

# **2009 NATIONAL SURVEY ON DRUG USE AND HEALTH**

## **PERSON-LEVEL SAMPLING WEIGHT CALIBRATION**

Prepared for the 2009 Methodological Resource Book

Contract No. 283-2004-00022  
RTI Project No. 0209009.574.002  
Phase I, Deliverable No. 39

Authors:

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Prepared for:

Substance Abuse and Mental Health Services Administration  
Rockville, Maryland 20857

Prepared by:

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## Preface

This report contains a brief review of the sampling weight calibration methodology used for the 2009 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 method used in the surveys prior to 1999 (referred to in this report as the generalized exponential model [GEM]) was modified in order 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 and poststratification 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 2009 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 comprised 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), Office of Applied Studies (OAS), by RTI

International,<sup>1</sup> North Carolina, under Contract No. 283-2004-00022. The authors are grateful to Art Hughes and Michael Jones of SAMHSA for their useful comments and suggestions.

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<sup>1</sup> RTI International is a trade name of Research Triangle Institute.

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## List of Terms and Abbreviations

<b><i>C</i></b>	Center point.
<b><i>CAI</i></b>	Computer-assisted interviewing.
<b><i>DU</i></b>	Dwelling unit.
<b><i>ev</i></b>	Extreme weight adjustment. See Section 4.1 for more detail.
<b><i>FI</i></b>	Field interviewer.
<b><i>GEM</i></b>	Generalized exponential model. See Chapter 2 for more detail.
<b><i>half-step</i></b>	This refers to halving the increment in the Newton-Raphson iterative process for fitting GEM.
<b><i>IQR</i></b>	Interquartile range.
<b><i>L</i></b>	Lower bound on adjustment factor.
<b><i>MPMN</i></b>	Multivariate predictive mean neighbor.
<b><i>nr</i></b>	Nonresponse adjustment.
<b><i>Outwinsor</i></b>	Signifies the percentages of weights trimmed after extreme weight adjustment via winsorization.
<b><i>PMN</i></b>	Predictive mean neighborhood.
<b><i>ps</i></b>	Poststratification adjustment.
<b><i>res.sdu.nr</i></b>	Respondent screener dwelling unit nonresponse adjustment step. See Section 5.1.2 for more detail.
<b><i>res.sdu.ps</i></b>	Respondent screener dwelling unit poststratification adjustment step. See Section 5.1.3 for more detail.
<b><i>res.sdu.ev</i></b>	Respondent screener dwelling unit extreme weight adjustment step. See Section 5.1.4 for more detail.
<b><i>sel.per.ps</i></b>	Selected person poststratification adjustment step. See Section 5.2.2 for more detail.
<b><i>res.per.nr</i></b>	Respondent person nonresponse adjustment step. See Section 5.2.3 for more detail.
<b><i>res.per.ps</i></b>	Respondent person poststratification adjustment step. See Section 5.2.4 for more detail.
<b><i>res.per.ev</i></b>	Respondent person extreme weight adjustment step. See Section 5.2.5 for more detail.
<b><i>SAE</i></b>	Small area estimate.
<b><i>SDU</i></b>	Screener dwelling unit.
<b><i>SE</i></b>	Standard error.
<b><i>SES</i></b>	Socioeconomic status indicator. See Exhibit 3.1 for more detail.
<b><i>SS</i></b>	State sampling.
<b><i>U</i></b>	Upper bound on adjustment factor.
<b><i>UPMN</i></b>	Univariate predictive mean neighbor.
<b><i>UWE</i></b>	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.
<b><i>VESTR</i></b>	Variance estimation stratum.
<b><i>VEREP</i></b>	Variance estimation replicates.
<b><i>Winsorization</i></b>	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 2009 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. The 2009 NSDUH is the fifth survey in a coordinated 5-year sample design. Although there is no planned overlap with the 1999-2004 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 2009 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 2009 NSDUH, which followed the 2009 design plan, the total realized sample size was 68,700 persons (corresponding to 48,508 responding dwelling units [DUs] selected at the second phase out of 143,557 DUs screened at the first phase), with a low of 886 for Washington DC to a high of 984 for Colorado among small States, and a low of 3,557 for Pennsylvania to a high of 3,707 for New York among large States.

In the 2009 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 eight 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 2009 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 clusters<sup>2</sup> 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 2009 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,<sup>3</sup> the sample weighting of the 2009 NSDUH posed challenges because of the sheer magnitude of the number of State-specific predictors for use in 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 2009 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 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

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<sup>2</sup> 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).

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

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 gave 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.

As in previous NSDUHs, a modification of the earlier methodology of scaled constrained exponential modeling (Folsom & Witt, 1994) was used to meet the new demands on 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:

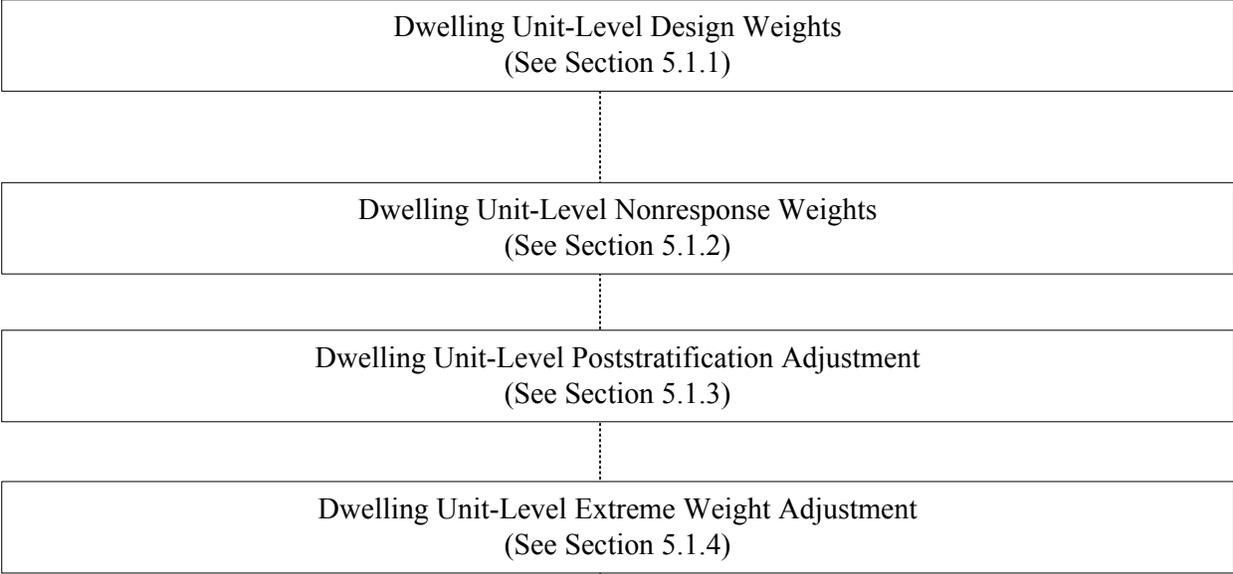
- Like constrained exponential modeling, GEM can utilize a large number of predictor variables, such as those obtained from the first-phase screener sample for the 50 States plus the District of Columbia, and some of their interactions.
- GEM allows unit-specific bounds for the weights initially identified 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 above 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 is provided of 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 2009 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

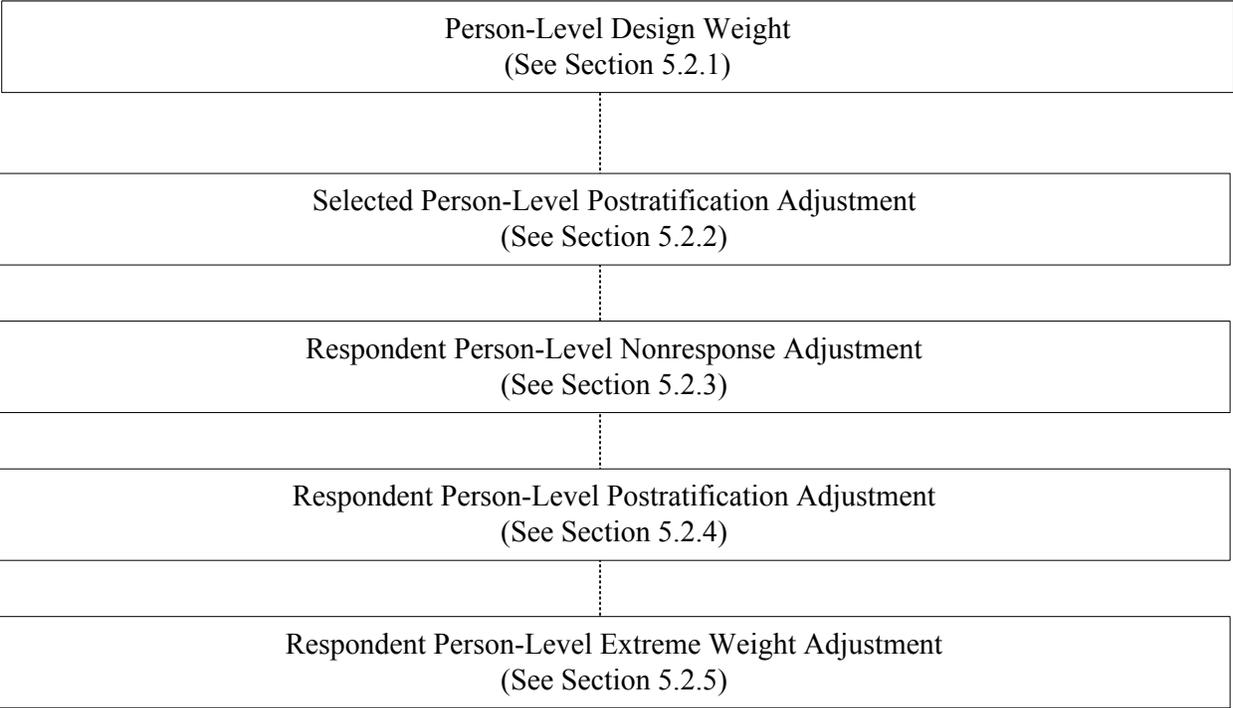
calibrated weights and a sensitivity analysis of point estimates and standard errors (adjusted for calibration) of selected drug prevalence estimates. The sensitivity analysis compares the estimates and standard errors from final models to those of the baseline models (which consist of only main effects). Nine appendices also are included. Appendix A presents some 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 outwinsors, slippage rates, and weight adjustment summary statistics.

**Exhibit 1.1 Sampling Weight Calibration Steps**

*Phase I Dwelling Unit Level*



*Phase II Person Level*





## 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 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 above. 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 2009 NSDUH**

For the 2009 National Survey on Drug Use and Health (NSDUH), the initial set of predictor variables was identical to the set used for the 2008 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+<sup>1,4</sup>

**Gender**

1: Male, 2: Female<sup>1</sup>

**Group Quarters Indicator**

1: College Dorm, 2: Other Group Quarter, 3: Non-Group Quarter<sup>1</sup>

**Hispanicity**

1: Hispanic or Latino, 2: Non-Hispanic or Latino<sup>1</sup>

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

1: 50% - 100%,<sup>1</sup> 2: 10% - 50%, 3: <10%

**Percent of Segments That Are Black or African American**

1: 50% - 100%, 2: 10% - 50%, 3: <10%<sup>1</sup>

**Percent of Segments That Are Hispanic or Latino**

1: 50% - 100%, 2: 10% - 50%, 3: <10%<sup>1</sup>

**Population Density**

1: MSA 1,000,000 or More, 2: MSA Less than 1,000,000, 3: Non-MSA Urban, 4: Non-MSA Rural<sup>1</sup>

**Quarter**

1: Quarter 1, 2: Quarter 2, 3: Quarter 3, 4: Quarter 4<sup>1</sup>

**Race (3 level)**

1: White,<sup>1</sup> 2: Black or African American, 3: Other

**Race (5 level)**

1: White,<sup>1</sup> 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,<sup>1</sup> 2: Child, 3: Other Relative, 4: Nonrelative

**Segment-Combined Median Rent and Housing Value (Rent/Housing)<sup>2</sup>**

1: First Quintile, 2: Second Quintile, 3: Third Quintile, 4: Fourth Quintile, 5: Fifth Quintile<sup>1</sup>

**States<sup>3</sup>**

Model Group 1: 1: Connecticut, 2: Maine, 3: New Hampshire, 4: Rhode Island, 5: Vermont, 6: Massachusetts<sup>1</sup>

Model Group 2: 1: New Jersey,<sup>1</sup> 2: New York, 3: Pennsylvania

Model Group 3: 1: Illinois, 2: Indiana,<sup>1</sup> 3: Michigan, 4: Wisconsin, 5: Ohio

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

Model Group 5: 1: Delaware, 2: District of Columbia, 3: Georgia,<sup>1</sup> 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: Tennessee<sup>1</sup>

Model Group 7: 1: Arkansas,<sup>1</sup> 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: Arizona<sup>1</sup>

Model Group 9: 1: Alaska, 2: Hawaii, 3: Oregon, 4: Washington,<sup>1</sup> 5: California

MSA = metropolitan statistical area.

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

<sup>2</sup>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.

<sup>3</sup>The States assigned to a particular model are based on census divisions.

<sup>4</sup>The 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, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

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 2009 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, in order to get direct State-level estimates 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 2009 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 2009 NSDUH, as in the 1999 through 2008 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

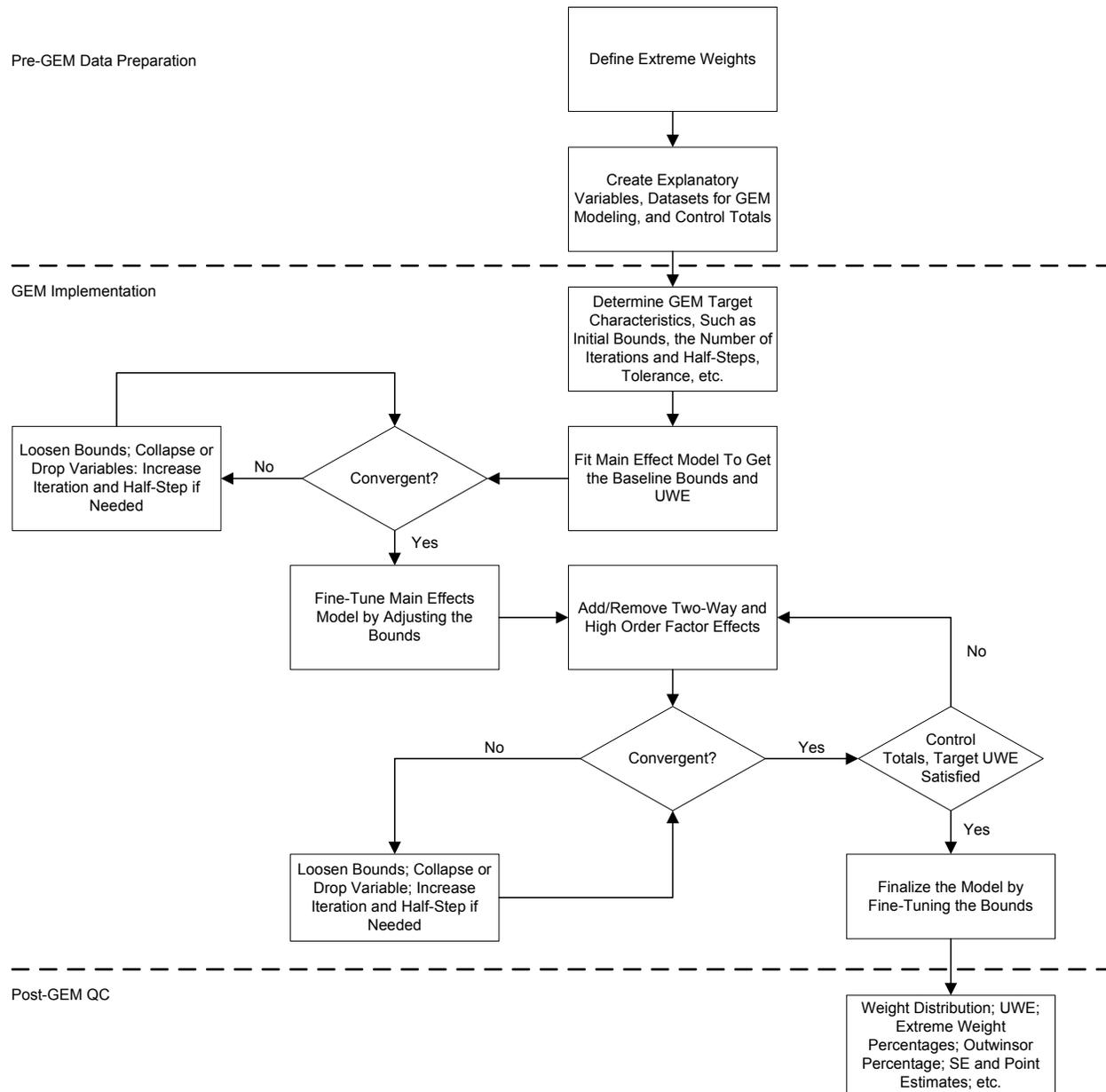
An important aspect of GEM is the built-in provision of extreme weight adjustment. Sampling weights for the survey generally were classified as extreme (high or low) if they fell outside the commonly used interval defined by the median  $\pm 3 \times$  interquartile range (IQR) for some prespecified domains; these domains were usually defined by design strata, taking into account deep stratification. For example, the dwelling unit (DU)-level weight for the 2009 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 2009 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. Additionally, 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 2009 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 2009 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., checks for linear dependence of columns of realized values 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. In order 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 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., 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> quintile) with the 5<sup>th</sup> quintile set for the reference. If the 4<sup>th</sup> quintile needed to be collapsed, it would be collapsed with either the 3<sup>rd</sup> or 5<sup>th</sup> 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 (CA, FL, IL, MI, NY, OH, PA, TX), 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 2009 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 2009 NSDUH sample design report (Morton, Martin, Chromy, Foster, & Hirsch, 2010).

As part of the postsurvey data-processing activities, analysis weights were calculated for the 2009 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 2009 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 2009 NSDUH sample are the product of all 15 weight components, as illustrated in Exhibit 5.1.

Exhibit 5.2 shows the U.S. Census divisions and model groups used in the 2009 NSDUH person-level weight calibration.

**Exhibit 5.1 Summary of 2009 NSDUH Sample Weight Components**

*Phase I Dwelling Unit Level*

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

<b>Weight Adjustment Components</b>	
#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*

<b>Design Weight Components</b>	
#11	Dwelling Unit Nonresponse Adjustment ( <i>res.sdu.nr</i> )*

<b>Weight Adjustment Components</b>	
#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 Divisions/Model Groups**

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

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

<b>Model Group</b>	<b>Eligible DU</b>	<b>Completed DU</b>	<b>Eligible Persons</b>	<b>Selected Persons</b>	<b>Completed Persons</b>
<b>1</b>	13,873	12,313	25,834	6,919	5,602
<b>2</b>	21,077	17,260	37,397	10,584	8,170
<b>3</b>	30,056	26,556	55,785	15,990	12,726
<b>4</b>	14,714	13,804	28,021	7,837	6,407
<b>5</b>	27,285	24,326	50,129	13,218	10,939
<b>6</b>	8,316	7,781	15,988	4,554	3,696
<b>7</b>	13,549	12,513	26,570	7,788	6,341
<b>8</b>	15,727	14,631	30,826	9,046	7,414
<b>9</b>	16,724	14,381	33,301	9,493	7,405
<b>Total</b>	161,321	143,565	303,851	85,429	68,700

DU = dwelling unit.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

In the 2009 NSDUH, as in the 2000 through 2008 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 2009 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 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.

