
Age Group	12-17	327	364,152	365,624	365,624	-0.40	0.00
	18-25	283	534,718	526,082	526,082	1.64	0.00
	26-34	96	553,295	547,813	547,813	1.00	0.00
	35-49	127	805,828	844,677	844,677	-4.60	0.00
	50-64	43	855,716	838,050	838,050	2.11	-0.00
	65+	30	548,111	539,574	539,574	1.58	0.00
Race	White	535	2,383,375	2,416,087	2,416,087	-1.35	0.00
	Black or African American	323	1,132,585	1,132,675	1,132,675	-0.01	0.00
	Other	48	145,861	113,060	113,060	29.01	0.00
Hispanicity	Hispanic or Latino	45	133,292	129,391	129,391	3.01	0.00
	Non-Hispanic or Latino	861	3,528,529	3,532,430	3,532,430	-0.11	0.00
Gender	Male	449	1,743,135	1,741,783	1,741,783	0.08	0.00
	Female	457	1,918,686	1,920,038	1,920,038	-0.07	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.21 2010 NSDUH Slippage Rates: MAINE

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		924	1,127,285	1,127,285	1,127,285	0.00	0.00
Quarter	Quarter 1	202	281,883	281,883	281,883	0.00	0.00
	Quarter 2	249	281,809	281,809	281,809	0.00	0.00
	Quarter 3	240	281,807	281,806	281,807	0.00	-0.00
	Quarter 4	233	281,786	281,786	281,786	0.00	0.00
Age Group	12-17	284	94,483	94,501	94,501	-0.02	0.00
	18-25	298	128,929	130,971	130,971	-1.56	0.00
	26-34	95	134,588	132,528	132,528	1.55	0.00
	35-49	143	269,489	269,489	269,489	0.00	0.00
	50-64	64	311,268	297,661	297,661	4.57	0.00
	65+	40	188,529	202,136	202,136	-6.73	0.00
Race	White	847	1,072,436	1,089,755	1,089,755	-1.59	0.00
	Black or African American	5	11,000	10,664	10,664	3.15	-0.00
	Other	72	43,849	26,866	26,866	63.21	0.00
Hispanicity	Hispanic or Latino	18	14,300	13,990	13,990	2.22	0.00
	Non-Hispanic or Latino	906	1,112,985	1,113,295	1,113,295	-0.03	0.00
Gender	Male	449	547,976	545,983	545,983	0.37	0.00
	Female	475	579,309	581,302	581,302	-0.34	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.22 2010 NSDUH Slippage Rates: MARYLAND

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		883	4,737,806	4,737,805	4,737,806	0.00	-0.00
Quarter	Quarter 1	165	1,180,519	1,180,519	1,180,519	0.00	0.00
	Quarter 2	280	1,182,996	1,182,996	1,182,996	0.00	-0.00
	Quarter 3	252	1,185,809	1,185,809	1,185,809	0.00	0.00
	Quarter 4	186	1,188,482	1,188,482	1,188,482	0.00	-0.00
Age Group	12-17	270	452,383	448,006	448,006	0.98	0.00
	18-25	296	601,795	613,529	613,529	-1.91	0.00
	26-34	97	673,174	668,888	668,888	0.64	0.00
	35-49	131	1,200,511	1,208,207	1,208,207	-0.64	0.00
	50-64	54	1,136,934	1,110,600	1,110,600	2.37	-0.00
	65+	35	673,009	688,575	688,575	-2.26	-0.00
Race	White	486	2,853,288	3,025,812	3,025,813	-5.70	-0.00
	Black or African American	271	1,353,826	1,373,977	1,373,977	-1.47	0.00
	Other	126	530,692	338,016	338,016	57.00	0.00
Hispanicity	Hispanic or Latino	84	325,402	312,162	312,162	4.24	0.00
	Non-Hispanic or Latino	799	4,412,403	4,425,643	4,425,644	-0.30	-0.00
Gender	Male	429	2,260,519	2,260,518	2,260,519	0.00	-0.00
	Female	454	2,477,287	2,477,287	2,477,287	0.00	-0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.23 2010 NSDUH Slippage Rates: MASSACHUSETTS

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		930	5,605,641	5,605,641	5,605,641	0.00	0.00
Quarter	Quarter 1	215	1,397,519	1,397,519	1,397,519	0.00	0.00
	Quarter 2	291	1,399,841	1,399,841	1,399,841	0.00	0.00
	Quarter 3	207	1,402,726	1,402,726	1,402,726	0.00	0.00
	Quarter 4	217	1,405,555	1,405,555	1,405,555	-0.00	0.00
Age Group	12-17	295	489,736	491,663	491,663	-0.39	0.00
	18-25	321	770,488	761,003	761,003	1.25	0.00
	26-34	80	733,222	765,765	765,765	-4.25	0.00
	35-49	133	1,431,192	1,418,115	1,418,115	0.92	0.00
	50-64	61	1,347,550	1,307,469	1,307,469	3.07	0.00
	65+	40	833,452	861,626	861,626	-3.27	0.00
Race	White	767	4,822,475	4,860,596	4,860,596	-0.78	0.00
	Black or African American	69	353,577	372,568	372,568	-5.10	0.00
	Other	94	429,589	372,477	372,477	15.33	0.00
Hispanicity	Hispanic or Latino	120	500,032	456,055	456,055	9.64	0.00
	Non-Hispanic or Latino	810	5,105,609	5,149,586	5,149,586	-0.85	0.00
Gender	Male	440	2,717,084	2,705,626	2,705,626	0.42	0.00
	Female	490	2,888,557	2,900,015	2,900,015	-0.40	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.24 2010 NSDUH Slippage Rates: MICHIGAN

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		3,690	8,313,433	8,313,433	8,313,433	-0.00	0.00
Quarter	Quarter 1	831	2,078,303	2,078,303	2,078,303	-0.00	0.00
	Quarter 2	983	2,077,968	2,077,968	2,077,968	-0.00	0.00
	Quarter 3	991	2,078,406	2,078,406	2,078,406	0.00	0.00
	Quarter 4	885	2,078,756	2,078,756	2,078,756	-0.00	0.00
Age Group	12-17	1,208	811,629	814,296	814,296	-0.33	0.00
	18-25	1,219	1,105,294	1,105,211	1,105,211	0.01	0.00
	26-34	366	1,045,638	1,048,620	1,048,620	-0.28	-0.00
	35-49	545	2,020,040	2,016,501	2,016,501	0.18	-0.00
	50-64	218	2,061,430	2,011,945	2,011,945	2.46	0.00
	65+	134	1,269,402	1,316,859	1,316,859	-3.60	0.00
Race	White	2,784	6,641,302	6,836,409	6,836,409	-2.85	0.00
	Black or African American	610	1,116,071	1,118,745	1,118,745	-0.24	0.00
	Other	296	556,060	358,280	358,280	55.20	0.00
Hispanicity	Hispanic or Latino	179	327,741	311,468	311,468	5.22	0.00
	Non-Hispanic or Latino	3,511	7,985,692	8,001,965	8,001,965	-0.20	0.00
Gender	Male	1,786	4,048,625	4,042,818	4,042,818	0.14	0.00
	Female	1,904	4,264,807	4,270,615	4,270,615	-0.14	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.25 2010 NSDUH Slippage Rates: MINNESOTA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		946	4,382,130	4,382,130	4,382,130	-0.00	0.00
Quarter	Quarter 1	218	1,093,227	1,093,227	1,093,227	0.00	0.00
	Quarter 2	240	1,094,657	1,094,657	1,094,657	0.00	0.00
	Quarter 3	249	1,096,351	1,096,351	1,096,351	0.00	0.00
	Quarter 4	239	1,097,895	1,097,895	1,097,895	-0.00	0.00
Age Group	12-17	298	417,604	409,292	409,292	2.03	0.00
	18-25	334	575,898	590,704	590,704	-2.51	0.00
	26-34	93	648,428	635,774	635,774	1.99	0.00
	35-49	146	1,034,547	1,074,080	1,074,080	-3.68	-0.00
	50-64	47	1,076,227	1,024,137	1,024,137	5.09	-0.00
	65+	28	629,425	648,142	648,142	-2.89	-0.00
Race	White	811	3,905,517	3,943,492	3,943,492	-0.96	-0.00
	Black or African American	69	193,322	180,779	180,779	6.94	0.00
	Other	66	283,290	257,859	257,859	9.86	0.00
Hispanicity	Hispanic or Latino	35	184,082	158,167	158,167	16.38	0.00
	Non-Hispanic or Latino	911	4,198,048	4,223,963	4,223,963	-0.61	0.00
Gender	Male	457	2,170,611	2,169,166	2,169,166	0.07	0.00
	Female	489	2,211,519	2,212,964	2,212,964	-0.07	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.26 2010 NSDUH Slippage Rates: MISSISSIPPI

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		893	2,373,593	2,373,593	2,373,593	0.00	-0.00
Quarter	Quarter 1	226	592,416	592,416	592,416	-0.00	0.00
	Quarter 2	217	592,951	592,951	592,951	0.00	0.00
	Quarter 3	242	593,726	593,726	593,726	0.00	-0.00
	Quarter 4	208	594,499	594,499	594,499	0.00	0.00
Age Group	12-17	288	246,739	247,423	247,423	-0.28	0.00
	18-25	312	336,228	340,138	340,138	-1.15	-0.00
	26-34	71	329,235	339,025	339,025	-2.89	0.00
	35-49	127	585,991	549,208	549,208	6.70	0.00
	50-64	66	610,008	533,055	533,055	14.44	0.00
	65+	29	265,392	364,744	364,744	-27.24	0.00
Race	White	487	1,415,553	1,465,547	1,465,547	-3.41	0.00
	Black or African American	376	865,224	856,440	856,440	1.03	-0.00
	Other	30	92,816	51,605	51,605	79.86	0.00
Hispanicity	Hispanic or Latino	32	62,287	53,917	53,918	15.52	-0.00
	Non-Hispanic or Latino	861	2,311,306	2,319,675	2,319,675	-0.36	0.00
Gender	Male	439	1,125,744	1,122,822	1,122,822	0.26	-0.00
	Female	454	1,247,848	1,250,771	1,250,771	-0.23	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.27 2010 NSDUH Slippage Rates: MISSOURI