As noted in the 2009 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 2008. Because the listing was done a short time before the 2009 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 due to 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 2009 NSDUH sample design report (Morton et al., 2010).

### **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.

### **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 × 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<sup>®</sup>, 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.

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

<b>Imputed Variable</b>	<b>Methodology</b>	<b>Explanatory or Auxiliary Sort Variables</b>
<b>Race</b>	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
<b>Hispanic or Latino Origin</b>	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
<b>Gender</b>	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 above. 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 and poststratification 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
<b>Design-Based Weight</b>	16	407	575	853	4,225	652	161,321	1.41
<b>Weight after DU-Level Adjustments</b>	23	431	698	1,057	8,745	808	143,557	1.49

DU = dwelling unit; UWE = unequal weighting effect.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

## 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 2009 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 Apple Newton 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 2009. 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 demographics of members of the selected DUs. See Appendix D for details on the final models.

### **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 source of the data, 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.

### **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 2009 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.

### 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
<b>Weight before Any Person-Level Adjustment</b>	27	693	1,310	3,476	64,484	2,924	85,429	2.91
<b>Weight after Person-Level Adjustments</b>	1	730	1,466	3,930	112,978	3,665	68,700	3.59

UWE = unequal weighting effect.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.



## 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 2009 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 82.73 percent as compared with 82.50 percent for 2008. This similarity in overall rates held in nearly all States, with a few notable exceptions: the eligibility rate dropped from 87.70 to 83.03 percent for Maryland and increased from 65.72 to 76.43 percent for Alaska. The screening rate at the national level was also similar for the 2 years (88.77 percent for 2009 vs. 89.04 percent for 2008). The national interview response rate was 75.62 percent, a increase of 1.22 percentage points compared with 74.40 percent for 2008, with the biggest decrease in South Carolina (from 82.43 percent in 2008 to 76.43 percent in 2009) and the biggest increase in Oregon (from 71.18 percent in 2008 to 79.12 percent in 2009). 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
<b>Dwelling Unit Level</b>				
Eligibility Rate	82.73%	69.58% (Maine)	82.38% (Delaware)	89.42% (Utah)
Screener Response Rate	88.77%	76.73% (New York)	92.05% (Maine)	95.66% (South Dakota)
<b>Person Level</b>				
Interview Response Rate	75.62%	67.64% (Hawaii)	76.92% (Washington)	84.13% (District of Columbia)

### 6.2 Percentages of Extreme Weights and Outwinsors

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 2009 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,<sup>4</sup> 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 weighted extreme weights was 3.45 percent and outwinsor was 0.39 percent for the product of design weight components weight 1 to weight 7. After DU-level nonresponse adjustment and poststratification, the percentage of the weighted extreme weights decreased to 2.74 percent and the outwinsor increased to 0.26 percent. When the design weight component weight 11 (inverse probability of selecting a person within a dwelling unit) was introduced, percentage of weighted extreme weights increased to 5.97 percent and outwinsor increased to 1.54 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 weighted extreme weights to 3.49 percent and outwinsor to 0.77 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

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<sup>4</sup> 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 499 for race domain "white"; an initial total, also known as the design-based weight, of 5,026,782; a census total of 5,197,357; and an initial slippage rate of -3.28 percent. The ratio of the census total to the initial total gives the value of the weight adjustment: 1.03. 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 1.23 percent. The initial total of 207,062 and the census total of 204,549 indicate an adjustment of 0.99 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 computed under the DESCRIPT procedure in SUDAAN<sup>®</sup>, treats the calibration adjustment factors as nonrandom. Both the SE1 and the point estimates were calculated 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 above, 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 and Ratio-Adjusted Standard Errors (SE1) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Lifetime Licit Drug Estimates, Cigarettes and Alcohol: 2009 NSDUH**

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
<b>Cigarettes Lifetime</b>											
Total	Point Estimates	64.87	64.60	59.39	59.19	63.54	63.31	65.40	64.87	66.16	65.67
	SE1	0.35	0.36	1.25	1.26	1.50	1.51	1.21	1.24	1.20	1.28
12-17	Point Estimates	22.18	22.18	19.76	20.04	21.91	22.04	21.39	21.00	23.20	22.73
	SE1	0.37	0.37	1.29	1.30	1.38	1.40	1.45	1.43	1.32	1.30
18-25	Point Estimates	63.76	63.72	59.92	59.99	58.09	58.26	64.51	64.36	65.11	64.86
	SE1	0.47	0.48	1.76	1.79	1.70	1.72	1.49	1.51	1.48	1.52
26-34	Point Estimates	71.34	71.31	68.40	68.58	71.64	70.76	74.36	74.60	71.49	71.54
	SE1	0.76	0.79	2.51	2.61	2.83	2.94	2.29	2.27	3.26	3.32
35+	Point Estimates	70.29	69.88	63.83	63.38	68.19	68.14	70.58	69.77	72.16	71.34
	SE1	0.49	0.51	1.86	1.89	2.08	2.08	1.74	1.81	1.75	1.87
<b>Alcohol Lifetime</b>											
Total	Point Estimates	83.00	82.82	81.64	81.56	82.51	82.47	83.09	82.59	85.62	85.32
	SE1	0.26	0.27	0.98	1.00	1.09	1.07	0.90	0.99	0.97	1.03
12-17	Point Estimates	38.03	38.13	39.50	39.96	40.21	40.24	41.23	41.17	38.11	37.60
	SE1	0.44	0.45	1.66	1.69	1.52	1.55	1.80	1.81	1.58	1.59
18-25	Point Estimates	85.91	85.80	84.12	84.13	82.04	81.95	87.11	87.41	85.84	85.91
	SE1	0.36	0.37	1.32	1.32	1.30	1.29	1.15	1.13	1.12	1.10
26-34	Point Estimates	90.67	90.46	87.40	86.98	93.66	93.63	91.35	91.59	91.44	91.28
	SE1	0.47	0.50	1.91	1.99	1.40	1.44	1.54	1.54	1.89	1.96
35+	Point Estimates	87.64	87.41	86.87	86.76	85.76	85.87	87.01	86.07	91.99	91.43
	SE1	0.37	0.38	1.42	1.42	1.54	1.51	1.34	1.52	1.31	1.39

(continued)

**Table 6.2 Point Estimates and Ratio-Adjusted Standard Errors (SE1) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Lifetime Licit Drug Estimates, Cigarettes and Alcohol: 2009 NSDUH (continued)**

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
<b>Cigarettes Lifetime</b>									
Total	Point Estimates	63.47	62.63	67.70	66.90	65.61	66.10	59.48	58.94
	SE1	1.29	1.41	1.35	1.44	1.29	1.31	1.25	1.29
12-17	Point Estimates	17.32	17.61	26.72	26.70	21.76	21.79	22.47	22.38
	SE1	1.26	1.31	1.51	1.50	1.27	1.31	1.38	1.41
18-25	Point Estimates	62.61	63.49	69.99	69.71	61.72	61.50	62.73	62.41
	SE1	1.57	1.59	1.64	1.64	1.50	1.59	1.41	1.45
26-34	Point Estimates	75.67	73.62	77.64	77.84	74.33	73.33	67.41	67.11
	SE1	3.18	3.57	2.57	2.61	2.74	2.91	2.83	2.90
35+	Point Estimates	67.74	66.67	71.35	70.12	71.01	71.84	63.39	62.60
	SE1	1.75	1.92	1.85	1.97	1.71	1.73	1.82	1.90
<b>Alcohol Lifetime</b>									
Total	Point Estimates	85.61	84.41	85.40	85.03	83.87	84.06	79.75	79.00
	SE1	0.87	1.05	0.88	0.98	0.87	0.88	0.97	1.04
12-17	Point Estimates	41.44	41.32	39.70	39.56	33.31	33.22	37.29	37.35
	SE1	1.63	1.68	1.56	1.56	1.60	1.63	1.44	1.47
18-25	Point Estimates	88.37	88.24	90.47	90.22	87.69	87.81	85.12	84.68
	SE1	1.03	1.10	0.90	0.92	1.00	1.01	1.03	1.06
26-34	Point Estimates	92.91	91.50	94.16	94.43	93.41	93.17	87.35	87.40
	SE1	1.47	1.82	1.51	1.45	1.90	2.04	1.94	1.97
35+	Point Estimates	89.83	88.37	89.46	88.90	88.58	88.74	84.26	83.01
	SE1	1.18	1.52	1.20	1.38	1.16	1.18	1.45	1.61

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table 6.3 Point Estimates and Ratio-Adjusted Standard Errors (SE1) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Lifetime Illicit Drug Estimates, Marijuana and Cocaine: 2009 NSDUH**

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
<b>Marijuana Lifetime</b>											
Total	Point Estimates	41.61	41.48	42.41	41.92	38.74	39.19	39.93	39.59	48.63	48.25
	SE1	0.37	0.38	1.42	1.43	1.45	1.44	1.31	1.30	1.35	1.36
12-17	Point Estimates	16.98	16.99	19.53	19.53	17.36	17.45	18.33	17.75	18.00	17.60
	SE1	0.34	0.34	1.35	1.36	1.35	1.39	1.33	1.26	1.19	1.18
18-25	Point Estimates	52.31	52.25	52.15	52.29	48.09	48.28	52.56	52.52	56.19	55.88
	SE1	0.50	0.51	1.97	1.96	1.55	1.55	1.81	1.81	1.67	1.66
26-34	Point Estimates	53.35	53.02	50.96	50.38	50.80	50.11	50.39	50.05	60.26	60.36
	SE1	0.84	0.86	3.08	3.07	3.36	3.46	2.94	2.89	3.22	3.26
35+	Point Estimates	40.48	40.35	41.86	41.12	37.42	38.25	38.11	37.70	49.54	48.99
	SE1	0.52	0.54	2.09	2.08	1.99	1.98	1.90	1.87	1.94	1.94
<b>Cocaine Lifetime</b>											
Total	Point Estimates	14.59	14.53	18.56	18.28	14.37	14.56	12.58	12.49	14.03	13.89
	SE1	0.26	0.26	1.02	1.02	1.02	1.02	0.83	0.84	1.00	0.99
12-17	Point Estimates	1.64	1.64	2.16	2.21	1.75	1.81	0.98	0.87	1.73	1.65
	SE1	0.11	0.11	0.46	0.47	0.44	0.47	0.28	0.26	0.37	0.38
18-25	Point Estimates	14.84	14.78	14.94	14.93	13.74	13.96	11.47	11.32	14.00	13.92
	SE1	0.34	0.35	1.31	1.33	1.34	1.37	1.05	1.03	1.17	1.17
26-34	Point Estimates	18.36	18.14	23.88	23.74	20.66	20.04	16.41	16.51	16.31	16.06
	SE1	0.62	0.62	2.28	2.28	2.34	2.39	2.38	2.37	2.29	2.27
35+	Point Estimates	15.69	15.67	20.93	20.49	14.83	15.24	13.78	13.68	15.53	15.35
	SE1	0.38	0.38	1.59	1.57	1.43	1.45	1.20	1.22	1.48	1.47

(continued)

**Table 6.3 Point Estimates and Ratio-Adjusted Standard Errors (SE1) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Lifetime Illicit Drug Estimates, Marijuana and Cocaine: 2009 NSDUH (continued)**

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
<b>Marijuana Lifetime</b>									
Total	Point Estimates	43.58	43.11	43.84	44.28	35.90	36.55	35.63	34.66
	SE1	1.55	1.58	1.34	1.37	1.32	1.38	1.31	1.34
12-17	Point Estimates	16.30	16.27	18.44	18.38	13.70	13.61	16.36	16.21
	SE1	1.36	1.39	1.22	1.23	1.10	1.11	1.22	1.24
18-25	Point Estimates	53.94	54.07	53.83	53.62	43.90	43.44	47.34	46.67
	SE1	1.85	1.89	1.71	1.71	1.68	1.71	1.54	1.56
26-34	Point Estimates	64.56	62.51	58.04	58.67	52.23	51.52	45.29	45.20
	SE1	3.19	3.43	3.00	3.03	3.32	3.53	2.70	2.73
35+	Point Estimates	40.85	40.37	42.72	43.30	34.37	35.57	33.72	32.28
	SE1	2.17	2.21	1.89	1.92	1.71	1.79	1.96	1.99
<b>Cocaine Lifetime</b>									
Total	Point Estimates	15.11	14.81	12.01	12.21	11.58	11.83	13.32	12.99
	SE1	1.10	1.09	0.83	0.85	0.93	0.99	0.84	0.84
12-17	Point Estimates	1.49	1.61	1.46	1.52	0.80	0.77	2.09	2.15
	SE1	0.38	0.42	0.33	0.35	0.25	0.27	0.45	0.47
18-25	Point Estimates	16.32	16.58	13.46	13.33	9.88	9.74	17.01	16.67
	SE1	1.41	1.48	1.22	1.21	0.95	0.96	1.26	1.26
26-34	Point Estimates	19.57	17.94	17.48	17.47	14.74	13.81	17.91	17.96
	SE1	2.60	2.59	2.24	2.25	2.49	2.44	2.09	2.12
35+	Point Estimates	15.88	15.68	12.17	12.48	12.85	13.41	13.24	12.74
	SE1	1.48	1.47	1.11	1.15	1.29	1.39	1.25	1.23

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table 6.4 Point Estimates and Ratio-Adjusted Standard Errors (SE1) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Year Licit Drug Estimates, Cigarettes and Alcohol: 2009 NSDUH**

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
<b>Cigarettes Past Year</b>											
Total	Point Estimates	27.43	27.47	23.71	23.79	27.20	27.27	30.08	29.91	30.70	30.31
	SE1	0.33	0.33	1.01	1.00	1.34	1.35	1.25	1.26	1.27	1.28
12-17	Point Estimates	15.07	14.99	14.31	14.49	14.54	14.61	16.07	15.48	15.42	15.02
	SE1	0.32	0.32	1.21	1.22	1.18	1.22	1.28	1.21	1.07	1.07
18-25	Point Estimates	45.21	45.22	40.80	41.06	40.01	40.18	48.21	48.01	48.34	48.00
	SE1	0.49	0.50	1.85	1.90	1.71	1.72	1.59	1.58	1.61	1.62
26-34	Point Estimates	39.53	39.51	38.69	38.55	38.02	37.43	46.66	46.36	42.63	42.68
	SE1	0.79	0.81	2.55	2.56	3.08	3.10	2.87	2.83	3.57	3.61
35+	Point Estimates	22.79	22.86	17.44	17.44	24.40	24.61	24.32	24.19	26.97	26.53
	SE1	0.44	0.45	1.44	1.44	1.73	1.75	1.79	1.82	1.66	1.66
<b>Alcohol Past Year</b>											
Total	Point Estimates	66.98	66.77	66.02	65.70	66.79	66.99	68.17	67.93	71.26	71.05
	SE1	0.36	0.37	1.42	1.44	1.58	1.57	1.33	1.33	1.34	1.35
12-17	Point Estimates	30.36	30.33	31.17	31.37	31.85	31.97	31.28	31.35	30.77	30.36
	SE1	0.40	0.41	1.52	1.53	1.44	1.46	1.58	1.59	1.45	1.48
18-25	Point Estimates	78.94	78.79	78.39	78.27	74.54	74.39	81.07	81.15	78.95	78.94
	SE1	0.42	0.42	1.43	1.45	1.57	1.55	1.41	1.42	1.39	1.41
26-34	Point Estimates	80.07	79.96	75.39	74.92	81.61	81.64	77.81	78.10	85.70	85.67
	SE1	0.66	0.68	2.55	2.58	2.51	2.59	2.29	2.27	2.21	2.26
35+	Point Estimates	67.15	66.87	66.68	66.25	66.92	67.34	68.97	68.43	73.15	72.79
	SE1	0.53	0.55	2.15	2.18	2.23	2.21	1.97	2.00	1.95	1.96

(continued)

**Table 6.4 Point Estimates and Ratio-Adjusted Standard Errors (SE1) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Year Licit Drug Estimates, Cigarettes and Alcohol: 2009 NSDUH (continued)**

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
<b>Cigarettes Past Year</b>									
Total	Point Estimates	26.04	25.69	30.67	30.52	26.74	27.25	26.32	25.84
	SE1	1.13	1.15	1.24	1.24	1.21	1.25	1.27	1.26
12-17	Point Estimates	11.73	11.91	18.74	18.49	15.54	15.48	15.03	15.08
	SE1	1.18	1.23	1.23	1.22	1.11	1.15	1.10	1.13
18-25	Point Estimates	42.38	43.44	52.45	52.21	44.36	44.05	43.49	43.12
	SE1	1.76	1.79	1.64	1.64	1.51	1.56	1.45	1.48
26-34	Point Estimates	39.51	37.71	44.60	44.54	44.15	43.95	38.18	37.97
	SE1	3.25	3.45	3.27	3.30	3.01	3.10	2.89	2.93
35+	Point Estimates	21.71	21.14	25.24	25.05	21.53	22.45	20.98	20.33
	SE1	1.42	1.41	1.59	1.57	1.45	1.50	1.73	1.71
<b>Alcohol Past Year</b>									
Total	Point Estimates	71.94	70.95	66.59	66.86	69.56	70.21	65.05	64.12
	SE1	1.36	1.47	1.34	1.39	1.48	1.52	1.28	1.33
12-17	Point Estimates	34.60	34.27	32.63	32.52	27.55	27.50	30.13	30.19
	SE1	1.54	1.57	1.46	1.45	1.50	1.55	1.38	1.41
18-25	Point Estimates	81.92	81.80	84.77	84.48	83.57	83.67	76.24	75.69
	SE1	1.25	1.30	1.15	1.17	1.24	1.23	1.39	1.44
26-34	Point Estimates	83.07	80.93	83.15	83.44	87.24	86.64	77.75	77.68
	SE1	2.40	2.79	2.28	2.24	2.39	2.52	2.34	2.39
35+	Point Estimates	72.81	71.76	64.64	65.03	69.47	70.46	65.33	63.87
	SE1	1.89	2.09	1.94	2.01	2.19	2.24	2.07	2.15

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table 6.5 Point Estimates and Ratio-Adjusted Standard Errors (SE1) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Year Illicit Drug Estimates, Marijuana and Cocaine: 2009 NSDUH**

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
<b>Marijuana Past Year</b>											
Total	Point Estimates	11.37	11.33	13.68	13.66	10.88	11.05	11.12	10.93	13.33	13.04
	SE1	0.21	0.21	0.79	0.79	0.87	0.89	0.67	0.65	0.83	0.81
12-17	Point Estimates	13.61	13.57	15.82	15.69	13.18	13.27	14.99	14.57	14.70	14.33
	SE1	0.31	0.31	1.28	1.30	1.17	1.21	1.16	1.13	1.08	1.08
18-25	Point Estimates	30.54	30.55	32.78	33.06	26.31	26.63	31.53	31.53	32.84	32.37
	SE1	0.46	0.46	1.68	1.69	1.46	1.46	1.77	1.76	1.44	1.40
26-34	Point Estimates	16.79	16.69	21.84	21.62	15.82	15.91	17.37	16.80	16.42	16.49
	SE1	0.64	0.65	2.53	2.50	2.20	2.31	2.23	2.23	1.94	1.96
35+	Point Estimates	5.69	5.64	6.65	6.56	6.89	7.03	4.44	4.26	8.36	8.17
	SE1	0.24	0.23	0.89	0.87	1.03	1.06	0.72	0.70	1.07	1.05
<b>Cocaine Past Year</b>											
Total	Point Estimates	1.91	1.91	2.07	2.06	1.86	1.90	1.59	1.54	1.87	1.80
	SE1	0.08	0.08	0.29	0.29	0.30	0.31	0.25	0.24	0.30	0.28
12-17	Point Estimates	0.98	0.98	1.50	1.49	0.53	0.53	0.73	0.62	1.12	1.05
	SE1	0.09	0.09	0.40	0.40	0.23	0.25	0.24	0.22	0.31	0.30
18-25	Point Estimates	5.33	5.28	5.10	5.06	4.67	4.76	4.26	4.19	5.26	5.15
	SE1	0.21	0.21	0.76	0.74	0.76	0.77	0.67	0.66	0.81	0.78
26-34	Point Estimates	3.43	3.36	4.79	4.82	3.23	3.02	4.02	3.80	3.29	3.32
	SE1	0.31	0.31	1.28	1.27	1.08	1.05	1.13	1.12	1.18	1.19
35+	Point Estimates	0.98	1.00	0.76	0.72	1.26	1.35	0.55	0.55	0.99	0.92
	SE1	0.09	0.10	0.27	0.26	0.34	0.37	0.26	0.26	0.39	0.35

(continued)

**Table 6.5 Point Estimates and Ratio-Adjusted Standard Errors (SE1) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Year Illicit Drug Estimates, Marijuana and Cocaine: 2009 NSDUH (continued)**

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
<b>Marijuana Past Year</b>									
Total	Point Estimates	13.75	13.58	9.65	9.71	9.53	9.47	9.05	8.68
	SE1	0.92	0.99	0.68	0.69	0.70	0.74	0.61	0.58
12-17	Point Estimates	14.12	14.20	13.91	13.83	11.88	11.72	12.61	12.42
	SE1	1.29	1.32	1.03	1.03	1.05	1.06	1.05	1.07
18-25	Point Estimates	38.55	38.81	31.71	31.56	24.98	24.82	24.06	23.37
	SE1	1.84	1.89	1.62	1.62	1.41	1.46	1.41	1.36
26-34	Point Estimates	22.99	21.98	14.97	15.14	17.81	16.84	11.56	11.65
	SE1	2.72	2.81	2.40	2.44	2.55	2.35	1.62	1.63
35+	Point Estimates	6.35	6.04	3.52	3.59	4.56	4.75	4.07	3.63
	SE1	0.91	0.97	0.64	0.66	0.72	0.80	0.73	0.67
<b>Cocaine Past Year</b>									
Total	Point Estimates	2.58	2.51	1.28	1.31	1.92	1.92	1.89	1.84
	SE1	0.35	0.35	0.22	0.23	0.33	0.34	0.29	0.29
12-17	Point Estimates	0.98	1.13	0.92	0.98	0.66	0.65	1.05	1.08
	SE1	0.31	0.37	0.25	0.27	0.23	0.25	0.33	0.33
18-25	Point Estimates	9.00	9.03	4.37	4.28	3.94	3.83	5.49	5.21
	SE1	1.05	1.08	0.58	0.58	0.66	0.65	0.77	0.74
26-34	Point Estimates	5.74	5.08	2.59	2.63	3.77	3.75	2.92	3.02
	SE1	1.46	1.35	0.98	0.99	1.13	1.12	0.89	0.91
35+	Point Estimates	0.75	0.70	0.45	0.49	1.36	1.37	0.89	0.84
	SE1	0.27	0.26	0.21	0.24	0.41	0.44	0.38	0.36

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table 6.6 Point Estimates and Ratio-Adjusted Standard Errors (SE1) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Month Licit Drug Estimates, Cigarettes and Alcohol: 2009 NSDUH**

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
<b>Cigarettes Past Month</b>											
Total	Point Estimates	23.26	23.30	18.85	18.96	23.51	23.55	25.84	25.66	26.31	26.05
	SE1	0.31	0.32	1.00	1.00	1.34	1.35	1.25	1.26	1.21	1.22
12-17	Point Estimates	8.97	8.90	7.11	7.10	7.90	7.91	10.59	10.11	10.36	10.05
	SE1	0.25	0.25	0.85	0.83	0.90	0.90	1.00	0.97	0.94	0.94
18-25	Point Estimates	35.83	35.83	29.72	30.15	31.46	31.59	38.92	38.66	40.02	39.85
	SE1	0.46	0.47	1.49	1.53	1.76	1.79	1.56	1.54	1.64	1.63
26-34	Point Estimates	34.01	34.01	33.41	33.30	35.50	35.17	40.50	40.04	36.39	36.34
	SE1	0.76	0.78	2.47	2.49	3.05	3.06	2.77	2.73	3.37	3.40
35+	Point Estimates	20.34	20.41	14.58	14.63	21.69	21.86	21.87	21.77	23.89	23.61
	SE1	0.42	0.43	1.44	1.44	1.78	1.79	1.74	1.76	1.60	1.60
<b>Alcohol Past Month</b>											
Total	Point Estimates	52.06	51.87	51.36	51.06	50.83	50.66	54.01	53.83	55.13	55.09
	SE1	0.39	0.39	1.44	1.47	1.57	1.56	1.45	1.43	1.40	1.40
12-17	Point Estimates	14.82	14.72	14.64	14.52	14.88	15.26	14.73	14.74	14.10	13.71
	SE1	0.31	0.31	1.13	1.14	1.06	1.09	1.13	1.12	0.94	0.95
18-25	Point Estimates	62.10	61.84	61.64	61.22	55.68	55.63	66.80	66.63	59.93	59.78
	SE1	0.52	0.52	1.80	1.81	1.70	1.72	1.69	1.73	1.77	1.74
26-34	Point Estimates	64.44	64.29	62.26	62.21	64.79	64.40	63.69	63.67	70.44	70.71
	SE1	0.78	0.80	2.92	2.92	2.84	2.93	2.55	2.50	2.90	2.90
35+	Point Estimates	52.89	52.70	52.47	52.07	51.77	51.68	55.21	54.91	57.54	57.39
	SE1	0.55	0.56	2.09	2.17	2.21	2.18	2.09	2.06	2.06	2.05

(continued)

**Table 6.6 Point Estimates and Ratio-Adjusted Standard Errors (SE1) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Month Licit Drug Estimates, Cigarettes and Alcohol: 2009 NSDUH (continued)**

Variables	New York		Ohio		Pennsylvania		Texas		
	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	
<b>Cigarettes Past Month</b>									
Total	Point Estimates	21.43	21.06	25.90	25.77	23.96	24.44	22.15	21.69
	SE1	1.02	1.06	1.23	1.23	1.16	1.20	1.17	1.16
12-17	Point Estimates	7.69	7.76	12.36	12.18	9.54	9.48	7.80	7.77
	SE1	0.89	0.91	1.00	0.98	0.89	0.91	0.84	0.86
18-25	Point Estimates	32.75	33.28	42.06	41.85	38.41	38.23	32.88	32.80
	SE1	1.73	1.78	2.15	2.13	1.46	1.51	1.53	1.55
26-34	Point Estimates	32.89	31.64	35.06	35.04	39.90	40.02	32.57	32.38
	SE1	3.18	3.36	3.27	3.30	2.92	3.04	2.72	2.77
35+	Point Estimates	18.52	17.99	22.82	22.66	20.13	20.89	19.35	18.64
	SE1	1.35	1.36	1.61	1.59	1.41	1.46	1.63	1.61
<b>Alcohol Past Month</b>									
Total	Point Estimates	56.62	55.68	50.50	51.11	54.54	55.34	49.94	49.22
	SE1	1.48	1.55	1.43	1.48	1.54	1.54	1.43	1.44
12-17	Point Estimates	17.74	17.53	14.73	14.64	15.28	15.29	13.86	13.83
	SE1	1.27	1.30	0.98	0.97	1.13	1.16	1.13	1.14
18-25	Point Estimates	68.20	67.96	66.98	66.84	67.58	67.73	59.91	59.10
	SE1	1.73	1.77	1.70	1.70	1.65	1.67	1.75	1.79
26-34	Point Estimates	67.29	64.83	70.70	71.08	74.48	73.69	59.06	59.18
	SE1	3.05	3.28	2.60	2.60	2.87	2.95	2.73	2.76
35+	Point Estimates	57.44	56.58	48.40	49.27	53.79	55.05	51.72	50.64
	SE1	2.07	2.19	2.01	2.07	2.15	2.16	2.29	2.33

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table 6.7 Point Estimates and Ratio-Adjusted Standard Errors (SE1) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Month Illicit Drug Estimates, Marijuana and Cocaine: 2009 NSDUH**

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
<b>Marijuana Past Month</b>											
Total	Point Estimates	6.70	6.64	8.25	8.17	6.35	6.44	6.48	6.34	8.71	8.49
	SE1	0.16	0.15	0.61	0.60	0.58	0.60	0.53	0.52	0.72	0.70
12-17	Point Estimates	7.31	7.31	8.63	8.40	6.39	6.48	8.98	8.52	8.77	8.49
	SE1	0.22	0.23	0.89	0.91	0.73	0.77	0.95	0.89	0.86	0.86
18-25	Point Estimates	18.16	18.11	19.86	20.06	15.78	15.93	18.81	18.70	19.23	18.84
	SE1	0.38	0.37	1.37	1.37	1.14	1.14	1.52	1.52	1.34	1.27
26-34	Point Estimates	9.81	9.61	12.77	12.48	8.33	8.15	9.89	9.79	9.54	9.56
	SE1	0.49	0.49	1.87	1.84	1.59	1.64	1.70	1.69	1.57	1.57
35+	Point Estimates	3.45	3.40	4.24	4.13	4.29	4.40	2.51	2.36	6.31	6.14
	SE1	0.18	0.18	0.73	0.71	0.71	0.75	0.61	0.59	0.97	0.94
<b>Cocaine Past Month</b>											
Total	Point Estimates	0.64	0.65	0.45	0.46	0.50	0.53	0.66	0.65	0.49	0.48
	SE1	0.05	0.05	0.15	0.14	0.16	0.17	0.19	0.19	0.11	0.11
12-17	Point Estimates	0.27	0.28	0.57	0.61	0.00	0.00	0.03	0.02	0.49	0.48
	SE1	0.05	0.05	0.25	0.27	0.00	0.00	0.03	0.02	0.20	0.20
18-25	Point Estimates	1.38	1.38	1.05	1.13	1.36	1.38	1.45	1.29	1.08	1.04
	SE1	0.11	0.11	0.31	0.33	0.48	0.48	0.41	0.37	0.33	0.32
26-34	Point Estimates	1.05	1.02	1.18	1.13	0.38	0.36	1.18	1.23	1.05	1.05
	SE1	0.18	0.17	0.74	0.71	0.30	0.28	0.60	0.62	0.62	0.62
35+	Point Estimates	0.45	0.47	0.11	0.10	0.44	0.48	0.46	0.46	0.24	0.24
	SE1	0.07	0.07	0.09	0.09	0.20	0.23	0.25	0.25	0.14	0.14

(continued)

**Table 6.7 Point Estimates and Ratio-Adjusted Standard Errors (SE1) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Month Illicit Drug Estimates, Marijuana and Cocaine: 2009 NSDUH (continued)**

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
<b>Marijuana Past Month</b>									
Total	Point Estimates	8.58	8.32	5.72	5.85	5.40	5.29	5.02	4.83
	SE1	0.66	0.68	0.48	0.51	0.51	0.49	0.42	0.41
12-17	Point Estimates	8.49	8.82	8.57	8.54	6.28	6.22	7.03	6.87
	SE1	0.99	1.04	0.81	0.82	0.72	0.73	0.75	0.76
18-25	Point Estimates	24.24	24.12	19.02	18.96	14.72	14.92	14.94	14.36
	SE1	1.43	1.41	1.55	1.54	1.15	1.21	1.16	1.12
26-34	Point Estimates	11.34	10.63	8.93	9.29	10.69	9.74	6.84	6.85
	SE1	1.96	2.01	1.75	1.84	2.27	1.85	1.22	1.24
35+	Point Estimates	4.59	4.23	1.98	2.11	2.42	2.43	1.75	1.60
	SE1	0.78	0.77	0.47	0.52	0.48	0.52	0.45	0.43
<b>Cocaine Past Month</b>									
Total	Point Estimates	1.00	0.97	0.33	0.32	0.69	0.66	0.74	0.74
	SE1	0.22	0.21	0.09	0.09	0.21	0.22	0.23	0.22
12-17	Point Estimates	0.42	0.55	0.15	0.15	0.20	0.19	0.27	0.28
	SE1	0.20	0.27	0.11	0.10	0.14	0.14	0.16	0.16
18-25	Point Estimates	2.78	2.83	1.32	1.24	0.90	0.90	0.84	0.87
	SE1	0.59	0.60	0.37	0.35	0.38	0.38	0.32	0.33
26-34	Point Estimates	1.47	1.31	0.32	0.38	0.90	0.89	1.53	1.57
	SE1	0.68	0.62	0.25	0.30	0.51	0.51	0.69	0.71
35+	Point Estimates	0.60	0.55	0.16	0.16	0.68	0.64	0.59	0.57
	SE1	0.25	0.24	0.11	0.11	0.30	0.31	0.33	0.32

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

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## **Appendix A: Technical Details about the Generalized Exponential Model**



# Appendix A: Technical Details about the Generalized Exponential Model

## 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  $k^{\text{th}}$  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  $\ell_k$ ,  $c_k$ , 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  $\lambda$ ; 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  $\ell_k$ ,  $c_k$ , 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  $\rho$  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  $v^{\text{th}}$  iteration,

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

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

Then, for the Newton-Raphson iteration  $\nu$ , the value of the  $p$ -vector  $\lambda$  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 or not. If not, a half step is used in the iteration increment.

#### A.4 Scaled Constrained Exponential Model

In National Household Surveys on Drug Abuse (NHSDAs)<sup>1</sup> 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 ( $\rho^{-1}$ , the inverse of the overall response propensity), such that  $1 < \rho^{-1} a_k < \rho^{-1} u$ . This implies that choosing  $\ell$  in the CEM as  $\rho$  ensures that the scaled adjustment factor for nonresponse is at least one.

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<sup>1</sup> 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 2009, 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**



# Appendix C: Imputation Methodology

## 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 2008 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.<sup>1</sup> 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 2009 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

---

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

2	3	1
2	3	2

(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 2008 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<sup>®</sup>, 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 Ault et al. (2011).

## **Appendix D: Generalized Exponential Model Summary**



## **Appendix D: Generalized Exponential Model (GEM) 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 2009 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 unequal weighting effect 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 2009 NSDUH Person Weight (United States)**

	<i>sel.sdu.des</i> <sup>1</sup>	<i>res.sdu.nr</i> <sup>1</sup>		<i>res.sdu.ps</i> <sup>1</sup>		<i>sel.per.des</i> <sup>1</sup>		<i>sel.per.ps</i> <sup>1</sup>		<i>res.per.nr</i> <sup>1</sup>		<i>res.per.ps</i> <sup>1</sup>	
	1-7 <sup>2</sup>	8 <sup>3</sup>	1-8 <sup>3</sup>	9 <sup>4</sup>	1-9 <sup>4</sup>	11 <sup>5</sup>	1-11 <sup>5</sup>	12 <sup>5</sup>	1-12 <sup>5</sup>	13 <sup>6</sup>	1-13 <sup>6</sup>	14 <sup>6</sup>	1-14 <sup>6</sup>
<b>Minimum</b>	16	0.41	52	0.17	23	1.01	27	0.08	6	0.30	6	0.05	1
<b>1%</b>	67	1.00	79	0.42	78	1.01	105	0.38	83	1.00	91	0.20	52
<b>5%</b>	106	1.02	115	0.77	121	1.01	191	0.65	176	1.00	195	0.32	160
<b>10%</b>	138	1.03	157	0.88	170	1.01	315	0.75	297	1.03	332	0.80	280
<b>25%</b>	407	1.06	422	0.99	431	1.13	693	0.88	671	1.09	766	0.97	730
<b>Median</b>	575	1.09	657	1.08	698	1.36	1,310	0.99	1,300	1.18	1,484	1.02	1,466
<b>75%</b>	853	1.15	959	1.19	1,057	5.30	3,476	1.11	3,413	1.32	3,962	1.08	3,930
<b>90%</b>	1,203	1.25	1,372	1.35	1,531	10.21	7,568	1.28	7,641	1.52	9,670	1.22	9,687
<b>95%</b>	1,444	1.34	1,633	1.51	1,886	12.20	11,105	1.42	11,371	1.69	14,810	1.36	14,967
<b>99%</b>	1,911	1.67	2,097	2.05	2,609	14.40	19,204	1.99	20,005	2.41	28,054	2.22	28,580
<b>Maximum</b>	4,225	12.02	7,043	6.20	8,745	35.56	64,484	5.98	67,009	6.52	95,365	8.69	112,978
<b><i>n</i></b>	161,321	143,565	143,565	143,557	143,557	85,429	85,429	85,429	85,429	68,700	68,700	68,700	68,700
<b>Max/Mean</b>	6.48	-	9.62	-	10.83	-	22.06	-	22.73	-	26.02	-	30.82

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 due to the built-in control for extreme values. For an explanation, see Chapter 2.

<sup>1</sup> 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.

<sup>2</sup> Based on eligible dwelling units.

<sup>3</sup> Based on screener-complete dwelling units.

<sup>4</sup> Based on screener-complete dwelling units, occupants verified eligible.

<sup>5</sup> Based on selected persons.

<sup>6</sup> Based on questionnaire-complete persons.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

## **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+<sup>1,4</sup>

### Gender

1: Male, 2: Female<sup>1</sup>

### Group Quarters Indicator

1: College Dorm, 2: Other Group Quarter, 3: Non-Group Quarter<sup>1</sup>

### Hispanicity

1: Hispanic or Latino, 2: Non-Hispanic or Latino<sup>1</sup>

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

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

### Percentage of Segments That Are Black or African American

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

### Percentage of Segments That Are Hispanic or Latino

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

### Population Density

1: MSA 1,000,000 or More, 2: MSA Less than 1,000,000, 3: Non-MSA Urban, 4: Non-MSA Rural<sup>1</sup>

### Quarter

1: Quarter 1, 2: Quarter 2, 3: Quarter 3, 4: Quarter 4<sup>1</sup>

### Race (3 levels)

1: White,<sup>1</sup> 2: Black or African American, 3: Other

### Race (5 levels)

1: White,<sup>1</sup> 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,<sup>1</sup> 2: Child, 3: Other Relative, 4: Nonrelative

### Segment-Combined Median Rent and Housing Value (Rent/Housing)<sup>2</sup>

1: First Quintile, 2: Second Quintile, 3: Third Quintile, 4: Fourth Quintile, 5: Fifth Quintile<sup>1</sup>

### States<sup>3</sup>

Model Group 1: 1: Connecticut, 2: Maine, 3: New Hampshire, 4: Rhode Island, 5: Vermont, 6: Massachusetts<sup>1</sup>

Model Group 2: 1: New Jersey,<sup>1</sup> 2: New York, 3: Pennsylvania

Model Group 3: 1: Illinois, 2: Indiana,<sup>1</sup> 3: Michigan, 4: Wisconsin, 5: Ohio

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

Model Group 5: 1: Delaware, 2: District of Columbia, 3: Georgia,<sup>1</sup> 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: Tennessee<sup>1</sup>

Model Group 7: 1: Arkansas,<sup>1</sup> 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: Arizona<sup>1</sup>

Model Group 9: 1: Alaska, 2: Hawaii, 3: Oregon, 4: Washington,<sup>1</sup> 5: California

MSA = metropolitan statistical area.