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		921	4,952,896	4,952,896	4,952,896	0.00	0.00
<i>Quarter</i>	Quarter 1	188	1,235,416	1,235,416	1,235,416	0.00	0.00
	Quarter 2	274	1,237,064	1,237,064	1,237,064	0.00	0.00
	Quarter 3	233	1,239,171	1,239,171	1,239,171	0.00	0.00
	Quarter 4	226	1,241,245	1,241,245	1,241,245	0.00	0.00
<i>Age Group</i>	12-17	287	470,117	472,583	472,583	-0.52	0.00
	18-25	319	654,681	656,859	656,859	-0.33	0.00
	26-34	98	702,920	698,830	698,830	0.59	-0.00
	35-49	131	1,229,853	1,174,220	1,174,220	4.74	0.00
	50-64	49	1,151,295	1,156,465	1,156,465	-0.45	-0.00
	65+	37	744,030	793,939	793,939	-6.29	0.00
<i>Race</i>	White	737	4,182,359	4,259,004	4,259,004	-1.80	0.00
	Black or African American	139	546,200	557,597	532,271	2.62	4.76
	Other	45	224,337	136,296	161,621	38.80	-15.67
<i>Hispanicity</i>	Hispanic or Latino	42	140,321	146,913	146,913	-4.49	0.00
	Non-Hispanic or Latino	879	4,812,575	4,805,983	4,805,983	0.14	0.00
<i>Gender</i>	Male	447	2,388,497	2,389,502	2,389,502	-0.04	0.00
	Female	474	2,564,399	2,563,395	2,563,395	0.04	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.28 2010 NSDUH Slippage Rates: MONTANA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		919	820,115	820,115	820,115	0.00	0.00
<i>Quarter</i>	Quarter 1	221	204,564	204,564	204,564	0.00	0.00
	Quarter 2	247	204,844	204,844	204,844	0.00	0.00
	Quarter 3	219	205,196	205,196	205,196	0.00	0.00
	Quarter 4	232	205,512	205,512	205,512	0.00	0.00
<i>Age Group</i>	12-17	301	72,069	72,261	72,261	-0.26	0.00
	18-25	279	114,447	114,819	114,819	-0.32	0.00
	26-34	89	105,932	107,755	107,755	-1.69	0.00
	35-49	130	177,282	175,999	175,999	0.73	0.00
	50-64	71	211,698	210,436	210,436	0.60	0.00
	65+	49	138,687	138,845	138,845	-0.11	0.00
<i>Race</i>	White	788	745,775	750,483	750,483	-0.63	0.00
	Black or African American	8	4,990	4,602	4,602	8.42	0.00
	Other	123	69,350	65,030	65,030	6.64	0.00
<i>Hispanicity</i>	Hispanic or Latino	28	25,670	22,670	22,670	13.23	0.00
	Non-Hispanic or Latino	891	794,445	797,445	797,445	-0.38	0.00
<i>Gender</i>	Male	456	407,719	407,719	407,719	0.00	-0.00
	Female	463	412,396	412,396	412,396	0.00	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.29 2010 NSDUH Slippage Rates: NEBRASKA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		906	1,469,129	1,469,129	1,469,129	0.00	0.00
Quarter	Quarter 1	245	366,129	366,129	366,129	0.00	0.00
	Quarter 2	201	366,787	366,787	366,787	0.00	0.00
	Quarter 3	231	367,652	367,652	367,652	0.00	0.00
	Quarter 4	229	368,561	368,561	368,561	0.00	0.00
Age Group	12-17	299	140,797	141,249	141,249	-0.32	0.00
	18-25	302	213,460	218,880	218,880	-2.48	0.00
	26-34	95	214,270	208,398	208,398	2.82	0.00
	35-49	133	341,761	335,840	335,840	1.76	0.00
	50-64	45	349,485	334,690	334,690	4.42	0.00
	65+	32	209,355	230,072	230,072	-9.00	-0.00
Race	White	798	1,335,867	1,355,056	1,355,056	-1.42	0.00
	Black or African American	50	59,052	60,372	60,372	-2.19	0.00
	Other	58	74,210	53,700	53,700	38.19	0.00
Hispanicity	Hispanic or Latino	110	88,239	106,160	106,160	-16.88	0.00
	Non-Hispanic or Latino	796	1,380,889	1,362,969	1,362,969	1.31	0.00
Gender	Male	417	723,596	723,596	723,596	0.00	0.00
	Female	489	745,532	745,532	745,532	0.00	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.30 2010 NSDUH Slippage Rates: NEVADA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		958	2,155,405	2,155,405	2,155,405	0.00	0.00
Quarter	Quarter 1	152	537,645	537,645	537,645	0.00	0.00
	Quarter 2	271	538,488	538,488	538,488	-0.00	0.00
	Quarter 3	331	539,320	539,320	539,320	0.00	0.00
	Quarter 4	204	539,952	539,952	539,952	0.00	0.00
Age Group	12-17	265	210,619	210,434	210,434	0.09	0.00
	18-25	332	259,246	263,872	263,872	-1.75	0.00
	26-34	102	350,908	343,618	343,618	2.12	0.00
	35-49	138	541,478	544,724	544,724	-0.60	0.00
	50-64	69	492,830	477,676	477,676	3.17	0.00
	65+	52	300,324	315,081	315,081	-4.68	0.00
Race	White	670	1,618,834	1,746,842	1,746,842	-7.33	0.00
	Black or African American	84	138,447	164,653	164,653	-15.92	0.00
	Other	204	398,124	243,910	243,910	63.23	0.00
Hispanicity	Hispanic or Latino	313	527,285	522,482	522,482	0.92	0.00
	Non-Hispanic or Latino	645	1,628,120	1,632,923	1,632,923	-0.29	0.00
Gender	Male	484	1,092,965	1,088,647	1,088,647	0.40	0.00
	Female	474	1,062,440	1,066,758	1,066,758	-0.40	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.31 2010 NSDUH Slippage Rates: NEW HAMPSHIRE

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		918	1,128,997	1,128,997	1,128,997	0.00	0.00
Quarter	Quarter 1	211	281,919	281,919	281,919	0.00	0.00
	Quarter 2	222	282,116	282,116	282,116	0.00	0.00
	Quarter 3	255	282,382	282,382	282,382	0.00	0.00
	Quarter 4	230	282,581	282,581	282,581	0.00	0.00
Age Group	12-17	251	101,725	101,483	101,483	0.24	0.00
	18-25	383	144,513	145,527	145,527	-0.70	0.00
	26-34	67	134,962	134,190	134,190	0.58	0.00
	35-49	134	283,337	287,729	287,729	-1.53	0.00
	50-64	58	324,957	286,426	286,426	13.45	0.00
	65+	25	139,504	173,644	173,644	-19.66	0.00
Race	White	842	1,063,089	1,081,346	1,081,346	-1.69	-0.00
	Black or African American	20	16,584	13,314	13,314	24.56	0.00
	Other	56	49,324	34,338	34,338	43.64	0.00
Hispanicity	Hispanic or Latino	32	24,230	29,148	29,148	-16.87	0.00
	Non-Hispanic or Latino	886	1,104,767	1,099,849	1,099,849	0.45	0.00
Gender	Male	466	554,948	554,948	554,948	0.00	0.00
	Female	452	574,049	574,049	574,049	0.00	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.32 2010 NSDUH Slippage Rates: NEW JERSEY

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		923	7,269,834	7,269,834	7,269,834	-0.00	0.00
Quarter	Quarter 1	213	1,813,536	1,813,536	1,813,536	0.00	0.00
	Quarter 2	254	1,815,769	1,815,769	1,815,769	0.00	0.00
	Quarter 3	230	1,818,742	1,818,742	1,818,742	0.00	0.00
	Quarter 4	226	1,821,787	1,821,787	1,821,787	-0.00	0.00
Age Group	12-17	321	688,010	692,595	692,595	-0.66	0.00
	18-25	264	876,323	865,591	865,591	1.24	0.00
	26-34	93	996,416	979,743	979,743	1.70	0.00
	35-49	151	1,911,145	1,893,736	1,893,736	0.92	0.00
	50-64	61	1,870,875	1,695,212	1,695,212	10.36	-0.00
	65+	33	927,066	1,142,958	1,142,958	-18.89	0.00
Race	White	623	5,160,135	5,569,900	5,569,900	-7.36	0.00
	Black or African American	116	1,032,832	1,005,004	1,005,005	2.77	-0.00
	Other	184	1,076,868	694,930	694,930	54.96	0.00
Hispanicity	Hispanic or Latino	208	1,205,102	1,147,468	1,147,468	5.02	0.00
	Non-Hispanic or Latino	715	6,064,733	6,122,367	6,122,367	-0.94	0.00
Gender	Male	431	3,527,296	3,530,729	3,530,729	-0.10	-0.00
	Female	492	3,742,538	3,739,106	3,739,106	0.09	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.33 2010 NSDUH Slippage Rates: NEW MEXICO

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		912	1,641,892	1,641,892	1,641,892	-0.00	0.00
Quarter	Quarter 1	224	408,656	408,656	408,656	0.00	0.00
	Quarter 2	220	409,807	409,807	409,807	-0.00	0.00
	Quarter 3	256	411,102	411,102	411,102	-0.00	0.00
	Quarter 4	212	412,326	412,326	412,326	-0.00	0.00
Age Group	12-17	328	162,300	161,227	161,227	0.67	0.00
	18-25	299	224,214	226,963	226,963	-1.21	0.00
	26-34	84	244,798	245,448	245,448	-0.26	0.00
	35-49	110	370,051	367,725	367,725	0.63	0.00
	50-64	54	377,878	376,996	376,996	0.23	0.00
	65+	37	262,651	263,533	263,533	-0.33	0.00
Race	White	731	1,347,794	1,397,700	1,397,700	-3.57	0.00
	Black or African American	21	41,801	40,962	40,962	2.05	0.00
	Other	160	252,297	203,230	203,230	24.14	0.00
Hispanicity	Hispanic or Latino	434	726,401	720,658	720,658	0.80	0.00
	Non-Hispanic or Latino	478	915,490	921,234	921,234	-0.62	0.00
Gender	Male	419	801,836	801,138	801,138	0.09	0.00
	Female	493	840,055	840,753	840,753	-0.08	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.34 2010 NSDUH Slippage Rates: NEW YORK

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		3,626	16,410,083	16,410,083	16,410,083	-0.00	-0.00
Quarter	Quarter 1	770	4,096,754	4,096,754	4,096,754	0.00	0.00
	Quarter 2	1,012	4,099,569	4,099,570	4,099,570	-0.00	0.00
	Quarter 3	1,035	4,104,336	4,104,336	4,104,336	0.00	-0.00
	Quarter 4	809	4,109,423	4,109,423	4,109,423	-0.00	-0.00
Age Group	12-17	1,146	1,508,508	1,498,050	1,498,050	0.70	0.00
	18-25	1,207	2,154,365	2,188,721	2,188,721	-1.57	0.00
	26-34	372	2,372,992	2,347,908	2,347,908	1.07	0.00
	35-49	550	4,014,654	4,059,212	4,059,212	-1.10	0.00
	50-64	225	4,071,170	3,767,858	3,767,858	8.05	0.00
	65+	126	2,288,394	2,548,335	2,548,335	-10.20	-0.00
Race	White	2,382	11,353,881	12,181,482	12,181,482	-6.79	-0.00
	Black or African American	684	2,753,442	2,712,066	2,712,067	1.53	-0.00
	Other	560	2,302,760	1,516,534	1,516,534	51.84	-0.00
Hispanicity	Hispanic or Latino	856	2,813,007	2,603,394	2,603,394	8.05	0.00
	Non-Hispanic or Latino	2,770	13,597,076	13,806,689	13,806,689	-1.52	-0.00
Gender	Male	1,672	7,884,552	7,890,055	7,890,055	-0.07	0.00
	Female	1,954	8,525,531	8,520,028	8,520,028	0.06	-0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.35 2010 NSDUH Slippage Rates: NORTH CAROLINA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		904	7,679,126	7,679,126	7,679,126	0.00	-0.00
Quarter	Quarter 1	199	1,911,907	1,911,907	1,911,907	0.00	0.00
	Quarter 2	266	1,916,908	1,916,908	1,916,908	0.00	0.00
	Quarter 3	233	1,922,576	1,922,576	1,922,576	0.00	0.00
	Quarter 4	206	1,927,735	1,927,735	1,927,735	-0.00	0.00
Age Group	12-17	308	709,631	719,819	719,819	-1.42	-0.00
	18-25	297	990,995	1,014,496	1,014,496	-2.32	0.00
	26-34	95	985,910	1,060,380	1,060,380	-7.02	0.00
	35-49	119	2,070,947	1,945,371	1,945,371	6.46	0.00
	50-64	48	1,622,998	1,761,150	1,761,150	-7.84	0.00
	65+	37	1,298,646	1,177,912	1,177,912	10.25	0.00
Race	White	617	5,588,309	5,723,066	5,723,066	-2.35	0.00
	Black or African American	192	1,660,483	1,626,965	1,626,965	2.06	-0.00
	Other	95	430,334	329,096	329,096	30.76	0.00
Hispanicity	Hispanic or Latino	89	531,738	490,521	490,521	8.40	0.00
	Non-Hispanic or Latino	815	7,147,388	7,188,605	7,188,605	-0.57	0.00
Gender	Male	423	3,666,846	3,673,068	3,673,068	-0.17	-0.00
	Female	481	4,012,280	4,006,058	4,006,058	0.16	-0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.36 2010 NSDUH Slippage Rates: NORTH DAKOTA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		954	540,202	540,202	540,202	-0.00	0.00
Quarter	Quarter 1	212	134,471	134,471	134,471	-0.00	0.00
	Quarter 2	252	134,819	134,819	134,819	0.00	-0.00
	Quarter 3	230	135,250	135,250	135,250	0.00	0.00
	Quarter 4	260	135,662	135,662	135,662	-0.00	0.00
Age Group	12-17	298	46,251	46,378	46,378	-0.27	0.00
	18-25	341	96,381	96,560	96,560	-0.18	0.00
	26-34	83	74,242	73,465	73,465	1.06	0.00
	35-49	121	111,024	112,097	112,097	-0.96	0.00
	50-64	67	128,173	122,896	122,896	4.29	-0.00
	65+	44	84,131	88,806	88,806	-5.26	0.00
Race	White	868	493,296	498,953	498,953	-1.13	0.00
	Black or African American	10	6,291	5,561	5,561	13.14	0.00
	Other	76	40,614	35,688	35,688	13.80	0.00
Hispanicity	Hispanic or Latino	29	11,990	11,435	11,435	4.85	0.00
	Non-Hispanic or Latino	925	528,212	528,766	528,766	-0.10	0.00
Gender	Male	469	270,112	270,112	270,112	-0.00	0.00
	Female	485	270,090	270,090	270,090	0.00	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.37 2010 NSDUH Slippage Rates: OHIO

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		3,731	9,580,362	9,580,362	9,580,362	-0.00	0.00
Quarter	Quarter 1	877	2,393,406	2,393,406	2,393,406	-0.00	0.00
	Quarter 2	870	2,393,871	2,393,871	2,393,871	0.00	0.00
	Quarter 3	919	2,395,586	2,395,586	2,395,586	-0.00	0.00
	Quarter 4	1,065	2,397,498	2,397,498	2,397,498	-0.00	0.00
Age Group	12-17	1,186	914,845	918,549	918,549	-0.40	0.00
	18-25	1,370	1,219,530	1,210,150	1,210,150	0.78	-0.00
	26-34	295	1,299,191	1,302,630	1,302,630	-0.26	0.00
	35-49	503	2,300,291	2,304,829	2,304,829	-0.20	0.00
	50-64	227	2,302,441	2,304,206	2,304,206	-0.08	0.00
	65+	150	1,544,064	1,539,998	1,539,998	0.26	0.00
Race	White	3,090	8,149,853	8,212,255	8,212,255	-0.76	0.00
	Black or African American	480	1,093,559	1,085,204	1,085,204	0.77	0.00
	Other	161	336,950	282,903	282,903	19.10	0.00
Hispanicity	Hispanic or Latino	137	239,977	240,042	240,042	-0.03	0.00
	Non-Hispanic or Latino	3,594	9,340,384	9,340,320	9,340,320	0.00	0.00
Gender	Male	1,763	4,629,106	4,627,196	4,627,196	0.04	0.00
	Female	1,968	4,951,256	4,953,166	4,953,166	-0.04	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.38 2010 NSDUH Slippage Rates: OKLAHOMA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		923	2,995,565	2,995,565	2,995,565	0.00	-0.00
Quarter	Quarter 1	208	745,852	745,852	745,852	0.00	0.00
	Quarter 2	255	747,674	747,674	747,674	-0.00	0.00
	Quarter 3	209	749,932	749,932	749,932	-0.00	0.00
	Quarter 4	251	752,107	752,107	752,107	0.00	-0.00
Age Group	12-17	337	291,436	291,436	291,436	-0.00	0.00
	18-25	274	428,086	425,691	425,691	0.56	0.00
	26-34	85	434,037	439,813	439,813	-1.31	0.00
	35-49	122	682,947	679,565	679,565	0.50	0.00
	50-64	62	684,683	676,011	676,011	1.28	-0.00
	65+	43	474,376	483,049	483,049	-1.80	0.00
Race	White	604	2,211,306	2,374,307	2,374,307	-6.87	-0.00
	Black or African American	77	220,007	221,243	221,243	-0.56	0.00
	Other	242	564,253	400,016	400,016	41.06	0.00
Hispanicity	Hispanic or Latino	116	234,451	219,877	219,877	6.63	-0.00
	Non-Hispanic or Latino	807	2,761,114	2,775,688	2,775,688	-0.53	0.00
Gender	Male	449	1,458,157	1,452,903	1,452,903	0.36	0.00
	Female	474	1,537,408	1,542,663	1,542,663	-0.34	-0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.39 2010 NSDUH Slippage Rates: OREGON