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

<sup>2</sup> 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.

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

<sup>4</sup> 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, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

## 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 due to 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  $\times$  Race" and "Age  $\times$  Race  $\times$  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  $\times$  Age  $\times$  Race (3 levels), for Model Group 9, for the Person-Level Nonresponse Adjustment.

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).

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,<sup>1</sup> 5: California

**Age** (years)

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

**Race** (3 levels)

1: White,<sup>1</sup> 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.

<sup>1</sup> 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:

<b>Three-Factor Effects</b>	<b>Comments</b>
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 2009 NSDUH Person Weights (res.sdu.nr)**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>
<b>One-Factor Effects</b>		
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
<b>Two-Factor Effects</b>		
% 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	
<b>Three-Factor Effects</b>		
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 2009 NSDUH Person Weights (res.sdu.ps)**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>
<b>One-Factor Effects</b>		
Intercept	1	1
State	Model Specific	
Quarter	4	3
Age	5	4
Race (5 levels)	5	4
Gender	2	1
Hispanicity	2	1
<b>Two-Factor Effects</b>		
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	
<b>Three-Factor Effects</b>		
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 2009 NSDUH Person Weights (sel.per.ps and res.per.nr)**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>
<b>One-Factor Effects</b>		
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
<b>Two-Factor Effects</b>		
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	
<b>Three-Factor Effects</b>		
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 2009 NSDUH Person Weights (res.per.ps and res.per.ev)**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>
<b>One-Factor Effects</b>		
Intercept	1	1
State	Model Specific	
Quarter	4	3
Age	5	5
Race (5 levels)	5	4
Gender	2	1
Hispanicity	2	1
<b>Two-Factor Effects</b>		
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	
<b>Three-Factor Effects</b>		
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 2009 NSDUH Person Weight GEM Modeling Summary (Model Group 1: New England)**

Modeling Step <sup>1</sup>	Extreme Weight Proportions			UWE <sup>2</sup>	# XVAR <sup>3</sup>	Bounds <sup>4</sup>	
	% Unweighted	% Weighted	% Outwinor			Nominal	Realized
<i>res.sdu.nr</i>	1.71	1.07	0.07	1.62797	306	(1.07, 1.15)	(1.07, 1.15)
	1.67	2.18	0.30	1.69686	131	(1.00, 3.46) (1.10, 4.04)	(1.00, 3.45) (1.10, 4.04)
<i>res.sdu.ps</i>	1.67	2.18	0.30	1.69696	232	(0.20, 1.10)	(0.20, 1.10)
	3.13	4.92	1.30	1.82839	214	(0.20, 4.95) (0.99, 1.27)	(0.20, 4.94) (0.99, 1.27)
<i>sel.per.ps</i>	5.02	7.01	1.64	3.80076	332	(0.20, 3.00)	(0.20, 3.00)
	3.18	8.40	2.65	3.98118	226	(0.20, 4.38) (0.30, 4.38)	(0.20, 4.30) (0.30, 4.31)
<i>res.per.nr</i>	3.00	8.72	2.74	4.09033	332	(1.00, 2.70)	(1.00, 2.70)
	2.14	8.96	2.30	4.57483	198	(1.00, 4.40) (1.20, 4.33)	(1.00, 4.40) (1.20, 4.33)
<i>res.per.ps</i>	2.23	9.33	2.26	4.57483	267	(0.20, 2.63)	(0.20, 2.63)
	1.93	7.61	2.04	4.66638	178	(0.20, 4.16) (0.90, 2.17)	(0.20, 4.08) (0.90, 2.17)

<sup>1</sup> For a key to modeling abbreviations, see Chapter 5, Exhibit 5.1.

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

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

<sup>4</sup> 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, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table D.1b Distribution of Weight Adjustment Factors and Weight Products for the 2009 NSDUH Person Weight (Model Group 1: New England)**

	<i>sel.sdu.des</i> <sup>1</sup>	<i>res.sdu.nr</i> <sup>1</sup>		<i>res.sdu.ps</i> <sup>1</sup>		<i>sel.per.des</i> <sup>1</sup>		<i>sel.per.ps</i> <sup>1</sup>		<i>res.per.nr</i> <sup>1</sup>		<i>res.per.ps</i> <sup>1</sup>	
	1-7 <sup>2</sup>	8 <sup>3</sup>	1-8 <sup>3</sup>	9 <sup>4</sup>	1-9 <sup>4</sup>	11 <sup>5</sup>	1-11 <sup>5</sup>	12 <sup>5</sup>	1-12 <sup>5</sup>	13 <sup>6</sup>	1-13 <sup>6</sup>	14 <sup>6</sup>	1-14 <sup>6</sup>
<b>Minimum</b>	16	0.62	67	0.17	26	1.01	28	0.08	6	0.38	6	0.10	1
<b>1%</b>	105	1.00	110	0.21	50	1.01	54	0.30	38	0.90	37	0.20	15
<b>5%</b>	106	1.03	116	0.65	115	1.01	129	0.51	110	1.00	123	0.31	99
<b>10%</b>	122	1.05	130	0.82	127	1.01	167	0.69	156	1.01	168	0.81	156
<b>25%</b>	177	1.08	196	0.94	194	1.10	272	0.83	263	1.07	294	0.95	291
<b>Median</b>	224	1.10	248	1.03	266	1.29	753	0.97	742	1.17	794	1.02	766
<b>75%</b>	688	1.16	772	1.13	755	5.87	1,675	1.11	1,657	1.32	2,022	1.06	2,006
<b>90%</b>	915	1.21	1,099	1.28	1,059	12.62	4,594	1.33	4,671	1.53	5,432	1.15	5,668
<b>95%</b>	1,008	1.27	1,211	1.41	1,226	13.99	7,685	1.58	6,917	1.72	9,093	1.34	9,088
<b>99%</b>	1,057	1.45	1,355	2.11	1,699	15.98	15,390	2.79	15,832	2.56	22,102	3.29	22,295
<b>Maximum</b>	1,253	12.02	3,345	4.94	5,439	34.32	43,153	5.98	46,059	5.27	46,624	4.08	64,672
<b>N</b>	13,873	12,313	12,313	12,312	12,312	6,919	6,919	6,919	6,919	5,602	5,602	5,602	5,602
<b>Max/Mean</b>	3.14	-	7.43	-	11.71	-	24.13	-	26.16	-	21.44	-	29.74

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 due to the built-in control for extreme values. For an explanation, see Chapter 2.

<sup>1</sup> 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.

<sup>2</sup> Based on eligible dwelling units.

<sup>3</sup> Based on screener-complete dwelling units.

<sup>4</sup> Based on screener-complete dwelling units, occupants verified eligible.

<sup>5</sup> Based on selected persons.

<sup>6</sup> Based on questionnaire-complete persons.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

# Model Group 1 Overview

## Dwelling Unit Nonresponse

Twenty-three of the proposed 24 one-factor effects were included in the model. Variable collapsing 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, State  $\times$  Quarters, and State  $\times$  Rent/housing interactions. Out of 122 proposed variables, 83 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 160 proposed variables, 25 were included in the model.

In the final model, a total of 131 variables were included; see Exhibit D1.1.

## Dwelling Unit Poststratification

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

Of the 86 proposed two-factor effects, 85 were included in the model. Variable collapsing was needed for the Race  $\times$  Hispanicity interaction.

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  $\times$  Age  $\times$  Hispanicity, State  $\times$  Race  $\times$  Hispanicity, and State  $\times$  Race  $\times$  Gender interactions. Out of 127 proposed variables, 110 were included in the model.

In the final model, a total of 214 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 Black or African American, 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, 149 were included in the model.

For the three-factor effects, variable collapsing or dropping was present in all factors except the Age  $\times$  Hispanicity  $\times$  Gender, and State  $\times$  Age  $\times$  Gender interactions. Out of 127 proposed variables, 40 were included in the model.

In the final model, a total of 226 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 Race × Hispanicity, percent Owner-occupied × percent Black or African American, percent Owner-occupied × percent Hispanic or Latino, Rent/housing × percent Black or African American, Rent/housing × percent Hispanic or Latino, State × Race, State × percent Black or African American, State × percent Hispanic or Latino, State × percent Owner-occupied, State × Rent/housing interactions. Out of 168 proposed variables, 129 were included in the model.

For the three-factor effects, variable dropping was present in all three way interactions except Age × Hispanicity × Gender and State × Age × Gender. Out of 127 proposed variables, only 32 were included in the model.

In the final model, a total of 198 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 Race × Hispanicity and State × Race interactions. Out of 95 proposed variables, 88 were included in the model.

For the three-factor effects, variable collapsing or dropping was present in all interactions except the Age × Hispanicity × Gender and State × Age × Gender interactions. Out of 152 proposed variables, 70 were included in the model.

In the final model, a total of 178 variables were included; see Exhibit D1.5.

**Exhibit D1.1 Covariates for 2009 NSDUH Person Weights (res.sdu.nr), Model Group 1: New England**

Variables	Level	Proposed	Final	Comments
<b>One-Factor Effects</b>		<b>24</b>	<b>23</b>	
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	1	Coll. (1) & (2); 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.
<b>Two-Factor Effects</b>		<b>122</b>	<b>83</b>	
% Owner-Occupied × % Black or African American	3 × 3	4	2	Coll. (2,1) & (2,2) then drop; sing.
% 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	5	Coll. (1/2/4,1) & (1/2/4,2); zero, sing.
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 × Population Density	6 × 4	15	4	Keep (1,1), coll. (2/3,1) & (2/3,2), keep (2,3), drop others; sing., zero, conv.
State × Group Quarter	6 × 3	10	4	Coll. (1/2/3/5,1) & (1/2/3/5,2); heir. Drop others; conv.
State × % Black or African American	6 × 3	10	2	Coll. (1/4,1) & (1/4,2); zero. Drop others; zero, sing.
State × % Hispanic or Latino	6 × 3	10	4	Coll. (1/3/4/5,1) & (1/3/4/5,2); zero, sing., conv. Drop others; zero.
State × % Owner-Occupied	6 × 3	10	9	Coll. (1,3) & (1,2); conv.
State × Rent/Housing	6 × 5	20	20	All levels present.
<b>Three-Factor Effects</b>		<b>160</b>	<b>25</b>	
State × % Owner-Occupied × % Black or African American	6 × 3 × 3	20	0	Drop all; hier.
State × % Owner-Occupied × % Hispanic or Latino	6 × 3 × 3	20	2	Coll. (1/4,3,1), (1/4,3,2), (1/4,2,1) & (1/4,2,2); sing., hier. Drop others.
State × % Owner-Occupied × Rent/Housing	6 × 3 × 5	40	18	Coll. (1/5,3,1) & (1/5,3,2), (1/5,2,1) & (1/5,2,2), Coll. (1/2/3/4/5,3,3) & (1/2/3/4/5,2,3), coll. (1/3/4/5,3,4) & (1/3/4/5,2,4), coll. (2/3/4,3,1) & (2/3/4,2,1), coll. (3/4,3,2) & (3/4,2,2), keep (2,3/2,2); hier., sing., zero, conv.
State × Rent/Housing × % Black or African American	6 × 3 × 5	40	2	Coll. (1,1,1), (1,1,2), (1,2,1), (1,2,2), (1,3,1) & (1,3,2), coll. (1,4,1) & (1,4,2); hier. Drop all others; sing., hier., zero, conv.
State × Rent/Housing × % Hispanic or Latino	6 × 3 × 5	40	3	Coll. (1,1,1), (1,1,2), (1,2,1) & (1,2,2). Coll. (1,3/4,1) & (1,3/4,2); hier. Drop all others; sing., hier., zero, conv.
<b>Total</b>		<b>306</b>	<b>131</b>	

**Exhibit D1.2 Covariates for 2009 NSDUH Person Weights (res.sdu.ps), Model Group 1: New England**

<b>Variables</b>	<b>Level</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>				
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.
<b>Two-Factor Effects</b>				
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	1	Coll. (3,1) & (2,1); conv.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
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	20	All levels present.
State × Hispanicity	6 × 2	5	5	All levels present.
State × Gender	6 × 2	5	5	All levels present.
<b>Three-Factor Effects</b>				
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (1/2/3/4,3,1) & (1/2/3/4,2,1); hier.
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. (3,1,1) & (2,1,1); hier.
State × Age × Race (3 levels)	6 × 5 × 3	40	36	Coll. (2,1/2/3/4,3) & (2,1/2/3/4,2); zero, conv.
State × Age × Hispanicity	6 × 5 × 2	20	19	Coll. (2,1,1) & (2,2,1); conv.
State × Age × Gender	6 × 5 × 2	20	20	All levels present.
State × Race (3 levels) × Hispanicity	6 × 3 × 2	10	4	Coll. (1/3/4/5,3,1) & (1/3/4/5,2,1); hier.
State × Race (3 levels) × Gender	6 × 3 × 2	10	9	Drop (2,3,1) & (2,2,1); conv.
State × Hispanicity × Gender	6 × 2 × 2	5	5	Coll. (2,3,1) & (2,2,1); conv.
<b>Total</b>		<b>232</b>	<b>214</b>	

**Exhibit D1.3 Covariates for 2009 NSDUH Person Weights (sel.per.ps), Model Group 1: New England**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>		<b>37</b>	<b>37</b>	
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.
<b>Two-Factor Effects</b>		<b>168</b>	<b>149</b>	
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. (2,1) & (2,2); sing.
% 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	5	Coll. (1/2/4,1) & (1/2/4,2); sing., 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	19	Coll. (5,3) & (5,4); conv.
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	Coll. (1/4,1) & (1/4,2); sing., zero. Drop others; sing., zero.
State × % Hispanic or Latino	6 × 3	10	6	Coll. (3/2,1) & (3/5,1); zero. Drop (2,1) & (2,2); zero. Keep others.
State × % Owner-Occupied	6 × 3	10	10	All levels present.
State × Rent/Housing	6 × 5	20	20	All levels present.
<b>Three-Factor Effects</b>		<b>127</b>	<b>40</b>	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	0	Drop all; zero, conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	4	Coll. (1/2/3/4,2,1) & (1/2/3/4,3,1); conv.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	0	Drop all; conv.
State × Age × Race (3 levels)	6 × 5 × 3	40	0	Drop all; zero, sing., conv.
State × Age × Hispanicity	6 × 5 × 2	20	0	Drop all; zero, sing., conv.
State × Age × Gender	6 × 5 × 2	20	20	All levels present.
State × Race (3 levels) × Hispanicity	6 × 3 × 2	10	1	Coll. (3,2,1) & (3,3,1); conv. Drop others; zero, conv.
State × Race (3 levels) × Gender	6 × 3 × 2	10	7	Coll. (1/2/5,2,1) & (1/2/5,3,1); sing., conv.
State × Hispanicity × Gender	6 × 2 × 2	5	4	Drop (2,1,1); conv.
<b>Total</b>		<b>332</b>	<b>226</b>	

**Exhibit D1.4 Covariates for 2009 NSDUH Person Weights (res.per.nr), Model Group 1: New England**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>		<b>37</b>	<b>37</b>	
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.
<b>Two-Factor Effects</b>		<b>168</b>	<b>129</b>	
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	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	3	Coll. (2,1) & (2,2); sing.
% 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	5	Coll. (1/2/4,1) & (1/2/4,2); zero, sing.
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	10	Coll. (1,3) & (1,4), coll. (2/3/4/3) & (2/3/4/4) & (2/3/4/5), coll. (5,2) & (5,3) & (5,4) & (5,5); sing., conv.
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	Coll. (1/4,1) & (1/4,2); sing., zero. Drop others; sing., zero.
State × % Hispanic or Latino	6 × 3	10	3	Coll. (1/3/4,1) & (1/3/4,2); sing., zero. Drop others; zero.
State × % Owner-Occupied	6 × 3	10	5	Coll. (1,2) & (1,3), repeat for all States; conv.
State × Rent/Housing	6 × 5	20	18	Coll. (1/4,1) & (1/4,2); conv.
<b>Three-Factor-Effects</b>		<b>127</b>	<b>32</b>	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	0	Drop all; hier., conv., zero.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1). Repeat for all ages; conv.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	0	Drop all; hier., conv.
State × Age × Race (3 levels)	6 × 5 × 3	40	0	Drop all; conv.
State × Age × Hispanicity	6 × 5 × 2	20	0	Drop all; zero, sing., conv.
State × Age × Gender	5 × 5 × 2	20	20	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	10	0	Drop all; hier., zero, sing., conv.
State × Race (3 levels) × Gender	5 × 3 × 2	10	0	Drop all; zero, sing., conv.
State × Hispanicity × Gender	5 × 2 × 2	5	4	Drop (2,1,1); conv.
<b>Total</b>		<b>332</b>	<b>198</b>	

**Exhibit D1.5 Covariates for 2009 NSDUH Person Weights (res.per.ps), Model Group 1: New England**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>				
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.
<b>Two-Factor Effects</b>				
Age × Race (3 levels)	6 × 3	95	88	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	1	Coll. (2,1) & (3,1); conv.
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	14	Coll. (1,3) & (1,4), repeat for all States; conv.
				Coll. (3,2) & (3,5); conv.
State × Hispanicity	6 × 2	5	5	All levels present.
State × Gender	6 × 2	5	5	All levels present.
<b>Three-Factor Effects</b>				
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	152	70	
	6 × 3 × 2	10	4	Coll. (1/2/3/4,2,1) & (1/2/3/4,3,1); hier. Drop (5,2/3,1); conv.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	4	Coll. (1/2/3/4,2,1) & (1/2/3/4,3,1); conv. 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); hier.
State × Age × Race (3 levels)	6 × 5 × 3	50	11	Coll. (3,*,2) & (3,*,3); hier. Drop (3,4,2/3), (3,5,2/3); conv. Coll. (1,1,2) & (1,1,3), repeat for age 2,3, coll. (2,1,2) & (2,1,3), repeat for age 2, coll. (4,1,2) & (4,1,3), repeat for age 2,3, drop others; conv.
State × Age × Hispanicity	6 × 6 × 2	25	5	Keep (1,1/2/3,1), (4,1/2,1), drop others, sing., zero, conv.
State × Age × Gender	6 × 6 × 2	25	25	All levels present.
State × Race (3 levels) × Hispanicity	6 × 3 × 2	10	4	Coll. (3,2,1) & (3,3,1); hier. Coll. (1/4/5,2,1) & (1/4/5,3,1); conv. Drop others; conv.
State × Race (3 levels) × Gender	6 × 3 × 2	10	8	Coll. (3,2,1) & (3,3,1); hier. Coll. (2,2,1) & (2,3,1); conv.
State × Hispanicity × Gender	6 × 2 × 2	5	3	Drop (2/5,1,1); conv.
<b>Total</b>		<b>267</b>	<b>178</b>	



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



**Table D.2a 2009 NSDUH Person Weight GEM Modeling Summary (Model Group 2: Middle Atlantic)**

Modeling Step <sup>1</sup>	Extreme Weight Proportions			UWE <sup>2</sup>	# XVAR <sup>3</sup>	Bounds <sup>4</sup>	
	% Unweighted	% Weighted	% Outwisor			Nominal	Realized
<i>res.sdu.nr</i>	4.96	5.40	0.27	1.17116	153	(1.00, 1.90)	(1.00, 1.90)
	3.84	4.38	0.29	1.15854	121	(1.00, 3.54)	(1.00, 2.90)
						(1.20, 1.23)	(1.20, 1.21)
<i>res.sdu.ps</i>	3.84	4.38	0.29	1.15854	127	(0.20, 1.20)	(0.20, 1.20)
	1.55	3.47	0.97	1.25595	125	(0.20, 5.00)	(0.20, 5.00)
						(0.50, 5.00)	(0.51, 5.00)
<i>sel.per.ps</i>	3.60	7.12	2.19	2.50155	197	(0.27, 3.00)	(0.28, 3.00)
	1.95	4.69	1.12	2.63589	192	(0.20, 4.50)	(0.20, 4.49)
						(0.90, 2.01)	(0.90, 2.01)
<i>res.per.nr</i>	2.15	4.98	1.33	2.74358	197	(1.00, 2.60)	(1.00, 2.60)
	1.49	3.74	0.69	3.03542	192	(1.00, 3.47)	(1.00, 3.43)
						(1.30, 2.66)	(1.30, 2.66)
<i>res.per.ps</i>	1.63	4.04	0.79	3.03542	147	(0.20, 1.30)	(0.20, 1.30)
	1.40	4.18	0.80	3.23982	128	(0.08, 4.24)	(0.08, 4.23)
						(0.80, 2.50)	(2.45, 2.47)

<sup>1</sup> For a key to modeling abbreviations, see Chapter 5, Exhibit 5.1.

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

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

<sup>4</sup> 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, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table D.2b Distribution of Weight Adjustment Factors and Weight Products for the 2009 NSDUH Person Weight (Model Group 2: Middle Atlantic)**

	<i>sel.sdu.des</i> <sup>1</sup>	<i>res.sdu.nr</i> <sup>1</sup>		<i>res.sdu.ps</i> <sup>1</sup>		<i>sel.per.des</i> <sup>1</sup>		<i>sel.per.ps</i> <sup>1</sup>		<i>res.per.nr</i> <sup>1</sup>		<i>res.per.ps</i> <sup>1</sup>	
	1-7 <sup>2</sup>	8 <sup>3</sup>	1-8 <sup>3</sup>	9 <sup>4</sup>	1-9 <sup>4</sup>	11 <sup>5</sup>	1-11 <sup>5</sup>	12 <sup>5</sup>	1-12 <sup>5</sup>	13 <sup>6</sup>	1-13 <sup>6</sup>	14 <sup>6</sup>	1-14 <sup>6</sup>
<b>Minimum</b>	62	0.70	346	0.17	144	1.01	172	0.16	36	0.55	60	0.05	26
<b>1%</b>	524	1.01	566	0.58	432	1.01	472	0.49	396	1.00	429	0.08	60
<b>5%</b>	533	1.06	583	0.78	536	1.01	583	0.71	547	1.02	615	0.08	319
<b>10%</b>	536	1.07	593	0.86	582	1.01	652	0.80	630	1.06	715	0.75	625
<b>25%</b>	549	1.10	634	0.98	650	1.14	818	0.91	834	1.13	953	0.98	930
<b>Median</b>	588	1.17	722	1.05	759	1.32	1,349	1.00	1,353	1.22	1,610	1.02	1,592
<b>75%</b>	666	1.28	885	1.12	964	5.49	3,954	1.10	3,904	1.37	4,891	1.07	4,849
<b>90%</b>	1,161	1.45	1,535	1.23	1,503	9.54	8,251	1.25	8,502	1.61	11,247	1.17	11,289
<b>95%</b>	1,478	1.56	1,703	1.35	1,889	11.90	10,657	1.36	12,269	1.84	16,500	1.73	16,960
<b>99%</b>	1,597	1.90	1,876	1.97	2,548	13.15	18,910	1.70	18,793	2.45	27,618	2.49	28,926
<b>Maximum</b>	2,992	5.61	2,398	6.20	8,381	17.88	49,014	5.08	54,018	3.80	84,403	4.23	92,307
<b><i>n</i></b>	21,077	17,260	17,260	17,259	17,259	10,584	10,584	10,584	10,584	8,170	8,170	8,170	8,170
<b>Max/Mean</b>	4.32	-	2.84	-	9.25	-	15.54	-	16.71	-	20.16	-	22.05

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 due to the built-in control for extreme values. For an explanation, see Chapter 2.

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

<sup>2</sup> Based on eligible dwelling units.

<sup>3</sup> Based on screener-complete dwelling units.

<sup>4</sup> Based on screener-complete dwelling units, occupants verified eligible.

<sup>5</sup> Based on selected persons.

<sup>6</sup> Based on questionnaire-complete persons.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

## **Model Group 2 Overview**

### **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, 64 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 64 proposed variables, 36 were included in the model.

In the final model, a total of 121 variables was 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.

For three-factor effects, variable collapsing was present in the State × Race × Hispanicity interaction. Out of 64 proposed variables, 62 were included in the model.

In the final model, a total of 125 variables was included; see Exhibit D2.2.

### **Selected Person-Level Poststratification**

For one-factor effects, variable collapsing was present in the Group Quarters interaction. Out of 34 proposed variables, 33 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 State × Age × Race and State × Race × Hispanicity interactions. Out of 64 proposed variables, 60 were included in the model.

In the final model, a total of 192 variables was 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 × Race interaction. Out of 99 proposed variables, 97 were included in the model.

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 192 variables was included; see Exhibit D2.4.

### **Respondent Person-Level Poststratification**

For All 17 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 53 proposed variables, 50 were included in the model.

For three-factor effects, variable collapsing was present in the Age  $\times$  Race  $\times$  Hispanicity, Age  $\times$  Race  $\times$  Gender, State  $\times$  Age  $\times$  Race, and State  $\times$  Race  $\times$  Hispanicity interactions. Out of 77 proposed variables, 61 were included in the model.

In the final model, a total of 128 variables was included; see Exhibit D2.5.

**Exhibit D2.1 Covariates for 2009 NSDUH Person Weights (res.sdu.nr), Model Group 2: Middle Atlantic**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>				
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.
<b>Two-Factor Effects</b>				
% 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	3	Drop (2,3); zero. Drop (2,2), (3,3); sing.
State × Group Quarter	3 × 3	4	3	Drop (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	8	All levels present.
<b>Three-Factor Effects</b>				
State × % Owner-Occupied × % Black or African American	3 × 3 × 3	8	6	Coll. (2,3,1) & (2,3,2), (3,3,1) & (3,3,2); conv.
State × % Owner-Occupied × % Hispanic or Latino	3 × 3 × 3	8	5	Drop (3,3,1); zero. Drop (2,3,2); sing. Drop (3,3,2); conv.
State × % Owner-Occupied × Rent/Housing	3 × 3 × 5	16	9	Coll. (2,2,4) & (2,3,4), (3,2,4) & (3,3,4); sing. Drop (2,2,1), (2,3,1), (3,3,2); sing. Drop (3,3,3); conv. Coll. (3,2,1) & (3,3,1); conv.
State × Rent/Housing × % Black or African American	3 × 3 × 5	16	11	Drop (2,1,1), (2,1,2), (2,3,1), (2,4,1), (3,4,1); sing.
State × Rent/Housing × % Hispanic or Latino	3 × 3 × 5	16	5	Keep (2,3,1), (2,3,2), (3,1,2), (3,2,2), (3,3,2), drop others due to zero, sing., conv.
<b>Total</b>		<b>153</b>	<b>121</b>	

**Exhibit D2.2 Covariates for 2009 NSDUH Person Weights (res.sdu.ps), Model Group 2: Middle Atlantic**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>		<b>16</b>	<b>16</b>	
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.
<b>Two-Factor Effects</b>		<b>47</b>	<b>47</b>	
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.
<b>Three-Factor Effects</b>		<b>64</b>	<b>62</b>	
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	2	Coll. (1,2,1) & (1,3,1), (2,2,1) & (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.
<b>Total</b>		<b>127</b>	<b>125</b>	

**Exhibit D2.3 Covariates for 2009 NSDUH Person Weights (sel.per.ps), Model Group 2: Middle Atlantic**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>		<b>34</b>	<b>33</b>	
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	1	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.
<b>Two-Factor Effects</b>		<b>99</b>	<b>99</b>	
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	8	All levels present.
<b>Three-Factor Effects</b>		<b>64</b>	<b>60</b>	
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	14	Coll. (3,3,2) & (3,3,3), (3,4,2) & (3,4,3); conv.
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	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.
<b>Total</b>		<b>197</b>	<b>192</b>	

**Exhibit D2.4 Covariates for 2009 NSDUH Person Weights (res.per.nr), Model Group 2: Middle Atlantic**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>		<b>34</b>	<b>34</b>	
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.
<b>Two-Factor Effects</b>		<b>99</b>	<b>97</b>	
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	6	Coll. (2,3) & (2,4), (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	8	All levels present.
<b>Three-Factor Effects</b>		<b>64</b>	<b>61</b>	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	5	Coll. (2,2,1) & (2,3,1), (3,2,1) & (3,3,1), (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	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.
<b>Total</b>		<b>197</b>	<b>192</b>	

**Exhibit D2.5 Covariates for 2009 NSDUH Person Weights (res.per.ps), Model Group 2: Middle Atlantic**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>				
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.
<b>Two-Factor Effects</b>				
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. (3,2) & (3,3); conv.
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	10	All levels present.
State × Race (5 levels)	3 × 5	8	6	Coll. (2,3) & (2,4), (3,3) & (3,4); conv.
State × Hispanicity	3 × 2	2	2	All levels present.
State × Gender	3 × 2	2	2	All levels present.
<b>Three-Factor Effects</b>				
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	4	Coll. (*,2,1) & (*,3,1); hier. Drop (5,2/3,1); 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); hier.
State × Age × Race(3 levels)	3 × 6 × 3	20	14	Coll. (3,5,2) & (3,5,3); sing. Coll. (2,3,2) & (2,3,3), (3,3,2) & (3,3,3), repeat for age 4 and 5; 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); hier.
State × Race (3 levels) × Gender	3 × 3 × 2	4	4	All levels present.
State × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
<b>Total</b>		<b>147</b>	<b>128</b>	



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



**Table D.3a 2009 NSDUH Person Weight GEM Modeling Summary (Model Group 3: East North Central)**

Modeling Step <sup>1</sup>	Extreme Weight Proportions			UWE <sup>2</sup>	# XVAR <sup>3</sup>	Bounds <sup>4</sup>	
	% Unweighted	% Weighted	% Outwinsor			Nominal	Realized
<i>res.sdu.nr</i>	2.49	3.08	0.00	1.13761	255	(1.04, 1.35)	(1.05, 1.34)
	2.44	2.91	0.13	1.12184	182	(1.00, 2.48)	(1.00, 2.45)
						(1.01, 1.72)	(1.02, 1.71)
<i>res.sdu.ps</i>	2.44	2.91	0.13	1.12185	197	(0.62, 1.10)	(0.62, 1.10)
	1.51	2.28	0.36	1.15658	196	(0.21, 4.02)	(0.21, 3.97)
						(0.90, 1.97)	(0.90, 1.97)
<i>sel.per.ps</i>	3.52	5.75	1.20	2.30112	287	(0.60, 2.10)	(0.60, 2.10)
	1.48	2.79	0.46	2.34851	252	(0.26, 3.60)	(0.26, 3.60)
						(0.80, 1.10)	(0.80, 1.10)
<i>res.per.nr</i>	1.57	2.77	0.49	2.41368	287	(1.00, 2.50)	(1.00, 2.50)
	1.31	3.08	0.52	2.61012	259	(1.00, 3.46)	(1.00, 3.46)
						(1.10, 2.84)	(1.10, 2.84)
<i>res.per.ps</i>	1.59	3.41	0.64	2.61012	227	(0.20, 2.50)	(0.20, 2.45)
	1.05	2.74	0.55	2.69716	191	(0.20, 3.30)	(0.20, 3.30)
						(0.90, 1.40)	(0.90, 1.40)

<sup>1</sup> For a key to modeling abbreviations, see Chapter 5, Exhibit 5.1.

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

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

<sup>4</sup> 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, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table D.3b Distribution of Weight Adjustment Factors and Weight Products for the 2009 NSDUH Person Weight (Model Group 3: East North Central)**

	<i>sel.sdu.des</i> <sup>1</sup>	<i>res.sdu.nr</i> <sup>1</sup>		<i>res.sdu.ps</i> <sup>1</sup>		<i>sel.per.des</i> <sup>1</sup>		<i>sel.per.ps</i> <sup>1</sup>		<i>res.per.nr</i> <sup>1</sup>		<i>res.per.ps</i> <sup>1</sup>	
	1-7 <sup>2</sup>	8 <sup>3</sup>	1-8 <sup>3</sup>	9 <sup>4</sup>	1-9 <sup>4</sup>	11 <sup>5</sup>	1-11 <sup>5</sup>	12 <sup>5</sup>	1-12 <sup>5</sup>	13 <sup>6</sup>	1-13 <sup>6</sup>	14 <sup>6</sup>	1-14 <sup>6</sup>
<b>Minimum</b>	38	0.88	104	0.21	102	1.01	112	0.24	35	0.30	54	0.09	11
<b>1%</b>	338	1.00	368	0.50	283	1.01	301	0.41	214	1.00	240	0.20	123
<b>5%</b>	345	1.03	390	0.85	401	1.01	467	0.74	437	1.03	498	0.61	424
<b>10%</b>	451	1.04	482	0.95	450	1.01	536	0.83	524	1.07	601	0.90	579
<b>25%</b>	471	1.06	523	1.00	539	1.12	688	0.93	682	1.14	801	0.99	804
<b>Median</b>	505	1.10	566	1.05	610	1.33	1,031	1.00	1,055	1.22	1,201	1.01	1,228
<b>75%</b>	535	1.16	659	1.12	737	5.16	3,170	1.09	3,143	1.33	3,843	1.04	3,848
<b>90%</b>	899	1.27	974	1.25	1,043	10.63	6,357	1.19	6,381	1.49	8,273	1.12	8,164
<b>95%</b>	1,007	1.34	1,122	1.35	1,232	11.83	7,446	1.30	7,635	1.60	10,762	1.32	10,976
<b>99%</b>	1,471	1.63	1,592	1.73	1,595	12.67	13,542	1.63	13,605	1.97	18,062	1.56	18,900
<b>Maximum</b>	1,892	10.32	1,710	3.97	5,619	22.16	37,690	3.60	48,038	4.45	52,207	3.30	54,952
<b>n</b>	30,056	26,556	26,556	26,554	26,554	15,990	15,990	15,990	15,990	12,726	12,726	12,726	12,726
<b>Max/Mean</b>	3.35	-	2.68	-	8.22	-	15.79	-	19.97	-	17.27	-	18.18

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 due to the built-in control for extreme values. For an explanation, see Chapter 2.

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

<sup>2</sup> Based on eligible dwelling units.

<sup>3</sup> Based on screener-complete dwelling units.

<sup>4</sup> Based on screener-complete dwelling units, occupants verified eligible.

<sup>5</sup> Based on selected persons.

<sup>6</sup> Based on questionnaire-complete persons.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

## **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 percent Owner-occupied  $\times$  percent Hispanic or Latino, State  $\times$  Group Quarters, and State  $\times$  percent Hispanic or Latino interactions. Out of 104 proposed variables, 96 were included in the model.

For three-factor effects, variable collapsing or dropping was present in all interactions. Out of 128 proposed variables, 63 were included in the model.

In the final model, a total of 182 variables were included; see Exhibit D3.1.

### **Dwelling Unit Poststratification**

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

All 73 two-factor effects 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, 105 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 Race (3 levels)  $\times$  Hispanicity, percent Owner-occupied  $\times$  percent Hispanic or Latino, Rent/housing  $\times$  percent Black or African American, and State  $\times$  percent Hispanic or Latino interactions. Out of 145 proposed variables, 140 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 (3 levels)  $\times$  Hispanicity  $\times$  Gender, State  $\times$  Age  $\times$  Race (3 levels), State  $\times$  Race (3 levels)  $\times$  Hispanicity, and State  $\times$  Race (3 levels)  $\times$  Gender interactions. Out of 106 proposed variables, 76 were included in the model.

In the final model, a total of 252 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 percent Owner-occupied  $\times$  percent Hispanic or Latino, State  $\times$  percent Hispanic or Latino interactions. Out of 145 proposed variables, 142 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 interactions. Out of 106 proposed variables, 81 were included in the model.

In the final model, a total of 259 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, 77 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, 95 were included in the model.

In the final model, a total of 191 variables were included; see Exhibit D3.5.