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		907	3,229,211	3,229,211	3,229,211	0.00	0.00
Quarter	Quarter 1	213	804,620	804,620	804,620	0.00	0.00
	Quarter 2	205	806,387	806,387	806,387	0.00	0.00
	Quarter 3	260	808,256	808,256	808,256	0.00	0.00
	Quarter 4	229	809,948	809,948	809,948	0.00	0.00
Age Group	12-17	319	288,395	285,470	285,470	1.02	0.00
	18-25	290	407,230	412,163	412,163	-1.20	0.00
	26-34	98	477,334	468,594	468,594	1.87	0.00
	35-49	116	748,888	755,621	755,621	-0.89	0.00
	50-64	56	841,850	787,765	787,765	6.87	0.00
	65+	28	465,513	519,599	519,599	-10.41	-0.00
Race	White	761	2,870,901	2,925,458	2,925,458	-1.86	0.00
	Black or African American	16	60,540	56,254	56,254	7.62	0.00
	Other	130	297,771	247,499	247,499	20.31	0.00
Hispanicity	Hispanic or Latino	140	313,524	310,495	310,495	0.98	0.00
	Non-Hispanic or Latino	767	2,915,687	2,918,716	2,918,716	-0.10	0.00
Gender	Male	441	1,605,259	1,585,410	1,585,410	1.25	0.00
	Female	466	1,623,951	1,643,801	1,643,801	-1.21	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.40 2010 NSDUH Slippage Rates: PENNSYLVANIA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		2,985	10,607,311	10,607,311	10,607,311	0.00	0.00
Quarter	Quarter 1	733	2,648,138	2,648,138	2,648,138	-0.00	0.00
	Quarter 2	797	2,649,652	2,649,652	2,649,652	-0.00	0.00
	Quarter 3	729	2,652,889	2,652,889	2,652,889	0.00	0.00
	Quarter 4	726	2,656,631	2,656,631	2,656,631	-0.00	0.00
Age Group	12-17	953	949,907	951,061	951,061	-0.12	0.00
	18-25	941	1,360,401	1,365,550	1,365,550	-0.38	0.00
	26-34	278	1,365,398	1,364,078	1,364,078	0.10	0.00
	35-49	460	2,522,041	2,512,632	2,512,632	0.37	0.00
	50-64	207	2,625,758	2,554,369	2,554,369	2.79	0.00
	65+	146	1,783,806	1,859,621	1,859,621	-4.08	-0.00
Race	White	2,473	9,034,844	9,158,098	9,158,098	-1.35	-0.00
	Black or African American	355	1,094,040	1,069,020	1,069,021	2.34	-0.00
	Other	157	478,427	380,192	380,192	25.84	0.00
Hispanicity	Hispanic or Latino	170	514,489	479,864	479,864	7.22	0.00
	Non-Hispanic or Latino	2,815	10,092,822	10,127,447	10,127,447	-0.34	0.00
Gender	Male	1,483	5,136,711	5,118,971	5,118,971	0.35	0.00
	Female	1,502	5,470,600	5,488,340	5,488,340	-0.32	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010 (Revised March 2012).

Table H.41 2010 NSDUH Slippage Rates: RHODE ISLAND

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		915	896,384	896,384	896,384	-0.00	0.00
Quarter	Quarter 1	214	223,862	223,862	223,862	-0.00	0.00
	Quarter 2	238	223,946	223,946	223,946	0.00	0.00
	Quarter 3	268	224,160	224,160	224,160	-0.00	0.00
	Quarter 4	195	224,416	224,416	224,416	-0.00	0.00
Age Group	12-17	291	78,620	79,082	79,082	-0.58	0.00
	18-25	352	132,027	129,842	129,842	1.68	0.00
	26-34	71	110,604	117,025	117,025	-5.49	0.00
	35-49	132	217,889	216,588	216,588	0.60	0.00
	50-64	39	199,351	209,985	209,985	-5.06	0.00
	65+	30	157,893	143,863	143,863	9.75	0.00
Race	White	697	753,835	799,254	799,254	-5.68	0.00
	Black or African American	77	55,839	54,283	54,283	2.87	0.00
	Other	141	86,710	42,847	42,847	102.37	0.00
Hispanicity	Hispanic or Latino	161	101,616	99,461	99,461	2.17	0.00
	Non-Hispanic or Latino	754	794,768	796,924	796,924	-0.27	0.00
Gender	Male	454	431,128	432,178	432,178	-0.24	0.00
	Female	461	465,256	464,206	464,206	0.23	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.42 2010 NSDUH Slippage Rates: SOUTH CAROLINA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		927	3,760,624	3,760,624	3,760,624	0.00	0.00
Quarter	Quarter 1	240	936,819	936,819	936,819	0.00	0.00
	Quarter 2	223	939,091	939,091	939,091	0.00	0.00
	Quarter 3	279	941,385	941,385	941,385	0.00	0.00
	Quarter 4	185	943,329	943,329	943,329	0.00	-0.00
Age Group	12-17	294	352,444	349,533	349,533	0.83	0.00
	18-25	320	478,885	487,235	487,235	-1.71	0.00
	26-34	69	495,209	515,430	515,430	-3.92	0.00
	35-49	144	912,006	895,517	895,517	1.84	-0.00
	50-64	56	879,772	890,031	890,031	-1.15	0.00
	65+	44	642,307	622,878	622,878	3.12	-0.00
Race	White	550	2,586,515	2,636,657	2,636,657	-1.90	-0.00
	Black or African American	319	1,030,328	1,025,245	1,025,245	0.50	0.00
	Other	58	143,781	98,722	98,722	45.64	0.00
Hispanicity	Hispanic or Latino	63	157,987	142,510	142,510	10.86	0.00
	Non-Hispanic or Latino	864	3,602,637	3,618,114	3,618,114	-0.43	0.00
Gender	Male	468	1,789,516	1,789,516	1,789,516	0.00	0.00
	Female	459	1,971,108	1,971,108	1,971,108	0.00	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.43 2010 NSDUH Slippage Rates: SOUTH DAKOTA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		929	666,589	666,588	666,589	0.00	-0.00
<i>Quarter</i>	Quarter 1	193	165,956	165,956	165,956	-0.00	0.00
	Quarter 2	319	166,380	166,380	166,380	-0.00	-0.00
	Quarter 3	205	166,874	166,874	166,874	0.00	0.00
	Quarter 4	212	167,378	167,378	167,378	0.00	-0.00
<i>Age Group</i>	12-17	309	62,886	62,886	62,886	0.00	0.00
	18-25	298	99,155	96,018	96,018	3.27	0.00
	26-34	84	88,650	92,653	92,653	-4.32	0.00
	35-49	137	146,435	145,569	145,569	0.59	0.00
	50-64	58	150,639	157,185	157,185	-4.16	-0.00
	65+	43	118,823	112,277	112,277	5.83	-0.00
<i>Race</i>	White	793	584,246	597,920	597,920	-2.29	-0.00
	Black or African American	6	8,318	6,786	6,786	22.57	0.00
	Other	130	74,024	61,883	61,883	19.62	-0.00
<i>Hispanicity</i>	Hispanic or Latino	25	17,041	16,370	16,370	4.10	0.00
	Non-Hispanic or Latino	904	649,548	650,219	650,219	-0.10	-0.00
<i>Gender</i>	Male	453	329,199	329,860	329,860	-0.20	0.00
	Female	476	337,389	336,728	336,728	0.20	-0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.44 2010 NSDUH Slippage Rates: TENNESSEE

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		901	5,238,574	5,238,574	5,238,574	0.00	-0.00
<i>Quarter</i>	Quarter 1	193	1,305,664	1,305,664	1,305,664	-0.00	-0.00
	Quarter 2	254	1,308,308	1,308,308	1,308,308	0.00	0.00
	Quarter 3	255	1,311,075	1,311,075	1,311,075	-0.00	0.00
	Quarter 4	199	1,313,526	1,313,526	1,313,526	0.00	0.00
<i>Age Group</i>	12-17	319	492,174	489,538	489,539	0.54	-0.00
	18-25	299	652,611	664,620	664,620	-1.81	0.00
	26-34	74	737,480	746,009	746,009	-1.14	0.00
	35-49	133	1,308,056	1,290,154	1,290,154	1.39	0.00
	50-64	53	1,508,029	1,220,948	1,220,948	23.51	0.00
	65+	23	540,224	827,306	827,306	-34.70	0.00
<i>Race</i>	White	687	4,220,153	4,254,113	4,254,113	-0.80	0.00
	Black or African American	182	836,106	843,101	843,101	-0.83	0.00
	Other	32	182,316	141,360	141,360	28.97	-0.00
<i>Hispanicity</i>	Hispanic or Latino	30	167,682	181,003	181,003	-7.36	0.00
	Non-Hispanic or Latino	871	5,070,892	5,057,571	5,057,571	0.26	-0.00
<i>Gender</i>	Male	436	2,517,058	2,517,058	2,517,058	-0.00	-0.00
	Female	465	2,721,517	2,721,517	2,721,517	0.00	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.45 2010 NSDUH Slippage Rates: TEXAS

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		3,590	19,847,501	19,847,501	19,847,501	0.00	0.00
Quarter	Quarter 1	875	4,930,287	4,930,287	4,930,287	0.00	0.00
	Quarter 2	929	4,951,118	4,951,118	4,951,118	0.00	0.00
	Quarter 3	989	4,972,781	4,972,781	4,972,781	0.00	0.00
	Quarter 4	797	4,993,315	4,993,315	4,993,315	0.00	0.00
Age Group	12-17	1,124	2,129,360	2,131,714	2,131,714	-0.11	0.00
	18-25	1,269	2,842,680	2,858,101	2,858,101	-0.54	0.00
	26-34	438	3,151,683	3,201,211	3,201,211	-1.55	0.00
	35-49	471	5,090,266	5,000,248	5,000,248	1.80	0.00
	50-64	186	4,394,276	4,127,724	4,127,724	6.46	0.00
	65+	102	2,239,238	2,528,503	2,528,503	-11.44	0.00
Race	White	2,660	15,369,592	16,405,221	16,405,221	-6.31	-0.00
	Black or African American	440	2,287,321	2,309,496	2,309,496	-0.96	0.00
	Other	490	2,190,587	1,132,785	1,132,785	93.38	0.00
Hispanicity	Hispanic or Latino	1,527	6,944,409	6,882,138	6,882,138	0.90	0.00
	Non-Hispanic or Latino	2,063	12,903,092	12,965,363	12,965,363	-0.48	-0.00
Gender	Male	1,742	9,743,528	9,753,068	9,753,068	-0.10	0.00
	Female	1,848	10,103,972	10,094,433	10,094,433	0.09	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.46 2010 NSDUH Slippage Rates: UTAH