**Exhibit D3.1 Covariates for 2009 NSDUH Person Weights (res.sdu.nr), Model Group 3: East North Central**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>				
		<b>23</b>	<b>23</b>	
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.
<b>Two-Factor Effects</b>				
		<b>104</b>	<b>96</b>	
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	3	Drop (3,1); sing.
% 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	5 × 4	12	12	All levels present.
State × Population Density	5 × 4	12	12	All levels present.
State × Group Quarter	5 × 3	8	3	Drop (3,2), (4,1), (4,2); sing.
				Coll. (1,1) & (1,2), (5,1) & (5,2); conv.
State × % Black or African American	5 × 3	8	8	All levels present.
State × % Hispanic or Latino	5 × 3	8	6	Drop (3,1), (4,1); sing.
State × % Owner-Occupied	5 × 3	8	8	All levels present.
State × Rent/Housing	5 × 5	16	16	All levels present.
<b>Three-Factor Effects</b>				
		<b>128</b>	<b>63</b>	
State × % Owner-Occupied × % Black or African American	5 × 3 × 3	16	9	Drop (3,3,1), (3,3,2), (4,3,1), (4,3,2), (4,2,1); sing. Coll. (1,3,1) & (1,3,2), (5,3,1) & (5,3,2); conv.
State × % Owner-Occupied × % Hispanic or Latino	5 × 3 × 3	16	8	Drop (1,3,1), (5,3,1), (5,2,1), (3,3,1), (3,2,1), (4,3,1), (4,3,2), (4,2,1); sing.
State × % Owner-Occupied × Rent/Housing	5 × 3 × 5	32	18	Drop (1,3,4), (3,3,1), (3,3,3), (4,3,1), (4,3,2), (4,3,3), (4,3,4), (4,2,1), (4,2,4); sing. Coll. (1,3,1) & (1,3,2) & (1,3,3), (5,3,1) & (5,3,2) & (5,3,3) & (5,3,4); conv.
State × Rent/Housing × % Black or African American	5 × 3 × 5	32	17	Drop (1,4,1), (5,4,1), (5,4,2), (3,3,1), (3,4,1), (3,4,2), (4,1,1), (4,1,2), (4,2,1), (4,2,2), (4,3,2), (4,3,1), (4,4,1), (4,4,2); sing. Coll. (5,3,1) & (5,3,2); conv.
State × Rent/Housing × % Hispanic or Latino	5 × 3 × 5	32	11	Drop (1,1,1), (1,2,1), (1,3,1), (1,4,1), (5,1,1), (5,2,1), (5,3,1), (5,3,2), (5,4,1), (5,4,2), (3,1,1), (3,2,1), (3,3,1), (3,4,1), (4,1,1), (4,1,2), (4,2,1), (4,3,1), (4,3,2), (4,4,1), (4,4,2); sing.
<b>Total</b>		<b>255</b>	<b>182</b>	

**Exhibit D3.2 Covariates for 2009 NSDUH Person Weights (res.sdu.ps), Model Group 3: East North Central**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>		<b>18</b>	<b>18</b>	
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.
<b>Two-Factor Effects</b>		<b>73</b>	<b>73</b>	
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.
<b>Three-Factor Effects</b>		<b>106</b>	<b>105</b>	
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	7	Coll. (4,2,1) & (4,3,1); 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.
<b>Total</b>		<b>197</b>	<b>196</b>	

**Exhibit D3.3 Covariates for 2009 NSDUH Person Weights (sel.per.ps), Model Group 3: East North Central**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>		<b>36</b>	<b>36</b>	
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.
<b>Two-Factor Effects</b>		<b>145</b>	<b>140</b>	
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	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	3 × 3	4	3	Coll. (3,1) & (3,2); sing.
% 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); conv.
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	6	Drop (3,1); sing. Coll. (4,1) & (4,2); sing.
State × % Owner-Occupied	5 × 3	8	8	All levels present.
State × Rent/Housing	5 × 5	16	16	All levels present.
<b>Three-Factor Effects</b>		<b>106</b>	<b>76</b>	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	2	Coll. (1,2,1) & (1,3,1), repeat for all ages; hier. Coll. (3,2/3,1) & (4,2/3,1); conv. Drop (3/4,2/3,1); 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); hier.
State × Age × Race (3 levels)	5 × 5 × 3	32	16	Coll. (1,1,2) & (1,1,3), repeat for all ages, repeat for all States; 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	2	Coll. (1,2,1) & (1,3,1), repeat for all States; hier. Drop (4,2,1) & (4,3,1), (5,2,1) & (5,3,1); conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	7	Coll. (4,21) & (4,3,1); conv.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
<b>Total</b>		<b>287</b>	<b>252</b>	

**Exhibit D3.4 Covariates for 2009 NSDUH Person Weights (res.per.nr), Model Group 3: East North Central**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>		<b>36</b>	<b>36</b>	
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.
<b>Two-Factor Effects</b>		<b>145</b>	<b>142</b>	
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 (3,1); zero.
% 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	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	6	Drop (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.
<b>Three-Factor Effects</b>		<b>106</b>	<b>81</b>	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	3	Coll. (2,2,1) & (2,3,1), (4,2,1) & (4,3,1); sing. Coll. (3,2,1) & (3,3,1); zero. Coll. (1,2,1) & (1,3,1); conv. 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	2	All levels present.
State × Age × Race (3 levels)	5 × 5 × 3	32	16	Coll. (4,1,2) & (4,1,3), repeat for all ages (same for Ohio), (3,3,2) & (3,3,3), (1,3,2) & (1,3,3); conv. Drop (3,3,1), (4,3,1), (4,1, 2/3), (4,2,2/3), (4,3,2/3), (4,4,2/3); 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	4	Drop (3,2,1); sing. Drop (4,2,1); zero. Coll. (1,2,1) & (1,3,1), (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.
<b>Total</b>		<b>287</b>	<b>259</b>	

**Exhibit D3.5 Covariates for 2009 NSDUH Person Weights (res.per.ps), Model Group 3: East North Central**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>		<b>19</b>	<b>19</b>	
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.
<b>Two-Factor Effects</b>		<b>81</b>	<b>77</b>	
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	13	Coll. (1,3) & (1,4), (4,3) & (4,4), (5,3) & (5,4); conv.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
<b>Three-Factor Effects</b>		<b>127</b>	<b>95</b>	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	3	Coll. (1,2,1) & (1,3,1), repeat for all ages; hier. Coll. (1,2/3,1) & (2,2/3,1); conv. Drop (5,2/3,1); 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. (2,1,1) & (3,1,1); hier.
State × Age × Race (3 levels)	5 × 6 × 3	40	28	Coll. (5,5,2) & (5,5,3), (4,4,2) & (4,4,3), (4,5,2) & (4,5,3); sing. Drop (5,5,2/3), (4,5,2/3); sing. Coll. (3,3,2) & (3,3,3), (5,3,2) & (5,3,3), (5,4,2) & (5,4,3), (4,2,2) & (4,2,3), (4,3,2) & (4,3,3), (4,1,2) & (4,1,3); conv. Drop (4,4,2/3); conv.
State × Age × Hispanicity	5 × 6 × 2	20	14	Coll. (3,4,1) & (3,5,1), (5,4,1) & (5,5,1), (4,4,1) & (4,5,1); sing. Drop (3,4/5,1), (5,4/5,1), (4,4/5,1); sing.
State × Age × Gender	5 × 6 × 2	20	20	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	8	2	Coll. (1,2,1) & (1,3,1), repeat for all States; hier. Drop (1,2/3,1), (4,2/3,1); 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.
<b>Total</b>		<b>227</b>	<b>191</b>	



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



**Table D.4a 2009 NSDUH Person Weight GEM Modeling Summary (Model Group 4: West North Central)**

Modeling Step <sup>1</sup>	Extreme Weight Proportions			UWE <sup>2</sup>	# XVAR <sup>3</sup>	Bounds <sup>4</sup>	
	% Unweighted	% Weighted	% Outwinsor			Nominal	Realized
<i>res.sdu.nr</i>	3.26	4.01	0.09	1.45694	357	(1.04, 1.30)	(1.05, 1.30)
	0.70	0.76	0.04	1.46429	178	(1.00, 1.46)	(1.00, 1.45)
						(1.00, 1.12)	(1.00, 1.11)
<i>res.sdu.ps</i>	0.70	0.76	0.04	1.46418	267	(0.95, 1.05)	(0.95, 1.05)
	2.06	2.80	0.71	1.56572	254	(0.20, 4.55)	(0.20, 4.55)
						(0.95, 1.05)	(0.95, 1.05)
<i>sel.per.ps</i>	3.87	5.68	1.49	3.22508	377	(0.40, 3.00)	(0.41, 3.00)
	1.72	4.27	0.97	3.35963	305	(0.20, 4.89)	(0.20, 4.89)
						(0.70, 1.35)	(0.70, 1.35)
<i>res.per.nr</i>	1.59	4.40	1.05	3.37026	377	(1.00, 2.95)	(1.00, 2.95)
	2.00	5.58	1.20	3.76705	263	(1.00, 5.00)	(1.00, 5.00)
						(1.00, 1.73)	(1.00, 1.42)
<i>res.per.ps</i>	2.00	5.51	1.23	3.76705	307	(0.20, 2.50)	(0.20, 2.50)
	1.59	4.10	1.01	3.79251	239	(0.20, 5.00)	(0.20, 5.00)
						(0.95, 1.07)	(0.95, 1.07)

<sup>1</sup> For a key to modeling abbreviations, see Chapter 5, Exhibit 5.1.

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

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

<sup>4</sup> 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, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table D.4b Distribution of Weight Adjustment Factors and Weight Products for the 2009 NSDUH Person Weight (Model Group 4: West North Central)**

	<i>sel.sdu.des</i> <sup>1</sup>	<i>res.sdu.nr</i> <sup>1</sup>		<i>res.sdu.ps</i> <sup>1</sup>		<i>sel.per.des</i> <sup>1</sup>		<i>sel.per.ps</i> <sup>1</sup>		<i>res.per.nr</i> <sup>1</sup>		<i>res.per.ps</i> <sup>1</sup>	
	1-7 <sup>2</sup>	8 <sup>3</sup>	1-8 <sup>3</sup>	9 <sup>4</sup>	1-9 <sup>4</sup>	11 <sup>5</sup>	1-11 <sup>5</sup>	12 <sup>5</sup>	1-12 <sup>5</sup>	13 <sup>6</sup>	1-13 <sup>6</sup>	14 <sup>6</sup>	1-14 <sup>6</sup>
<b>Minimum</b>	88	0.94	93	0.20	23	1.01	27	0.16	20	0.46	20	0.09	4
<b>1%</b>	94	1.00	98	0.46	94	1.01	103	0.39	82	0.99	89	0.20	57
<b>5%</b>	101	1.01	105	0.79	108	1.01	142	0.64	133	1.00	137	0.59	129
<b>10%</b>	106	1.02	113	0.88	117	1.01	201	0.73	192	1.00	209	0.88	186
<b>25%</b>	160	1.04	164	0.98	170	1.11	466	0.86	436	1.06	484	0.95	438
<b>Median</b>	455	1.06	489	1.07	495	1.36	926	0.98	919	1.15	1,064	1.01	1,090
<b>75%</b>	821	1.08	874	1.16	915	5.30	2,027	1.13	2,066	1.28	2,438	1.06	2,491
<b>90%</b>	1,009	1.12	1,064	1.28	1,243	11.03	5,804	1.33	5,920	1.47	7,143	1.17	7,122
<b>95%</b>	1,071	1.16	1,140	1.41	1,372	12.63	7,779	1.48	8,230	1.66	10,225	1.33	10,401
<b>99%</b>	1,161	1.26	1,303	1.89	1,713	14.26	15,615	2.22	16,463	2.57	23,973	2.33	23,232
<b>Maximum</b>	1,310	1.45	1,555	4.55	4,142	17.60	54,145	4.89	38,369	5.00	59,781	5.00	58,860
<b><i>n</i></b>	14,714	13,804	13,804	13,802	13,802	7,837	7,837	7,837	7,837	6,407	6,407	6,407	6,407
<b>Max/Mean</b>	2.62	-	2.92	-	7.09	-	25.85	-	18.01	-	22.94	-	22.58

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 due to the built-in control for extreme values. For an explanation, see Chapter 2.

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

<sup>2</sup> Based on eligible dwelling units.

<sup>3</sup> Based on screener-complete dwelling units.

<sup>4</sup> Based on screener-complete dwelling units, occupants verified eligible.

<sup>5</sup> Based on selected persons.

<sup>6</sup> Based on questionnaire-complete persons.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

## **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 State  $\times$  Quarter, State  $\times$  percent Owner-occupied, and State  $\times$  Rent/housing. Out of 140 proposed variables, 115 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 192 proposed variables, 38 were included in the model.

In the final model, a total of 178 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, 135 were included in the model.

In the final model, a total of 254 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 Black or African American, 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, 171 were included in the model.

For three-factor effects, variable collapsing or dropping was present in the Age  $\times$  Race  $\times$  Hispanicity, Age  $\times$  Hispanicity  $\times$  Gender, Race  $\times$  Hispanicity  $\times$  Gender, State  $\times$  Age  $\times$  Race, State  $\times$  Age  $\times$  Hispanicity, State  $\times$  Race  $\times$  Hispanicity, State  $\times$  Race  $\times$  Gender, and State  $\times$  Hispanicity  $\times$  Gender interactions. Out of 148 proposed variables, 96 were included in the model.

In the final model, a total of 305 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 2009 NSDUH Person Weights (res.sdu.nr), Model Group 4: West North Central**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>				
		<b>25</b>	<b>25</b>	
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.
<b>Two-Factor Effects</b>				
		<b>140</b>	<b>115</b>	
% Owner-Occupied × % Black or African American	3 × 3	4	3	Drop (3,1); zero.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	3	Drop (3,1); zero.
% Owner-Occupied × Rent/Housing	3 × 5	8	7	Coll. (2,1) & (2,2); conv.
Rent/Housing × % Black or African American	3 × 5	8	5	Drop (1,1); zero. Coll. (1,2) & (2,2); conv. Drop (4,1); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	5	Drop (1,1), (3,1); sing. Drop (4,1); zero.
State × Quarter	7 × 4	18	18	All levels present.
State × Population Density	7 × 4	18	14	Drop (1/5/6/7,1); zero.
State × Group Quarter	7 × 3	12	10	Drop (2,2); zero. Drop (6,2); sing.
State × % Black or African American	7 × 3	12	9	Drop (6/7,1), (6,2); zero.
State × % Hispanic or Latino	7 × 3	12	5	Drop (1/3/5/6/7,1), (7,2); zero. Drop (2,1); sing.
State × % Owner-Occupied	7 × 3	12	12	All levels present.
State × Rent/Housing	7 × 5	24	24	All levels present.
<b>Three-Factor Effects</b>				
		<b>192</b>	<b>38</b>	
State × % Owner-Occupied × % Black or African American	7 × 3 × 3	24	4	Keep (1,2,3), (2,2/3,2), (5,2,2), drop all others; sing., zero, conv.
State × % Owner-Occupied × % Hispanic or Latino	7 × 3 × 3	24	2	Keep (1,2,2), (2,2,2), drop all others; sing., zero, conv.
State × % Owner-Occupied × Rent/Housing	7 × 3 × 5	48	17	Keep (1,2,2/3/4), (2,2,2/3/4), (3,3,1), (5,2,2/3/4), (6,2,3/4), coll. (3,2,2) & (3,2,3) & (3,2,4), (6,2,1) & (6,2,2), drop all others; zero, sing., conv.
State × Rent/Housing × % Black or African American	7 × 3 × 5	48	8	Keep (1,2,2), (2,1,2), (2,2,1/2), (5,1,2), (5,2,1/2), (5,3,2), drop all others; sing., zero, conv.
State × Rent/Housing × % Hispanic or Latino	7 × 3 × 5	48	4	Keep (1,3,2), (2,1/2,2), (3,2,2), drop all others; sing., zero, conv.
<b>Total</b>		<b>357</b>	<b>178</b>	

**Exhibit D4.2 Covariates for 2009 NSDUH Person Weights (res.sdu.ps), Model Group 4: West North Central**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>				
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.
<b>Two-Factor Effects</b>				
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.
<b>Three-Factor Effects</b>				
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	3	Coll. (4,2,1) & (4,3,1); sing. Coll. (1,2,1) & (1,3,1) & (2,2,1) & (2,3,1). Coll. (3,2,1) & (3,3,1); 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	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	5	Coll. (3,2,1) & (3,3,1); (6,2,1) & (6,3,1); sing. Coll. (1,2,1) & (1,3,1); (2,2,1) & (2,3,1); (7,2,1) & (7,3,1). Drop (5,2/3,1); 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.
<b>Total</b>		<b>267</b>	<b>254</b>	

**Exhibit D4.3 Covariates for 2009 NSDUH Person Weights (sel.per.ps), Model Group 4: West North Central**

Variables	Levels	Proposed	Final	Comments
<b>One-Factor Effects</b>		<b>38</b>	<b>38</b>	
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.
<b>Two-Factor Effects</b>		<b>191</b>	<b>171</b>	
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. (3,1) & (3,2); zero.
% 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. (1,1) & (1,2); zero. Coll. (4,1) & (4,2); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	4	Coll. (4,1) & (4,2); zero. Coll. (3,1) & (3,2), (1,1) & (1,2); sing. Coll. (2,1) & (2,2); conv.
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	22	Coll. (1,3) & (1,4), (5,3) & (5,4); 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	9	Coll. (7,1) & (7,2); zero. Drop (6,1) & (6,2); zero.
State × % Hispanic or Latino	7 × 3	12	5	Coll. (1,1) & (1,2), Repeat for ST = 3,5,6; zero. Coll. (2,1) & (2,2); sing. Drop (6,1/2); zero.
State × % Owner-Occupied	7 × 3	12	12	All levels present.
State × Rent/Housing	7 × 5	24	24	All levels present.
<b>Three-Factor Effects</b>		<b>148</b>	<b>96</b>	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	0	Drop all, zero, conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	3	Drop (4,1,1); conv.
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	24	Coll. (6,3,2/3); sing. Coll. (6,4,2/3); zero. Coll. (6,1,2) & (6,1,3); Repeat for all remaining ST and ages; conv.
State × Age × Hispanicity	7 × 5 × 2	24	15	Drop (1,4,1); Repeat for all ST. Drop (7,1/2/3,1); conv.
State × Race (3 levels) × Hispanicity	7 × 3 × 2	12	5	Drop (1,2/3,1); zero. Coll. (2,2,1) & (2,3,1), (5,2,1) & (5,3,1), (6,2,1) & (6,3,1); conv. Coll. (3,2,1) & (3,3,1), (7,2,1) & (7,3,1); zero.
State × Race (3 levels) × Gender	7 × 3 × 2	12	11	Coll. (1,2,1) & (1,3,1); conv.
State × Age × Gender	7 × 5 × 2	24	24	All levels present.
State × Hispanicity × Gender	7 × 2 × 2	6	5	Drop (7,1,1); conv.
<b>Total</b>		<b>377</b>	<b>305</b>	

**Exhibit D4.4 Covariates for 2009 NSDUH Person Weights (res.per.nr), Model Group 4: West North Central**

Variables	Levels	Proposed	Final	Comments
<b>One-Factor Effects</b>		<b>38</b>	<b>38</b>	
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.
<b>Two-Factor Effects</b>		<b>191</b>	<b>168</b>	
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	Drop (3,1); zero.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	3	Drop (3,1); zero.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	6	Drop (1,1); zero. Drop (4,1); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	4	Drop (1,1). Coll. (3,1) & (3,2); sing. Drop (4,1); zero. Coll. (2,1) & (2,2); conv.
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	19	Drop (6,2), (6,3), (6,4),(6,5). Coll. (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	9	Drop (6,1),(6,2),(7,1); zero.
State × % Hispanic or Latino	7 × 3	12	5	Drop (1,1), (3,1), (5,1), (6,1), (7,1), (7,2); zero. Drop (2,1); sing.
State × % Owner-Occupied	7 × 3	12	12	All levels present.
State × Rent/Housing	7 × 5	24	24	All levels present.
<b>Three-Factor Effects</b>		<b>148</b>	<b>57</b>	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	2	Drop (3,2,1); sing. (4,2,1); zero. Coll. (1,2,1) & (1,3,1), (2,2,1) & (2,3,1), drop (3,3,1), (4,3,1); conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	6	Drop (4,2,1) & (4,3,1); conv.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	7 × 5 × 3	48	7	Coll. (3,1,2) & (3,1,3), repeat for age = 2,3, repeat for ST = 5, all ages; conv. Drop rest; conv., sing.
State × Age × Hispanicity	7 × 5 × 2	24	7	Keep (1,1,1), (1,2,1), (1,3,1), (2,1,1), (2,2,1), (3,1,1), (5,1,1); drop rest; conv., zero, sing.
State × Age × Gender	7 × 5 × 2	24	24	All levels present.
State × Race (3 levels) × Hispanicity	7 × 3 × 2	12	0	Drop all; zero, sing., heir., conv.
State × Race (3 levels) × Gender	7 × 3 × 2	12	3	Coll. (7,2,1) & (7,3,1); conv. Keep (5,2,1), (5,3,1), drop rest; heir., conv.
State × Hispanicity × Gender	7 × 2 × 2	6	3	Drop (3,1,1), (5,1,1), (7,1,1); conv.
<b>Total</b>		<b>377</b>	<b>243</b>	

**Exhibit D4.5 Covariates for 2009 NSDUH Person Weights (res.per.ps), Model Group 4: West North Central**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>				
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.
<b>Two-Factor Effects</b>				
Age × Race (3 levels)	6 × 3	10	10	All levels present.
Age × Hispanicity	6 × 2	5	4	Drop (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	7 × 4	18	18	All levels present.
State × Age	7 × 6	30	30	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.
<b>Three-Factor Effects</b>				
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	4	Drop (5,2/3,1); zero. Drop (4,2/3,1); sing. Drop (3,2/3,1); 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	4	Drop (5,1,1); sing.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	7 × 6 × 3	60	27	Drop (2,5,2/3), (6,5, 2/3); sing. Coll. (3,5,2) & (3,5,3), (5,4,2) & (5,4,3), (6,3,2) & (6,3,3); sing. Coll. (5,5,2) & (5,5,3), (6,4,2) & (6,4,3); zero. Coll. (1,1,2) & (1,1,3), (1,2,2) & (1,2,3), (1,3,2) & (1,3,3), (2,1,2) & (2,1,3), (2,2,2) & (2,2,3), (2,3,2) & (2,3,3), (2,4,2) & (2,4,3), (7,1,2) & (7,1,3), (7,2,2) & (7,2,3), (5,1,2) & (5,1,3), (5,2,2) & (5,2,3), (5,3,2) & (5,3,3), (6,1,2) & (6,1,3), (6,2,2) & (6,2,3). Drop (1,4/5,2/3), (7,3/4/5, 2/3); conv.
State × Age × Hispanicity	7 × 6 × 2	30	15	Drop (7,4,1), (1/3/5/6/7,5,1); sing. Drop (2,5,1); zero. Drop (6,1/2/3/4, 1), (1/2/5,4,1); conv.
State × Age × Gender	7 × 6 × 2	30	30	All levels present.
State × Race (3 levels) × Hispanicity	7 × 3 × 2	12	2	Drop (1/5/6/7,2/3,1). Coll. (3,2,1) & (3,3,1), (2,2,1) & (2,3,1); conv.
State × Race (3 levels) × Gender	7 × 3 × 2	12	11	Coll. (6,2,1) & (6,3,1); conv.
State × Hispanicity × Gender	7 × 2 × 2	6	6	All levels present.
<b>Total</b>		<b>307</b>	<b>239</b>	



**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 2009 NSDUH Person Weight GEM Modeling Summary (Model Group 5: South Atlantic)**

Modeling Step <sup>1</sup>	Extreme Weight Proportions			UWE <sup>2</sup>	# XVAR <sup>3</sup>	Bounds <sup>4</sup>	
	% Unweighted	% Weighted	% Outwisor			Nominal	Realized
<i>res.sdu.nr</i>	3.42	3.63	0.70	1.54108	459	(1.00, 1.30)	(1.00, 1.30)
	2.44	2.42	0.14	1.51829	294	(1.00, 3.00)	(1.00, 3.00)
						(1.10, 1.15)	(1.10, 1.15)
<i>res.sdu.ps</i>	2.44	2.42	0.14	1.51830	337	(0.40, 2.00)	(0.40, 1.98)
	1.64	2.14	0.21	1.53738	325	(0.20, 3.72)	(0.20, 3.62)
						(0.70, 2.72)	(0.70, 2.70)
<i>sel.per.ps</i>	2.28	3.50	0.53	2.94101	467	(0.50, 2.70)	(0.52, 2.70)
	1.66	3.42	0.57	3.07496	435	(0.20, 4.28)	(0.20, 4.27)
						(0.50, 2.47)	(0.50, 2.45)
<i>res.per.nr</i>	1.55	3.39	0.52	3.14592	467	(1.00, 2.20)	(1.00, 2.20)
	1.19	3.73	0.51	3.49283	407	(1.00, 4.70)	(1.00, 4.69)
						(1.28, 2.11)	(1.28, 2.11)
<i>res.per.ps</i>	1.23	3.66	0.61	3.49283	387	(0.20, 2.85)	(0.20, 2.85)
	0.94	3.01	0.71	3.75496	290	(0.20, 4.33)	(0.20, 4.31)
						(0.99, 4.37)	(0.99, 4.37)

<sup>1</sup> For a key to modeling abbreviations, see Chapter 5, Exhibit 5.1.

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

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

<sup>4</sup> 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, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table D.5b Distribution of Weight Adjustment Factors and Weight Products for the 2009 NSDUH Person Weight (Model Group 5: South Atlantic)**

	<i>sel.sdu.des</i> <sup>1</sup>	<i>res.sdu.nr</i> <sup>1</sup>		<i>res.sdu.ps</i> <sup>1</sup>		<i>sel.per.des</i> <sup>1</sup>		<i>sel.per.ps</i> <sup>1</sup>		<i>res.per.nr</i> <sup>1</sup>		<i>res.per.ps</i> <sup>1</sup>	
	1-7 <sup>2</sup>	8 <sup>3</sup>	1-8 <sup>3</sup>	9 <sup>4</sup>	1-9 <sup>4</sup>	11 <sup>5</sup>	1-11 <sup>5</sup>	12 <sup>5</sup>	1-12 <sup>5</sup>	13 <sup>6</sup>	1-13 <sup>6</sup>	14 <sup>6</sup>	1-14 <sup>6</sup>
<b>Minimum</b>	51	0.41	52	0.20	28	1.01	28	0.20	17	0.48	19	0.08	5
<b>1%</b>	52	0.98	59	0.42	60	1.01	87	0.43	73	0.98	80	0.21	50
<b>5%</b>	63	1.02	76	0.79	85	1.01	174	0.61	153	1.00	167	0.41	149
<b>10%</b>	81	1.04	105	0.91	117	1.01	270	0.70	261	1.02	301	0.74	259
<b>25%</b>	275	1.06	310	1.02	326	1.11	819	0.84	758	1.07	836	0.96	794
<b>Median</b>	648	1.10	725	1.13	863	1.45	1,530	0.99	1,511	1.15	1,689	1.02	1,688
<b>75%</b>	1,067	1.16	1,225	1.27	1,285	5.58	4,550	1.14	4,373	1.28	4,523	1.07	4,510
<b>90%</b>	1,508	1.25	1,648	1.45	1,890	10.52	10,253	1.33	10,427	1.48	12,869	1.22	12,836
<b>95%</b>	1,893	1.33	1,984	1.60	2,250	12.74	13,370	1.49	14,613	1.63	18,517	1.35	18,191
<b>99%</b>	2,498	1.62	2,607	2.01	2,986	15.51	25,487	2.10	24,775	2.24	33,616	1.91	33,532
<b>Maximum</b>	3,327	5.11	3,542	3.62	6,198	24.65	50,797	4.76	67,009	5.74	95,365	8.69	112,978
<b>n</b>	27,285	24,326	24,326	24,325	24,325	13,218	13,218	13,218	13,218	10,939	10,939	10,939	10,939
<b>Max/Mean</b>	4.52	-	4.29	-	6.58	-	14.05	-	18.24	-	21.48	-	25.44

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 due to the built-in control for extreme values. For an explanation, see Chapter 2.

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

<sup>2</sup> Based on eligible dwelling units.

<sup>3</sup> Based on screener-complete dwelling units.

<sup>4</sup> Based on screener-complete dwelling units, occupants verified eligible.

<sup>5</sup> Based on selected persons.

<sup>6</sup> Based on questionnaire-complete persons.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

## **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, 157 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Many factors were excluded due to zero sample sizes or exact linear combinations. Out of 256 proposed variables, 110 were included in the model.

In the final model, a total of 294 variables were included; see Exhibit D5.1.

### **Dwelling Unit Poststratification**

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

For two-factor effects, variable collapse was present in the percent State  $\times$  Race interaction. Out of 125 proposed variables, 122 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, 181 were included in the model.

In the final model, a total of 325 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  $\times$  Race, State  $\times$  percent Hispanic or Latino and State  $\times$  percent Owner-occupied interactions. Out of 237 proposed variables, 230 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, State  $\times$  Race  $\times$  Hispanicity, and State  $\times$  Race  $\times$  Gender interactions. Out of 190 proposed variables, 165 were included in the model.

In the final model, a total of 435 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  $\times$  Race, State  $\times$  percent Hispanic or Latino, and State  $\times$  percent Owner-occupied interactions. Out of 237 proposed variables, 230 were included in the model.

For three-factor effects, all levels are present for the Age  $\times$  Race  $\times$  Gender, Age  $\times$  Hispanicity  $\times$  Gender, Race  $\times$  Hispanicity  $\times$  Gender, State  $\times$  Age  $\times$  Gender, State  $\times$  Race  $\times$  Gender, and State  $\times$  Hispanicity  $\times$  Gender interactions. Out of 190 proposed variables, 137 were included in the model.

In the final model, a total of 407 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  $\times$  Gender, Age  $\times$  Hispanicity  $\times$  Gender, State  $\times$  Age  $\times$  Gender, State  $\times$  Race  $\times$  Gender, and State  $\times$  Hispanicity  $\times$  Gender interactions. All the others were affected by variable collapsing or dropping. Out of 227 proposed variables, 139 were included in the model.

In the final model, a total of 290 variables were included; see Exhibit D5.5.

**Exhibit D5.1 Covariates for 2009 NSDUH Person Weights (res.sdu.nr), Model Group 5: South Atlantic**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>				
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.
<b>Two-Factor Effects</b>				
		<b>176</b>	<b>157</b>	
% 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	16	Drop (1, *), (2, *), (4,3), (5,3); sing., zero.
State × Group Quarter	9 × 3	16	10	Drop (1,2), (5,2), (6,1/2), (8,1); zero. Coll. (4.1) & (4,2); conv.
State × % Black or African American	9 × 3	16	16	All levels present.
State × % Hispanic or Latino	9 × 3	16	11	Drop (5,1), (6,1), (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.
<b>Three-Factor Effects</b>				
		<b>256</b>	<b>110</b>	
State × % Owner-Occupied × % Black or African American	9 × 3 × 3	32	16	Keep (9, *, *), (2, *, *), (6,2,*), (7,3,1), (7,2, *), (5,2, *), (1,2,2), drop all others; sing., zero, conv.
State × % Owner-Occupied × % Hispanic or Latino	9 × 3 × 3	32	10	Keep (9, *, *), (2,2/3,2), (6,2,2), (7,2,2), (5,2/3,2), drop all others; sing., zero, conv.
State × % Owner-Occupied × Rent/Housing	9 × 3 × 5	64	25	Coll. (2,3,1) & (2,3,2); conv. Drop (8, *, *), (4, *, *), (6,3,*), (6,2,4), (7,3, *), (7,2,1), (5,3, *), (5,2,4), (1,3, *), (1,2, *); sing., zero, conv.
State × Rent/Housing × % Black or African American	9 × 3 × 5	64	43	Drop (9,4,1), (2,1,1/2), (2,2,2)(2,3,2), (8,1,2), (8,2,*), (8,3/4,*), (6,3,1), (6,4,1), (7,4,1), (5,3/4,1), (4,1,2), (1,1,2), (1,4,1/2), keep all others; sing., zero, conv.
State × Rent/Housing × % Hispanic or Latino	9 × 3 × 5	64	16	Keep (9,2,1/2), (9,3,1/2), (9,4,1/2), (2,2/3,2), (2,4,2), (7,1,2), (5,2,2), (5,3,2), (4,4,2), (1,2,2), (1,3,2), drop all others; sing., zero, conv.
<b>Total</b>		<b>459</b>	<b>294</b>	

**Exhibit D5.2 Covariates for 2009 NSDUH Person Weights (res.sdu.ps), Model Group 5: South Atlantic**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>		<b>22</b>	<b>22</b>	
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.
<b>Two-Factor Effects</b>		<b>125</b>	<b>122</b>	
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	29	Coll. (7,3) & (7,4), (6,3) & (6,4), (8,3) & (8,4); conv.
State × Hispanicity	9 × 2	8	8	All levels present.
State × Gender	9 × 2	8	8	All levels present.
<b>Three-Factor Effects</b>		<b>190</b>	<b>181</b>	
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	7	Coll. (1,2,1) & (1,3,1), repeat for all States, drop State VA; 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.
<b>Total</b>		<b>337</b>	<b>325</b>	

**Exhibit D5.3 Covariates for 2009 NSDUH Person Weights (sel.per.ps), Model Group 5: South Atlantic**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>				
		<b>40</b>	<b>40</b>	
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.
<b>Two-Factor Effects</b>				
		<b>237</b>	<b>230</b>	
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	31	Coll. (1,3) & (1,4); zero.
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	11	Drop (5,1), (6,1), (7,1), (8,1/2); zero.
State × % Owner-Occupied	9 × 3	16	15	Coll. (4,2) & (4,3); zero.
State × Rent/Housing	9 × 5	32	32	All levels present.
<b>Three-Factor Effects</b>				
		<b>190</b>	<b>165</b>	
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	55	Coll. (8,4,2) & (8,4,3) and then drop; sing., conv. Coll. (8,1,2) & (8,1,3), repeat for age level 2 and 3; conv. Coll. (5,1,2) & (5,1,3), repeat for all age levels; conv.
State × Age × Hispanicity	9 × 5 × 2	32	27	Drop (8,4,1); sing. Drop (4,*,1); conv.
State × Age × Gender	9 × 5 × 2	32	32	All levels present.
State × Race (3 levels) × Hispanicity	9 × 3 × 2	16	6	Coll. (4,2,1) & (4,3,1); conv. Coll. (1,2,1) & (1,3,1), repeat for State DC, NC, SC, VA, and WV, then drop for State MD, SC, WV; conv.
State × Race (3 levels) × Gender	9 × 3 × 2	16	15	Coll. (8,2,1) & (8,3,1); conv.
State × Hispanicity × Gender	9 × 2 × 2	8	8	All levels present.
<b>Total</b>		<b>467</b>	<b>448</b>	

**Exhibit D5.4 Covariates for 2009 NSDUH Person Weights (res.per.nr), Model Group 5: South Atlantic**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>		<b>40</b>	<b>40</b>	
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.
<b>Two-Factor Effects</b>		<b>237</b>	<b>230</b>	
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	31	Drop (1,3); zero.
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	11	Drop (5,1), (6,1), (7,1), (8,1/2); zero.
State × % Owner-Occupied	9 × 3	16	15	Drop (4,3); zero.
State × Rent/Housing	9 × 5	32	32	All levels present.
<b>Three-Factor Effects</b>		<b>190</b>	<b>137</b>	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (4,3,2) & (4,3,3); sing. Repeat for all other 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	2	All levels present.
State × Age × Race (3 levels)	9 × 5 × 3	64	59	Coll. (1,1,2) & (1,1,3), repeat for all age levels; conv. Coll. (8,4,2) & (8,4,3); sing.
State × Age × Hispanicity	9 × 5 × 2	32	4	Keep State FL, drop all others; conv.
State × Age × Gender	9 × 5 × 2	32	32	All levels present.
State × Race (3 levels) × Hispanicity	9 × 3 × 2	16	0	Drop all; 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.
<b>Total</b>		<b>467</b>	<b>407</b>	

**Exhibit D5.5 Covariates for 2009 NSDUH Person Weights (res.per.ps), Model Group 5: South Atlantic**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>		<b>23</b>	<b>23</b>	
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.
<b>Two-Factor Effects</b>		<b>137</b>	<b>128</b>	
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.
<b>Three-Factor Effects</b>		<b>227</b>	<b>139</b>	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	4	Coll. (1,2,1) & (1,3,1), repeat for all age levels; hier. Coll. (3,*,1) & (4,*,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. (2,1,1) & (3,1,1); hier.
State × Age × Race (3 levels)	9 × 6 × 3	80	30	Coll. (1,5,2) & (1,5,3), (5,5,2) & (5,5,3), (7,5,2) & (7,5,3), (8,4,2) & (8,4,3), (8,5,2) & (8,5,3); sing. Coll. r32 & r33 for all States and all age levels; conv. Drop all for States DE and NC, coll. (8,3,*), (8,4,*), drop (8,4,*); conv.
State × Age × Hispanicity	9 × 6 × 2	40	18	Drop (1/4/5/6/7/8,5,1), (4/8,4,1); sing. Drop all for States DE, MD, VA, and WV; conv.
State × Age × Gender	9 × 6 × 2	40	40	All levels present.
State × Race (3 levels) × Hispanicity	9 × 3 × 2	16	7	Coll. (1,2,1) & (1,3,1); repeat for all States; hier. Drop State DE; 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.
<b>Total</b>		<b>387</b>	<b>290</b>	



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



**Table D.6a 2009 NSDUH Person Weight GEM Modeling Summary (Model Group 6: East South Central)**

Modeling Step <sup>1</sup>	Extreme Weight Proportions			UWE <sup>2</sup>	# XVAR <sup>3</sup>	Bounds <sup>4</sup>	
	% Unweighted	% Weighted	% Outwisor			Nominal	Realized
<i>res.sdu.nr</i>	4.24	5.30	0.30	1.04000	204	(1.05, 1.50)	(1.05, 1.50)
	2.57	3.44	0.27	1.04364	113	(1.00, 2.00)	(1.00, 2.00)
						(1.06, 1.09)	(1.06, 1.07)
<i>res.sdu.ps</i>	2.57	3.44	0.27	1.04364	162	(0.60, 1.27)	(0.60, 1.27)
	2.04	3.26	0.55	1.08619	144	(0.20, 4.34)	(0.20, 4.32)
						(0.30, 5.00)	N/A
<i>sel.per.ps</i>	2.99	4.30	0.77	2.16913	242	(0.20, 2.86)	(0.20, 2.86)
	1.84	3.96	1.04	2.37962	176	(0.21, 4.63)	(0.22, 4.62)
						(0.32, 3.45)	(0.33, 3.43)
<i>res.per.nr</i>	2.03	4.46	1.08	2.40105	242	(1.00, 2.80)	(1.00, 2.80)
	1.98	5.19	1.24	2.90885	165	(1.00, 5.00)	(1.00, 5.00)
						(1.20, 1.41)	(1.20, 1.41)
<i>res.per.ps</i>	1.95	5.20	1.26	2.90885	187	(0.32, 1.62)	(0.32, 1.62)
	1.06	2.43	0.34	2.90565	129	(0.20, 3.38)	(0.20, 3.38)
						(0.95, 1.05)	(1.01, 1.05)

N/A = not applicable.

<sup>1</sup> For a key to modeling abbreviations, see Chapter 5, Exhibit 5.1.