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		919	2,180,889	2,180,889	2,180,889	0.00	0.00
Quarter	Quarter 1	245	541,606	541,606	541,606	0.00	0.00
	Quarter 2	193	543,996	543,996	543,996	0.00	0.00
	Quarter 3	302	546,469	546,470	546,470	-0.00	0.00
	Quarter 4	179	548,818	548,818	548,818	0.00	0.00
Age Group	12-17	249	254,333	255,595	255,595	-0.49	0.00
	18-25	354	379,355	381,486	381,486	-0.56	0.00
	26-34	128	391,179	393,340	393,340	-0.55	0.00
	35-49	115	500,250	494,697	494,697	1.12	0.00
	50-64	42	407,657	401,311	401,311	1.58	0.00
	65+	31	248,116	254,461	254,461	-2.49	-0.00
Race	White	844	2,026,378	2,037,376	2,037,376	-0.54	0.00
	Black or African American	7	24,340	23,331	23,331	4.33	0.00
	Other	68	130,171	120,182	120,182	8.31	0.00
Hispanicity	Hispanic or Latino	127	268,822	243,533	243,533	10.38	0.00
	Non-Hispanic or Latino	792	1,912,067	1,937,356	1,937,356	-1.31	0.00
Gender	Male	430	1,087,682	1,087,682	1,087,682	0.00	0.00
	Female	489	1,093,208	1,093,208	1,093,208	0.00	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.47 2010 NSDUH Slippage Rates: VERMONT

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		870	538,568	538,568	538,568	0.00	0.00
Quarter	Quarter 1	224	134,482	134,482	134,482	0.00	0.00
	Quarter 2	272	134,573	134,573	134,573	0.00	0.00
	Quarter 3	202	134,703	134,703	134,703	0.00	0.00
	Quarter 4	172	134,810	134,810	134,810	0.00	0.00
Age Group	12-17	275	44,843	44,568	44,568	0.62	0.00
	18-25	277	75,533	76,455	76,455	-1.20	0.00
	26-34	107	63,393	62,748	62,748	1.03	0.00
	35-49	113	126,322	125,795	125,795	0.42	0.00
	50-64	64	155,375	140,730	140,730	10.41	0.00
	65+	34	73,102	88,272	88,273	-17.19	-0.00
Race	White	815	515,033	519,768	519,768	-0.91	0.00
	Black or African American	16	5,596	4,622	4,622	21.08	0.00
	Other	39	17,939	14,178	14,178	26.52	0.00
Hispanicity	Hispanic or Latino	21	7,942	7,901	7,901	0.51	0.00
	Non-Hispanic or Latino	849	530,627	530,667	530,667	-0.01	0.00
Gender	Male	416	264,094	264,094	264,094	0.00	0.00
	Female	454	274,475	274,475	274,475	0.00	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.48 2010 NSDUH Slippage Rates: VIRGINIA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		888	6,471,190	6,471,190	6,471,190	0.00	-0.00
Quarter	Quarter 1	235	1,610,928	1,610,928	1,610,928	0.00	0.00
	Quarter 2	245	1,615,467	1,615,467	1,615,467	0.00	0.00
	Quarter 3	206	1,620,240	1,620,240	1,620,240	0.00	0.00
	Quarter 4	202	1,624,554	1,624,554	1,624,554	0.00	-0.00
Age Group	12-17	294	592,055	594,024	594,024	-0.33	0.00
	18-25	298	873,631	884,909	884,909	-1.27	-0.00
	26-34	76	939,447	927,575	927,575	1.28	0.00
	35-49	143	1,624,941	1,623,565	1,623,565	0.08	0.00
	50-64	49	1,462,742	1,488,382	1,488,382	-1.72	0.00
	65+	28	978,375	952,735	952,736	2.69	-0.00
Race	White	602	4,677,501	4,779,050	4,779,050	-2.12	0.00
	Black or African American	173	1,237,652	1,236,308	1,236,308	0.11	-0.00
	Other	113	556,037	455,832	455,832	21.98	0.00
Hispanicity	Hispanic or Latino	89	436,648	423,650	423,650	3.07	0.00
	Non-Hispanic or Latino	799	6,034,542	6,047,540	6,047,540	-0.21	-0.00
Gender	Male	415	3,109,714	3,109,714	3,109,714	0.00	0.00
	Female	473	3,361,476	3,361,476	3,361,476	0.00	-0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.49 2010 NSDUH Slippage Rates: WASHINGTON

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		897	5,585,609	5,585,609	5,585,609	0.00	0.00
Quarter	Quarter 1	162	1,390,431	1,390,431	1,390,431	0.00	0.00
	Quarter 2	218	1,394,581	1,394,581	1,394,581	-0.00	0.00
	Quarter 3	249	1,398,537	1,398,537	1,398,537	-0.00	0.00
	Quarter 4	268	1,402,061	1,402,061	1,402,061	0.00	0.00
Age Group	12-17	298	505,301	512,686	512,686	-1.44	0.00
	18-25	280	725,137	719,040	719,040	0.85	0.00
	26-34	92	836,290	837,680	837,680	-0.17	0.00
	35-49	139	1,353,023	1,365,302	1,365,302	-0.90	0.00
	50-64	49	1,197,203	1,328,008	1,328,008	-9.85	0.00
	65+	39	968,656	822,893	822,893	17.71	-0.00
Race	White	714	4,640,417	4,738,044	4,738,044	-2.06	0.00
	Black or African American	35	204,977	191,784	191,784	6.88	0.00
	Other	148	740,215	655,781	655,781	12.88	0.00
Hispanicity	Hispanic or Latino	114	472,108	494,379	494,379	-4.50	0.00
	Non-Hispanic or Latino	783	5,113,501	5,091,231	5,091,231	0.44	0.00
Gender	Male	429	2,737,655	2,756,599	2,756,599	-0.69	0.00
	Female	468	2,847,954	2,829,011	2,829,011	0.67	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.50 2010 NSDUH Slippage Rates: WEST VIRGINIA

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		888	1,543,694	1,543,694	1,543,694	0.00	0.00
Quarter	Quarter 1	251	385,421	385,421	385,421	0.00	0.00
	Quarter 2	256	385,608	385,608	385,608	0.00	-0.00
	Quarter 3	198	386,067	386,067	386,067	0.00	0.00
	Quarter 4	183	386,597	386,597	386,597	0.00	0.00
Age Group	12-17	284	130,383	129,792	129,792	0.46	0.00
	18-25	316	191,096	190,362	190,362	0.39	-0.00
	26-34	80	198,138	199,463	199,463	-0.66	-0.00
	35-49	110	350,259	356,190	356,190	-1.66	-0.00
	50-64	55	378,624	388,566	388,566	-2.56	0.00
	65+	43	295,194	279,322	279,322	5.68	0.00
Race	White	812	1,435,586	1,466,159	1,466,159	-2.09	0.00
	Black or African American	31	48,405	50,312	50,312	-3.79	-0.00
	Other	45	59,703	27,223	27,223	119.31	0.00
Hispanicity	Hispanic or Latino	19	16,369	18,144	18,144	-9.79	0.00
	Non-Hispanic or Latino	869	1,527,325	1,525,550	1,525,550	0.12	0.00
Gender	Male	449	752,062	752,062	752,062	-0.00	-0.00
	Female	439	791,632	791,632	791,632	0.00	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.51 2010 NSDUH Slippage Rates: WISCONSIN

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		889	4,726,785	4,726,785	4,726,785	0.00	0.00
Quarter	Quarter 1	217	1,179,872	1,179,872	1,179,872	0.00	0.00
	Quarter 2	234	1,180,842	1,180,842	1,180,842	0.00	0.00
	Quarter 3	227	1,182,310	1,182,310	1,182,310	0.00	0.00
	Quarter 4	211	1,183,761	1,183,761	1,183,761	0.00	0.00
Age Group	12-17	321	432,646	436,408	436,408	-0.86	0.00
	18-25	270	645,777	652,261	652,261	-0.99	0.00
	26-34	84	625,988	628,238	628,238	-0.36	0.00
	35-49	125	1,145,607	1,142,570	1,142,570	0.27	-0.00
	50-64	59	1,248,141	1,127,681	1,127,681	10.68	0.00
	65+	30	628,625	739,626	739,626	-15.01	0.00
Race	White	763	4,256,931	4,290,813	4,290,813	-0.79	0.00
	Black or African American	65	246,232	252,505	252,505	-2.48	0.00
	Other	61	223,621	183,468	183,468	21.89	0.00
Hispanicity	Hispanic or Latino	47	203,988	216,463	216,463	-5.76	0.00
	Non-Hispanic or Latino	842	4,522,797	4,510,321	4,510,321	0.28	0.00
Gender	Male	455	2,328,297	2,328,297	2,328,297	0.00	0.00
	Female	434	2,398,488	2,398,488	2,398,488	0.00	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Table H.52 2010 NSDUH Slippage Rates: WYOMING

Domain		<i>n</i>	Initial Total (I) ¹	Final Total (F) ²	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		907	448,513	448,513	448,513	0.00	0.00
Quarter	Quarter 1	190	111,887	111,887	111,887	0.00	-0.00
	Quarter 2	251	112,048	112,048	112,048	0.00	0.00
	Quarter 3	226	112,220	112,220	112,220	0.00	0.00
	Quarter 4	240	112,358	112,358	112,358	0.00	0.00
Age Group	12-17	279	40,531	40,531	40,531	-0.00	-0.00
	18-25	344	64,642	64,920	64,920	-0.43	0.00
	26-34	76	65,409	67,387	67,387	-2.93	0.00
	35-49	116	100,005	98,844	98,844	1.17	0.00
	50-64	64	126,274	110,590	110,590	14.18	-0.00
	65+	28	51,652	66,240	66,240	-22.02	0.00
Race	White	795	417,783	423,542	423,542	-1.36	0.00
	Black or African American	17	5,063	4,793	4,793	5.64	-0.00
	Other	95	25,667	20,178	20,178	27.20	0.00
Hispanicity	Hispanic or Latino	99	32,038	32,329	32,329	-0.90	0.00
	Non-Hispanic or Latino	808	416,475	416,183	416,183	0.07	-0.00
Gender	Male	464	226,039	226,066	226,066	-0.01	0.00
	Female	443	222,474	222,447	222,447	0.01	0.00

¹ Weight1*...*Weight13 (before person poststratification).

² Weight1*...*Weight14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010.

Appendix I: Evaluation of Calibration Weights: Weight Summary Statistics

Table I.1 2010 NSDUH Dwelling Unit–Level Weight Summary Statistics: United States, District of Columbia, and the 50 States

Domain	n	Before res.du.nr (Weight1*...*Weight7) ¹						After res.du.nr & Before res.du.ps (Weight1*...*Weight8) ¹						After res.du.ps (Weight1*...*Weight9) ¹					
		Min	Q1 ²	Med	Q3 ²	Max	UWE ³	Min	Q1 ²	Med	Q3 ²	Max	UWE ³	Min	Q1 ²	Med	Q3 ²	Max	UWE ³
United States	147,010	17	384	553	870	11,011	1.54	45	428	642	974	7,481	1.47	11	438	694	1,053	8,508	1.49
Alaska	1,583	113	117	127	138	155	1.01	113	129	139	151	186	1.01	38	133	151	174	811	1.13
Alabama	2,099	648	669	751	839	1,468	1.05	677	765	838	961	1,645	1.05	257	759	862	1,001	5,814	1.09
Arkansas	1,948	270	425	535	550	603	1.01	409	521	578	607	729	1.02	90	507	600	683	2,271	1.10
Arizona	1,861	459	817	846	1,041	4,275	1.41	539	824	866	1,213	3,486	1.30	185	887	1,150	1,528	5,254	1.24
California	6,910	629	1,154	1,265	1,417	3,273	1.02	673	1,381	1,493	1,723	2,964	1.03	374	1,502	1,751	2,037	8,508	1.09
Colorado	1,912	693	720	738	948	3,457	1.31	693	737	780	986	3,500	1.30	149	810	943	1,148	4,793	1.25
Connecticut	1,812	72	544	577	598	781	1.02	93	599	659	820	2,132	1.06	84	620	691	827	4,643	1.13
District of Columbia	3,403	44	51	53	57	570	1.15	45	55	59	74	278	1.19	11	59	74	93	440	1.19
Delaware	1,857	98	145	156	163	176	1.00	131	167	175	189	224	1.01	38	169	192	212	421	1.05
Florida	8,891	197	573	586	709	3,168	1.14	259	634	676	764	3,568	1.13	150	702	794	914	5,150	1.15
Georgia	1,804	519	1,455	1,768	1,888	2,157	1.02	1,372	1,701	1,914	2,092	2,523	1.02	441	1,670	1,982	2,335	6,803	1.07
Hawaii	2,098	116	122	152	186	210	1.03	122	141	173	207	285	1.04	40	155	201	242	1,186	1.16
Iowa	2,069	459	488	518	529	557	1.00	473	523	549	561	747	1.00	102	544	576	632	2,786	1.05
Idaho	1,932	78	219	226	236	475	1.05	206	226	237	264	481	1.05	51	256	288	338	2,136	1.11
Illinois	7,392	91	421	445	532	640	1.02	166	499	586	652	965	1.03	123	556	645	730	3,078	1.05
Indiana	2,104	623	863	1,038	1,058	1,433	1.03	647	916	1,119	1,207	1,774	1.04	226	996	1,179	1,336	4,421	1.07
Kansas	1,824	397	527	534	544	567	1.00	528	561	582	604	666	1.00	107	537	582	645	3,251	1.10
Kentucky	1,991	348	684	703	721	751	1.00	599	729	751	780	939	1.00	147	800	860	928	3,526	1.05
Louisiana	1,955	495	688	705	770	804	1.00	549	724	760	832	1,075	1.01	184	766	855	980	3,387	1.05
Massachusetts	2,365	810	831	889	1,002	1,880	1.03	866	982	1,064	1,133	1,951	1.03	207	973	1,101	1,238	5,634	1.09
Maryland	1,692	118	736	958	984	1,676	1.04	340	974	1,142	1,284	1,965	1.04	260	1,017	1,182	1,408	3,304	1.09
Maine	2,197	186	202	213	229	541	1.02	194	217	235	249	333	1.01	41	234	250	283	905	1.06
Michigan	7,623	209	383	400	459	924	1.01	322	429	474	524	721	1.01	96	463	505	554	1,585	1.04
Minnesota	1,949	667	817	838	888	1,170	1.01	786	873	898	945	1,243	1.01	178	937	1,016	1,138	4,158	1.05
Missouri	2,031	861	899	945	1,082	1,160	1.01	872	959	1,022	1,149	1,451	1.01	198	1,011	1,167	1,265	3,611	1.05

(continued)

Table I.1 2010 NSDUH Dwelling Unit–Level Weight Summary Statistics: United States, District of Columbia, and the 50 States (continued)

Domain	n	Before res.du.nr (Weight1*...*Weight7) ¹						After res.du.nr & Before res.du.ps (Weight1*...*Weight8) ¹						After res.du.ps (Weight1*...*Weight9) ¹					
		Min	Q1 ²	Med	Q3 ²	Max	UWE ³	Min	Q1 ²	Med	Q3 ²	Max	UWE ³	Min	Q1 ²	Med	Q3 ²	Max	UWE ³
Mississippi	1,839	142	415	474	493	527	1.01	290	461	500	529	652	1.01	102	519	579	654	2,493	1.08
Montana	2,128	146	153	158	184	236	1.01	148	160	168	191	314	1.02	41	166	187	213	577	1.05
North Carolina	2,118	1,350	1,422	1,510	2,005	5,079	1.17	1,350	1,546	1,662	1,994	5,626	1.18	300	1,431	1,637	1,908	6,462	1.18
North Dakota	2,420	93	96	98	110	121	1.01	97	101	105	115	135	1.01	20	98	106	118	492	1.07
Nebraska	1,883	302	315	326	345	1,023	1.12	315	332	346	369	1,096	1.12	69	322	355	396	1,696	1.16
New Hampshire	2,219	174	183	186	208	412	1.01	179	209	214	237	282	1.01	42	219	236	259	673	1.05
New Jersey	1,831	1,324	1,389	1,537	1,628	3,577	1.01	1,325	1,599	1,722	1,846	2,444	1.01	530	1,465	1,644	1,868	7,789	1.11
New Mexico	1,959	274	284	290	327	363	1.01	274	284	308	335	981	1.07	79	326	374	440	1,598	1.09
Nevada	1,935	279	290	295	446	11,011	7.31	281	290	372	597	7,481	3.69	58	310	403	562	4,414	1.48
New York	8,452	468	526	565	676	1,227	1.02	566	667	777	910	1,631	1.05	178	705	842	993	5,011	1.11
Ohio	7,947	194	460	510	548	870	1.01	324	514	563	596	1,030	1.01	96	534	583	637	2,458	1.03
Oklahoma	1,903	526	565	624	632	654	1.00	568	638	682	705	898	1.01	131	668	779	859	2,214	1.09
Oregon	2,146	498	557	593	658	1,179	1.01	498	597	643	701	1,179	1.01	182	605	694	806	2,658	1.08
Pennsylvania	6,952	60	522	538	547	569	1.00	512	612	647	720	1,411	1.02	227	631	688	770	2,631	1.04
Rhode Island	1,866	17	152	164	190	220	1.02	148	174	189	224	630	1.03	43	191	217	249	1,089	1.09
South Carolina	1,927	407	624	639	681	939	1.03	607	690	728	793	1,201	1.03	164	772	869	993	2,944	1.09
South Dakota	1,945	113	116	158	165	174	1.02	113	124	167	172	194	1.02	26	134	163	198	697	1.10
Tennessee	1,968	616	917	1,014	1,257	1,427	1.03	676	1,009	1,127	1,399	1,735	1.04	494	1,016	1,201	1,390	6,587	1.08
Texas	6,697	396	957	990	1,086	3,607	1.09	801	1,036	1,095	1,234	3,296	1.07	382	1,138	1,255	1,405	5,291	1.08
Utah	1,252	406	434	596	672	798	1.04	424	468	627	712	925	1.05	111	559	760	863	1,719	1.09
Virginia	2,037	175	1,131	1,235	1,300	1,588	1.01	345	1,282	1,394	1,509	1,912	1.02	238	1,364	1,546	1,735	3,435	1.05
Vermont	1,951	66	98	119	122	167	1.01	98	111	129	138	175	1.02	23	119	135	151	448	1.06
Washington	2,103	870	896	917	1,235	1,344	1.03	871	970	1,058	1,254	1,743	1.03	282	991	1,153	1,372	5,498	1.11
Wisconsin	1,931	896	936	974	1,052	1,269	1.01	904	987	1,045	1,133	1,528	1.02	195	1,007	1,092	1,229	3,380	1.07
West Virginia	2,112	252	264	288	293	381	1.02	271	292	316	332	505	1.02	60	313	342	387	962	1.05
Wyoming	2,187	73	76	77	91	109	1.01	74	80	89	96	121	1.01	16	91	99	109	568	1.05

I-4

¹ Weight1*...*Weight7 are design-based weight components; nr = nonresponse adjustment; ps = poststratification adjustment.

² Q1 and Q3 refer to the first and third quartile of the weight distribution.

³ Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n] * CV^2$, where CV = coefficient of variation of weights.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010 (Revised March 2012).

Table I.2 2010 NSDUH Selected Person-Level Weight Summary Statistics: United States, District of Columbia, and the 50 States

Domain	n	Before sel.per.ps (Weight1*...*Weight11) ¹						After sel.per.ps (Weight1*...*Weight12) ¹					
		Min	Q1 ²	Med	Q3 ²	Max	UWE ³	Min	Q1 ²	Med	Q3 ²	Max	UWE ³
United States	84,997	15	698	1,333	3,466	82,330	2.94	5	679	1,320	3,446	75,889	3.02
Alaska	1,057	39	171	242	661	6,097	2.34	9	170	263	656	4,619	2.39
Alabama	1,121	491	1,036	1,576	4,878	23,364	2.15	107	978	1,606	4,901	28,260	2.27
Arkansas	1,123	94	674	938	3,001	14,512	2.12	36	644	957	2,735	19,002	2.37
Arizona	1,149	195	1,144	1,966	6,071	70,047	3.12	170	1,215	1,987	5,802	46,551	2.76
California	4,739	378	2,042	3,120	8,881	82,330	2.07	246	2,029	3,310	8,496	60,076	2.10
Colorado	1,117	150	1,037	1,607	4,421	30,009	2.43	31	1,023	1,593	4,533	27,116	2.54
Connecticut	1,151	85	729	1,045	3,580	18,762	2.16	25	651	1,136	3,306	28,695	2.56
District of Columbia	1,110	15	100	211	618	4,461	2.49	7	95	203	572	5,175	2.93
Delaware	1,099	41	221	325	951	3,553	2.06	21	207	331	897	7,088	2.20
Florida	4,460	194	939	1,344	5,024	31,250	2.26	42	924	1,367	5,273	28,368	2.27
Georgia	1,131	568	2,098	3,114	9,269	58,398	2.13	141	2,085	3,308	9,335	53,818	2.28
Hawaii	1,296	44	205	312	1,122	10,005	2.47	25	184	323	1,149	6,749	2.48
Iowa	1,113	103	722	946	3,027	16,984	2.21	26	699	1,017	2,879	14,883	2.45
Idaho	1,113	117	349	491	1,462	11,296	2.17	77	356	515	1,443	7,078	2.30
Illinois	4,762	149	717	985	3,096	22,756	2.12	153	731	1,048	3,049	17,378	2.12
Indiana	1,142	262	1,383	2,031	6,374	47,297	2.41	53	1,344	2,084	6,360	45,508	2.27
Kansas	1,101	133	660	1,009	3,105	17,799	2.03	31	655	1,030	2,891	23,772	2.14
Kentucky	1,109	191	936	1,255	4,984	18,117	2.22	50	876	1,382	4,373	41,761	2.48
Louisiana	1,112	262	1,022	1,428	4,868	19,428	2.21	179	975	1,569	4,058	39,023	2.67
Massachusetts	1,149	261	1,362	1,961	7,108	72,379	2.48	155	1,248	2,001	7,118	30,035	2.30
Maryland	1,096	263	1,311	2,021	5,571	28,993	2.23	133	1,297	2,030	5,709	28,206	2.29
Maine	1,100	43	299	375	1,376	11,887	2.36	18	288	423	1,372	6,433	2.33
Michigan	4,561	97	570	775	2,571	13,537	2.09	36	578	802	2,497	16,056	2.18
Minnesota	1,149	191	1,114	1,472	5,653	58,280	2.29	197	1,114	1,614	4,728	40,248	2.63
Missouri	1,142	200	1,276	1,837	6,612	40,782	2.12	68	1,239	1,852	6,167	30,437	2.22

(continued)

Table I.2 2010 NSDUH Selected Person-Level Weight Summary Statistics: United States, District of Columbia, and the 50 States (continued)

Domain	n	Before sel.per.ps (Weight1*...*Weight11) ¹						After sel.per.ps (Weight1*...*Weight12) ¹					
		Min	Q1 ²	Med	Q3 ²	Max	UWE ³	Min	Q1 ²	Med	Q3 ²	Max	UWE ³
Mississippi	1,087	154	740	992	3,009	23,724	2.17	70	685	1,038	3,307	18,206	2.11
Montana	1,137	43	228	351	1,064	5,496	1.98	32	230	364	1,013	4,866	1.97
North Carolina	1,103	384	1,948	2,760	9,459	56,335	2.22	93	1,797	2,864	9,557	57,647	2.38
North Dakota	1,188	22	134	261	637	2,339	1.95	27	146	248	587	5,974	2.13
Nebraska	1,120	70	403	622	1,658	17,717	2.38	45	390	665	1,630	9,166	2.24
New Hampshire	1,160	43	279	339	1,321	6,974	2.38	16	267	397	1,207	8,458	2.72
New Jersey	1,157	596	1,766	2,611	9,116	74,378	2.22	167	1,801	2,744	8,477	69,814	2.28
New Mexico	1,117	88	438	621	1,979	9,737	2.18	26	424	633	2,046	17,981	2.40
Nevada	1,183	99	466	937	2,300	23,999	2.43	69	465	910	2,363	16,527	2.35
New York	5,061	180	957	1,403	4,433	34,401	2.29	42	965	1,447	4,336	64,998	2.38
Ohio	4,633	97	633	763	3,098	14,552	2.10	234	632	784	3,174	14,760	2.14
Oklahoma	1,173	132	755	1,241	4,225	13,401	2.09	53	755	1,305	4,030	20,449	2.11
Oregon	1,134	219	787	1,114	3,855	15,600	2.23	49	771	1,192	3,679	17,628	2.47
Pennsylvania	3,853	230	837	1,174	3,777	23,045	1.98	140	839	1,222	3,902	16,888	2.02
Rhode Island	1,117	69	224	320	1,104	7,250	2.28	31	207	345	959	6,410	2.69
South Carolina	1,138	166	955	1,333	5,032	32,090	2.19	52	946	1,368	4,919	19,592	2.13
South Dakota	1,115	34	177	309	873	3,986	2.07	9	170	312	777	5,555	2.25
Tennessee	1,117	677	1,314	1,851	6,497	32,170	2.18	163	1,210	1,850	7,180	36,432	2.35
Texas	4,431	422	1,464	1,949	6,212	39,570	2.10	157	1,470	2,010	6,033	52,443	2.14
Utah	1,105	158	753	1,128	3,080	16,544	1.95	73	731	1,130	2,634	15,869	2.02
Virginia	1,096	241	1,819	2,444	8,719	47,029	2.17	49	1,739	2,615	8,721	75,889	2.31
Vermont	1,034	30	148	219	616	3,378	2.36	14	140	237	659	4,260	2.45
Washington	1,194	287	1,293	2,034	6,423	44,311	2.19	59	1,303	2,178	6,408	30,128	2.26
Wisconsin	1,113	233	1,139	1,810	5,540	44,926	2.49	85	1,131	1,877	5,689	25,878	2.38
West Virginia	1,091	73	393	495	2,052	13,284	2.39	21	373	533	2,041	9,527	2.52
Wyoming	1,138	25	127	173	560	3,550	2.14	5	125	178	546	2,736	2.17

¹ Weight1*...*Weight11 and Weight1*...*Weight12 used demographic variables from screener data; ps = poststratification adjustment.

² Q1 and Q3 refer to the first and third quartile of the weight distribution.

³ Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n] * CV^2$, where CV = coefficient of variation of weights.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010 (Revised March 2012).

Table I.3 2010 NSDUH Respondent Person-Level Weight Summary Statistics: United States, District of Columbia, and the 50 States

Domain	n	Before res.per.nr (Weight1*...*Weight12) ¹						After res.per.nr (Weight1*...*Weight13) ¹						Before res.per.ps (Weight1*...*Weight13) ²						Final Weight After res.per.ps (Weight1*...*Weight14) ²					
		Min	Q1 ³	Med	Q3 ³	Max	UWE ⁴	Min	Q1 ³	Med	Q3 ³	Max	UWE ⁴	Min	Q1 ³	Med	Q3 ³	Max	UWE ⁴	Min	Q1 ³	Med	Q3 ³	Max	UWE ⁴
United States	67,804	5	655	1,249	3,142	75,889	3.11	5	774	1,522	4,031	126,552	3.53	5	774	1,522	4,031	126,552	3.53	2	732	1,507	4,005	142,265	3.65
Alaska	868	9	168	251	600	4,619	2.46	9	190	308	711	5,851	2.79	9	190	308	711	5,851	2.79	2	163	310	689	11,116	3.35
Alabama	878	113	952	1,493	4,301	28,260	2.42	155	1,084	1,881	5,153	42,441	2.70	155	1,084	1,881	5,153	42,441	2.70	49	1,086	1,855	5,024	74,761	3.00
Arkansas	899	36	641	931	2,680	19,002	2.42	36	786	1,135	3,468	21,419	2.63	36	786	1,135	3,468	21,419	2.63	10	772	1,120	3,515	24,287	2.73
Arizona	925	170	1,170	1,901	5,085	44,872	2.71	170	1,323	2,282	6,151	94,928	3.50	170	1,323	2,282	6,151	94,928	3.50	34	1,198	2,470	5,840	120,580	3.90
California	3,715	246	1,962	3,074	7,776	60,076	2.17	246	2,246	3,818	10,200	98,082	2.57	246	2,246	3,818	10,200	98,082	2.57	50	2,265	3,872	10,668	142,265	2.72
Colorado	904	31	1,013	1,571	4,278	27,116	2.64	36	1,192	2,030	5,355	42,922	2.72	36	1,192	2,030	5,355	42,922	2.72	12	1,235	2,018	5,105	48,385	2.78
Connecticut	926	25	640	1,045	3,065	28,695	2.63	25	746	1,271	3,909	39,679	3.01	25	746	1,271	3,909	39,679	3.01	27	735	1,298	3,886	51,308	3.03
District of Columbia	935	7	91	184	554	5,175	3.05	7	108	221	666	6,378	3.14	7	108	221	666	6,378	3.14	2	104	223	654	6,174	3.09
Delaware	889	21	207	319	830	7,088	2.29	21	244	364	1,069	7,088	2.38	21	244	364	1,069	7,088	2.38	7	236	375	1,125	10,613	2.58
Florida	3,655	42	913	1,306	4,933	28,368	2.33	42	1,035	1,542	6,065	56,173	2.63	42	1,035	1,542	6,065	56,173	2.63	20	1,052	1,583	6,161	43,109	2.70
Georgia	910	141	2,077	3,203	8,788	53,818	2.29	141	2,421	3,727	10,813	86,095	2.68	141	2,421	3,727	10,813	86,095	2.68	93	2,385	3,936	10,659	87,005	2.68
Hawaii	974	25	176	301	963	6,749	2.59	29	216	377	1,268	10,734	3.11	29	216	377	1,268	10,734	3.11	11	200	364	1,326	12,205	3.22
Iowa	925	26	699	997	2,737	13,871	2.43	26	818	1,206	3,346	24,915	2.74	26	818	1,206	3,346	24,915	2.74	7	820	1,227	3,289	51,401	3.24
Idaho	912	77	351	502	1,382	7,078	2.37	77	422	598	1,711	9,418	2.45	77	422	598	1,711	9,418	2.45	31	405	615	1,820	20,508	2.73
Illinois	3,609	153	715	990	2,864	17,378	2.14	160	879	1,311	3,923	33,441	2.49	160	879	1,311	3,923	33,441	2.49	58	882	1,328	3,929	49,721	2.58
Indiana	916	53	1,299	1,946	5,954	45,508	2.38	61	1,452	2,369	7,490	54,508	2.69	61	1,452	2,369	7,490	54,508	2.69	12	1,497	2,448	7,165	44,570	2.73
Kansas	885	57	637	950	2,643	23,772	2.20	100	710	1,187	3,411	26,678	2.56	100	710	1,187	3,411	26,678	2.56	22	690	1,140	3,520	19,846	2.63
Kentucky	900	50	866	1,316	4,190	41,761	2.60	50	962	1,569	5,369	35,555	2.68	50	962	1,569	5,369	35,555	2.68	13	961	1,594	5,443	35,757	2.67
Louisiana	906	179	957	1,492	3,915	39,023	2.73	207	1,135	1,788	5,048	50,921	2.87	207	1,135	1,788	5,048	50,921	2.87	41	1,143	1,790	5,113	54,287	2.99
Massachusetts	930	155	1,220	1,905	6,793	30,035	2.34	160	1,571	2,353	8,961	57,946	2.54	160	1,571	2,353	8,961	57,946	2.54	122	1,582	2,362	8,912	56,578	2.52
Maryland	883	133	1,273	1,966	5,187	27,525	2.32	133	1,501	2,421	6,875	38,150	2.43	133	1,501	2,421	6,875	38,150	2.43	27	1,435	2,457	6,625	55,069	2.78
Maine	924	18	285	409	1,318	6,433	2.35	18	333	492	1,521	8,324	2.52	18	333	492	1,521	8,324	2.52	4	337	501	1,553	11,325	2.60
Michigan	3,690	71	570	778	2,366	16,056	2.22	103	673	922	2,941	19,743	2.49	103	673	922	2,941	19,743	2.49	21	679	932	2,933	16,917	2.51
Minnesota	946	197	1,088	1,587	4,495	30,620	2.62	230	1,227	1,825	5,656	43,201	2.96	230	1,227	1,825	5,656	43,201	2.96	194	1,225	1,822	5,780	46,104	2.89
Missouri	921	68	1,206	1,774	5,700	30,437	2.30	68	1,471	2,212	6,935	48,991	2.66	68	1,471	2,212	6,935	48,991	2.66	52	1,454	2,239	7,000	51,197	2.65

(continued)

Table I.3 2010 NSDUH Respondent Person-Level Weight Summary Statistics: United States, District of Columbia, and the 50 States (continued)

Domain	n	Before res.per.nr (Weight1*...*Weight12) ¹						After res.per.nr (Weight1*...*Weight13) ¹						Before res.per.ps (Weight1*...*Weight13) ²						Final Weight After res.per.ps (Weight1*...*Weight14) ²					
		Min	Q1 ³	Med	Q3 ³	Max	UWE ⁴	Min	Q1 ³	Med	Q3 ³	Max	UWE ⁴	Min	Q1 ³	Med	Q3 ³	Max	UWE ⁴	Min	Q1 ³	Med	Q3 ³	Max	UWE ⁴
Mississippi	893	70	670	980	3,063	18,206	2.19	89	773	1,139	3,822	23,246	2.31	89	773	1,139	3,822	23,246	2.31	80	767	1,153	3,699	35,126	2.51
Montana	919	32	224	354	957	4,866	2.01	32	266	429	1,215	4,786	2.14	32	266	429	1,215	4,786	2.14	20	263	435	1,201	4,452	2.14
North Carolina	904	112	1,763	2,745	8,455	57,647	2.46	112	2,040	3,480	10,317	85,900	2.80	112	2,040	3,480	10,317	85,900	2.80	39	2,059	3,548	10,162	93,110	2.77
North Dakota	954	27	140	234	557	5,974	2.24	28	166	273	788	7,749	2.37	28	166	273	788	7,749	2.37	12	165	280	783	9,439	2.46
Nebraska	906	45	379	619	1,505	7,821	2.25	46	412	694	1,981	20,731	2.85	46	412	694	1,981	20,731	2.85	9	450	736	1,878	18,937	2.89
New Hampshire	918	16	263	381	1,128	7,882	2.79	17	303	443	1,589	10,033	2.91	17	303	443	1,589	10,033	2.91	6	303	440	1,612	12,201	2.97
New Jersey	923	167	1,754	2,675	8,380	69,814	2.33	168	2,119	3,420	10,802	71,185	2.39	168	2,119	3,420	10,802	71,185	2.39	27	2,036	3,439	10,224	59,860	2.53
New Mexico	912	26	409	608	1,859	17,981	2.57	26	462	712	2,345	18,870	2.69	26	462	712	2,345	18,870	2.69	10	463	751	2,193	20,408	2.81
Nevada	958	69	453	793	2,079	12,988	2.38	69	482	960	2,542	23,759	2.94	69	482	960	2,542	23,759	2.94	34	477	1,006	2,489	29,084	3.11
New York	3,626	45	926	1,348	4,047	64,998	2.47	45	1,184	1,858	5,722	77,927	2.76	45	1,184	1,858	5,722	77,927	2.76	11	1,208	1,909	5,839	79,963	2.75
Ohio	3,731	234	624	760	3,032	12,925	2.21	314	734	926	3,972	20,107	2.44	314	734	926	3,972	20,107	2.44	181	742	931	4,036	32,919	2.49
Oklahoma	923	53	715	1,232	3,618	20,449	2.18	104	825	1,475	4,598	37,824	2.56	104	825	1,475	4,598	37,824	2.56	26	796	1,421	4,637	35,340	2.68
Oregon	907	52	751	1,148	3,472	17,628	2.54	53	907	1,406	4,322	33,215	2.87	53	907	1,406	4,322	33,215	2.87	11	864	1,433	4,170	31,678	2.97
Pennsylvania	2,985	140	826	1,189	3,772	16,457	2.06	140	1,038	1,494	4,956	25,940	2.22	140	1,038	1,494	4,956	25,940	2.22	23	1,041	1,503	4,923	28,153	2.26
Rhode Island	915	31	197	318	848	6,410	2.80	31	227	397	1,050	9,467	3.30	31	227	397	1,050	9,467	3.30	14	219	400	1,072	10,623	3.41
South Carolina	927	52	928	1,320	4,617	19,592	2.18	52	1,069	1,576	5,672	35,157	2.60	52	1,069	1,576	5,672	35,157	2.60	10	1,076	1,588	5,559	39,644	2.66
South Dakota	929	9	169	302	752	5,555	2.31	9	194	328	922	10,770	2.59	9	194	328	922	10,770	2.59	2	161	348	956	21,022	3.52
Tennessee	901	163	1,192	1,816	6,473	36,432	2.46	176	1,377	2,112	8,442	63,423	2.93	176	1,377	2,112	8,442	63,423	2.93	41	1,398	2,139	8,190	91,931	3.25
Texas	3,590	157	1,448	1,943	5,677	52,443	2.19	187	1,686	2,391	6,991	52,443	2.46	187	1,686	2,391	6,991	52,443	2.46	39	1,781	2,480	7,038	62,206	2.57
Utah	919	73	728	1,094	2,452	14,498	2.03	73	826	1,293	2,879	24,919	2.36	73	826	1,293	2,879	24,919	2.36	51	842	1,271	2,873	22,203	2.31
Virginia	888	56	1,720	2,518	8,104	75,889	2.37	56	1,952	3,031	9,563	126,552	2.81	56	1,952	3,031	9,563	126,552	2.81	16	2,012	2,985	9,934	76,267	2.73
Vermont	870	14	137	223	608	4,245	2.48	14	163	273	715	4,514	2.55	14	163	273	715	4,514	2.55	5	167	275	721	6,587	2.64
Washington	897	59	1,265	2,031	5,856	30,128	2.32	65	1,602	2,677	8,030	50,945	2.52	65	1,602	2,677	8,030	50,945	2.52	40	1,601	2,633	7,743	57,441	2.58
Wisconsin	889	85	1,100	1,823	5,370	25,878	2.43	99	1,351	2,254	7,110	35,799	2.50	99	1,351	2,254	7,110	35,799	2.50	45	1,319	2,297	6,870	46,893	2.60
West Virginia	888	21	369	521	1,897	9,527	2.57	21	429	634	2,355	14,651	2.73	21	429	634	2,355	14,651	2.73	5	422	664	2,251	15,638	2.80
Wyoming	907	5	120	163	488	2,736	2.29	5	140	202	642	4,483	2.58	5	140	202	642	4,483	2.58	2	135	197	659	3,824	2.63

¹ Weight1*...*Weight12 and Weight1*...*Weight13 used demographic variables from screener data; nr = nonresponse adjustment.

² Weight1*...*Weight13 and Weight1*...*Weight14 used demographic variables from questionnaire data; ps = poststratification adjustment.

³ Q1 and Q3 refer to the first and third quartile of the weight distribution.

⁴ Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n] * CV^2$, where CV = coefficient of variation of weights.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010 (Revised March 2012).