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

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

<sup>4</sup> 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, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table D.6b Distribution of Weight Adjustment Factors and Weight Products for the 2009 NSDUH Person Weight (Model Group 6: East South Central)**

	<i>sel.sdu.des</i> <sup>1</sup>	<i>res.sdu.nr</i> <sup>1</sup>		<i>res.sdu.ps</i> <sup>1</sup>		<i>sel.per.des</i> <sup>1</sup>		<i>sel.per.ps</i> <sup>1</sup>		<i>res.per.nr</i> <sup>1</sup>		<i>res.per.ps</i> <sup>1</sup>	
	1-7 <sup>2</sup>	8 <sup>3</sup>	1-8 <sup>3</sup>	9 <sup>4</sup>	1-9 <sup>4</sup>	11 <sup>5</sup>	1-11 <sup>5</sup>	12 <sup>5</sup>	1-12 <sup>5</sup>	13 <sup>6</sup>	1-13 <sup>6</sup>	14 <sup>6</sup>	1-14 <sup>6</sup>
<b>Minimum</b>	331	0.83	415	0.20	121	1.01	140	0.16	57	0.57	72	0.17	34
<b>1%</b>	405	0.99	417	0.46	375	1.01	378	0.30	237	0.94	310	0.28	220
<b>5%</b>	413	1.01	441	0.81	519	1.01	618	0.61	569	1.00	649	0.75	651
<b>10%</b>	561	1.02	591	0.87	617	1.01	723	0.72	697	1.02	801	0.90	797
<b>25%</b>	721	1.04	757	0.99	777	1.09	970	0.85	961	1.07	1,066	0.97	1,078
<b>Median</b>	780	1.06	832	1.10	912	1.48	1,517	0.99	1,495	1.15	1,705	1.02	1,743
<b>75%</b>	879	1.09	933	1.23	1,041	5.39	4,854	1.12	4,514	1.30	5,145	1.07	5,178
<b>90%</b>	928	1.14	1,029	1.38	1,225	9.65	8,321	1.30	8,210	1.53	10,318	1.12	10,238
<b>95%</b>	1,039	1.16	1,111	1.49	1,353	12.30	11,708	1.47	10,752	1.75	13,405	1.19	13,641
<b>99%</b>	1,055	1.27	1,231	1.89	1,721	14.13	15,398	2.17	19,231	2.82	25,039	1.86	26,787
<b>Maximum</b>	1,608	2.01	1,797	4.32	3,945	20.66	25,338	4.62	49,596	5.17	78,247	3.38	61,713
<b>n</b>	8,316	7,781	7,781	7,781	7,781	4,554	4,554	4,554	4,554	3,696	3,696	3,696	3,696
<b>Max/Mean</b>	2.06	-	2.16	-	4.27	-	7.67	-	15.07	-	19.30	-	15.22

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 due to the built-in control for extreme values. For an explanation, see Chapter 2.

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

<sup>2</sup> Based on eligible dwelling units.

<sup>3</sup> Based on screener-complete dwelling units.

<sup>4</sup> Based on screener-complete dwelling units, occupants verified eligible.

<sup>5</sup> Based on selected persons.

<sup>6</sup> Based on questionnaire-complete persons.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

## **Model Group 6 Overview**

### **Dwelling Unit Nonresponse**

For the one-factor effects, variable dropping was present in the percent Hispanic or Latino main effects. Out of 22 proposed variables, 21 were included in the model.

For the two-factor effects, variable collapsing or dropping was present in the percent Owner-occupied  $\times$  percent Black or African American, percent Owner-occupied  $\times$  percent Hispanic or Latino, percent Owner-occupied  $\times$  Rent/housing, Rent/housing  $\times$  percent Hispanic or Latino, State  $\times$  Group quarters, and State  $\times$  percent Hispanic or Latino interactions. Out of 86 proposed variables, 68 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 96 proposed variables, 24 were included in the model.

In the final model, a total of 113 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, Race  $\times$  Hispanicity  $\times$  Gender, State  $\times$  Age  $\times$  Race, State  $\times$  Race  $\times$  Gender, 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 144 variables was included; see Exhibit D6.2.

### **Selected Person-Level Poststratification**

For the one-factor effects, variable collapsing or dropping was present in the Race and percent Hispanic or Latino variables. Out of 35 proposed one-factor effects, 33 were included in the model.

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

For the three-factor effects, all levels were present for the State  $\times$  Age  $\times$  Gender interactions. Variable collapsing or dropping was present in all other interactions. Out of 85 proposed variables, 39 were included in the model.

In the final model, a total of 176 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 × Hispanicity, Race × Hispanicity, percent Owner-occupied × percent Black or African American, percent Owner-occupied × percent Hispanic or Latino, Rent/housing × percent Hispanic Latino, State × Race, State × Hispanicity, State × percent Hispanic or Latino, and State × percent Owner-occupied interactions. Out of 122 proposed variables, 97 were included in the model.

Variable collapsing or dropping was present in all three-factor effects except the State × Age × Gender interactions. Out of 85 proposed variables, 34 were included in the model.

In the final model, a total of 165 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 × Hispanicity, Race × Hispanicity, and State × Race interactions. Out of 67 proposed variables, 64 were included in the model.

Variable collapsing or dropping was present in all three-factor effects except the Age × Race × Gender and State × Age × Gender interactions. Out of 102 proposed variables, 47 were included in the model.

In the final model, a total of 129 variables was included; see Exhibit D6.5.

**Exhibit D6.1 Covariates for 2009 NSDUH Person Weights (res.sdu.nr), Model Group 6: East South Central**

Variables	Levels	Proposed	Final	Comments
<b>One-Factor Effects</b>		<b>22</b>	<b>20</b>	
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	1	Drop (1); zero.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
<b>Two-Factor Effects</b>		<b>86</b>	<b>68</b>	
% Owner-Occupied × % Black or African American	3 × 3	4	3	Coll. (3,1) & (3,2); conv.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	2	Drop (2,1), (3,1); zero.
% Owner-Occupied × Rent/Housing	3 × 5	8	7	Coll. (3,3) & (3,4); conv.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	2	Drop (1,1), (1,2), (2,1), (3,1), (4,1); zero. Drop (2,2); sing.
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	3	Drop (3,2); zero. Coll. (1,1) & (1,2), (2,1) & (2,2); conv.
State × % Black or African American	4 × 3	6	6	All levels present.
State × % Hispanic or Latino	4 × 3	6	1	Drop (1,1), (2,1), (3,1); zero. Drop (1,2), (3,2); conv.
State × % Owner-Occupied	4 × 3	6	6	All levels present.
State × Rent/Housing	4 × 5	12	12	All levels present.
<b>Three-Factor Effects</b>		<b>96</b>	<b>24</b>	
State × % Owner-Occupied × % Black or African American	4 × 3 × 3	12	2	Drop (2,3,1), (3,3,1); zero. Drop (1,3,1), (1,3,2), (2,2,1), (3,3,2); sing. Drop (1,2,1/2), (3,2,1/2); conv.
State × % Owner-Occupied × % Hispanic or Latino	4 × 3 × 3	12	1	Drop (1,3,1), (1,3,2), (1,2,1), (2,3,1), (2,2,1), (3,3,1), (3,3,2), (3,2,1); zero. Drop (2,3,2), (2,2,2), (3,2,2); sing.
State × % Owner-Occupied × Rent/Housing	4 × 3 × 5	24	6	Drop (1,3,2), (1,3,3), (1,3,4), (2,3,1), (2,3,2), (3,3,1), (3,3,2), (3,3,3), (3,3,4), (3,2,3); zero. Drop (1,3,1), (1,2,4); sing. Drop (1,2,3), (2,3,3/4), (2,2,3), (2,2,4), (3,2,4); conv.
State × Rent/Housing × % Black or African American	4 × 3 × 5	24	15	Drop (2,2,2), (2,4,1); zero. Drop (1,4,1), (2,2,1), (2,3,1), (3,1,2), (3,2,1), (3,4,1); sing. Coll. (2,3,2) & (2,4,2); conv.
State × Rent/Housing × % Hispanic or Latino	4 × 3 × 5	24	0	Drop (2,4,2); sing. Drop (2,3,2), (3,4,2); conv. Drop all others; zero.
<b>Total</b>		<b>204</b>	<b>113</b>	

**Exhibit D6.2 Covariates for 2009 NSDUH Person Weights (res.sdu.ps), Model Group 6: East South Central**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>				
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.
<b>Two-Factor Effects</b>				
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.
<b>Three-Factor Effects</b>				
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	3	Coll. (1,2,1) & (1,3,1); zero. Coll. (2,2,1) & (2,3,1), (3,2,1) & (3,3,1); conv. 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)	4 × 5 × 3	24	20	Coll. (1,2,2) & (1,2,3), (2,2,2) & (2,2,3), (3,1,2) & (3,1,3), (3,2,2) & (3,2,3); 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 (1,2/3,1), (2,2/3,1), (3,2/3,1); conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	5	Coll. (3,2,1) & (3,3,1); conv.
State × Hispanicity × Gender	4 × 2 × 2	3	3	All levels present.
<b>Total</b>		<b>162</b>	<b>144</b>	

**Exhibit D6.3 Covariates for 2009 NSDUH Person Weights (sel.per.ps), Model Group 6: East South Central**

Variables	Levels	Proposed	Final	Comments
<b>One-Factor Effects</b>		<b>35</b>	<b>34</b>	
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	3	Coll. (3) & (4); conv.
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	Coll. (1) & (2); zero.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
<b>Two-Factor Effects</b>		<b>122</b>	<b>104</b>	
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	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	3 × 3	4	2	Coll. (2,1) & (2,2), (3,1) & (3,2); hier., zero.
% Owner-Occupied × Rent/Housing	3 × 5	8	6	Coll. (3,1) & (3,2) & (3,3); conv.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	2	Drop (1,1), (1,2), (2,1); zero. Coll. (3,1) & (3,2), (4,1) & (4,2); hier., zero. Drop (2,2); sing.
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), repeat for all States; hier.
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	Coll. (1,1) & (1,2), (2,1) & (2,2), (3,1) & (3,2); hier., zero. Drop (3,1/2); zero, sing.
State × % Owner-Occupied	4 × 3	6	6	All levels present.
State × Rent/Housing	4 × 5	12	12	All levels present.
<b>Three-Factor Effects</b>		<b>85</b>	<b>39</b>	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	1	Coll. (1,2,1) & (1,3,1); zero, hier. Drop all others; zero, hier., sing., conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1), repeat for all ages; conv.
Age × Hispanicity × Gender	5 × 2 × 2	4	3	Drop (4,1,1); sing.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); hier.
State × Age × Race (3 levels)	4 × 5 × 3	24	12	Coll. (1,1,2) & (1,1,3), repeat for all States and all ages; conv. Coll. (3,4,2) & (3,4,3); sing.
State × Age × Hispanicity	4 × 5 × 2	12	0	Drop all but (2,4,1), (3,4,1); 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	1	Coll. (1,2,1) & (1,3,1); hier. Drop all others; hier., conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	3	Coll. (1,2,1) & (1,3,1), repeat for all States; conv.
State × Hispanicity × Gender	4 × 2 × 2	3	2	Drop (1,1,1); conv.
<b>Total</b>		<b>242</b>	<b>176</b>	

**Exhibit D6.4 Covariates for 2009 NSDUH Person Weights (res.per.nr), Model Group 6: East South Central**

Variables	Levels	Proposed	Final	Comments
<b>One-Factor Effects</b>		<b>35</b>	<b>34</b>	
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	Coll. (1) & (2); zero.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
<b>Two-Factor Effects</b>		<b>122</b>	<b>97</b>	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
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	3	Coll. (3,1) & (3,2); conv.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	2	Coll. (2,1) & (2,2), (3,1) & (3,2); 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	2	Coll. (1,1) & (1,2), repeat for all Rent/Housing levels; hier. Drop (1, 1/2); zero. Coll. (2,1/2) & (3,1/2); sing.
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. (1,3) & (1,5), (2,3) & (2,4), (3,2) & (3,3) & (3,4) & (3,5); conv.
State × Hispanicity	4 × 2	3	1	Drop (1,1), (3,1); conv.
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	1	Coll. (1,1) & (1,2), repeat for all States; hier. Drop (1,1/2), (3,1/2); conv.
State × % Owner-Occupied	4 × 3	6	4	Coll. (1,2) & (1,3), (3,2) & (3,3); conv.
State × Rent/Housing	4 × 5	12	12	All levels present.
<b>Three-Factor Effects</b>		<b>85</b>	<b>34</b>	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	0	Drop all levels; zero, sing., conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1), repeat for all ages; conv.
Age × Hispanicity × Gender	5 × 2 × 2	4	2	Drop (3,1,1), (4,1,1); conv.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	0	Drop all levels; conv.
State × Age × Race (3 levels)	4 × 5 × 3	24	12	Coll. (1,1,2) & (1,1,3), repeat for all States and all ages; conv. Coll. (1,3,2) & (1,3,3); zero.
State × Age × Hispanicity	4 × 5 × 2	12	0	Drop all variables; hier., sing., conv.
State × Age × Gender	4 × 5 × 2	12	12	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	0	Drop (1,2,1), (1,3,1), (3,2,1), (3,3,1); hier. Coll. (2,2,1) & (2,3,1); conv. Drop (2,2/3,1); conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	3	Coll. (1,2,1) & (1,3,1), repeat for all States and all ages; conv.
State × Hispanicity × Gender	4 × 2 × 2	3	1	Drop (1,1,1), (3,1,1); hier.
<b>Total</b>		<b>242</b>	<b>165</b>	

**Exhibit D6.5 Covariates for 2009 NSDUH Person Weights (res.per.ps), Model Group 6: East South Central**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>				
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.
<b>Two-Factor Effects</b>				
Age × Race (3 levels)	6 × 3	10	10	All levels present.
Age × Hispanicity	6 × 2	5	4	Drop (5,1); conv.
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	11	Coll. (2,3) & (2,4); conv.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
<b>Three-Factor Effects</b>				
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	0	Coll. (1,2,1) & (1,3,1), repeat for all ages; hier. Drop (5,2/3,1); hier. Drop (4,2/3,1); sing. Drop remaining; conv.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	10	All levels present.
Age × Hispanicity × Gender	6 × 2 × 2	5	3	Drop (5,1,1); hier. Drop (4,1,1); sing.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	0	Coll. (2,1,1) & (3,1,1); hier. Drop (2/3,1,1); conv.
State × Age × Race (3 levels)	4 × 6 × 3	30	13	Coll. (1,1,2) & (1,1,3), repeat for all States and ages; zero, sing., conv. Drop (1,5,2/3), (3,5,2/3); conv.
State × Age × Hispanicity	4 × 6 × 2	15	3	Drop (1,5,1), repeat for all States; hier. Drop (2,4,1), (3,4,1); sing. Drop (1,2/3/4,1), (2,2/3,1), (3,2/3,1); conv.
State × Age × Gender	4 × 6 × 2	15	15	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	0	Coll. (1,2,1) & (1,3,1), repeat for all States; hier. Drop (1,2/3,1), (2,2/3,1), (3,2/3,1); conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	3	Coll. (1,2,1) & (1,3,1), repeat for all States; conv.
State × Hispanicity × Gender	4 × 2 × 2	3	0	Drop all levels; conv.
<b>Total</b>		<b>187</b>	<b>129</b>	



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



**Table D.7a 2009 NSDUH Person Weight GEM Modeling Summary (Model Group 7: West South Central)**

Modeling Step <sup>1</sup>	Extreme Weight Proportions			UWE <sup>2</sup>	# XVAR <sup>3</sup>	Bounds <sup>4</sup>	
	% Unweighted	% Weighted	% Outwisor			Nominal	Realized
<i>res.sdu.nr</i>	3.54	3.42	0.21	1.12965	204	(1.00, 1.40)	(1.03, 1.35)
	2.66	2.76	0.23	1.13949	150	(1.00, 2.05)	(1.00, 1.80)
						(1.00, 1.14)	(1.00, 1.13)
<i>res.sdu.ps</i>	2.66	2.76	0.23	1.13949	162	(0.79, 1.10)	(0.79, 1.10)
	1.71	3.12	0.67	1.20273	158	(0.20, 5.00)	(0.20, 5.00)
						(0.90, 1.49)	(0.90, 1.49)
<i>sel.per.ps</i>	2.75	6.58	2.09	2.28713	242	(0.22, 2.10)	(0.22, 2.10)
	1.04	2.31	0.45	2.26090	236	(0.20, 4.85)	(0.20, 4.85)
						(0.95, 1.05)	(0.95, 1.05)
<i>res.per.nr</i>	1.18	2.62	0.46	2.29660	242	(1.00, 2.05)	(1.00, 2.05)
	1.23	2.93	0.30	2.56436	221	(1.00, 4.95)	(1.00, 4.94)
						(1.25, 1.37)	(1.25, 1.36)
<i>res.per.ps</i>	1.36	3.28	0.36	2.56436	187	(0.20, 1.45)	(0.20, 1.45)
	0.57	2.36	0.40	2.72963	164	(0.20, 3.34)	(0.20, 3.32)
						(0.95, 1.08)	(0.95, 1.08)

<sup>1</sup> For a key to modeling abbreviations, see Chapter 5, Exhibit 5.1.

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

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

<sup>4</sup> 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, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table D.7b Distribution of Weight Adjustment Factors and Weight Products for the 2009 NSDUH Person Weight (Model Group 7: West South Central)**

	<i>sel.sdu.des</i> <sup>1</sup>	<i>res.sdu.nr</i> <sup>1</sup>		<i>res.sdu.ps</i> <sup>1</sup>		<i>sel.per.des</i> <sup>1</sup>		<i>sel.per.ps</i> <sup>1</sup>		<i>res.per.nr</i> <sup>1</sup>		<i>res.per.ps</i> <sup>1</sup>	
	1-7 <sup>2</sup>	8 <sup>3</sup>	1-8 <sup>3</sup>	9 <sup>4</sup>	1-9 <sup>4</sup>	11 <sup>5</sup>	1-11 <sup>5</sup>	12 <sup>5</sup>	1-12 <sup>5</sup>	13 <sup>6</sup>	1-13 <sup>6</sup>	14 <sup>6</sup>	1-14 <sup>6</sup>
<b>Minimum</b>	377	0.94	412	0.20	94	1.01	105	0.09	22	0.58	22	0.11	6
<b>1%</b>	410	0.98	424	0.31	194	1.01	220	0.31	123	1.00	142	0.20	57
<b>5%</b>	476	1.01	491	0.76	439	1.01	562	0.66	520	1.00	587	0.20	339
<b>10%</b>	494	1.02	534	0.89	563	1.01	756	0.77	709	1.03	827	0.63	651
<b>25%</b>	645	1.04	698	0.99	717	1.18	1,187	0.89	1,177	1.09	1,341	0.99	1,268
<b>Median</b>	987	1.08	1,038	1.09	1,066	1.36	1,783	1.00	1,858	1.16	2,111	1.03	2,179
<b>75%</b>	1,053	1.11	1,136	1.21	1,275	5.23	5,400	1.11	5,152	1.29	5,839	1.11	5,668
<b>90%</b>	1,088	1.16	1,193	1.37	1,466	9.57	8,413	1.28	8,655	1.47	10,666	1.23	11,061
<b>95%</b>	1,105	1.18	1,253	1.54	1,625	11.28	12,956	1.44	12,999	1.68	16,953	1.25	16,448
<b>99%</b>	1,409	1.23	1,523	1.95	2,394	13.02	16,990	1.92	18,748	2.48	27,240	1.90	28,680
<b>Maximum</b>	3,532	2.40	3,974	5.00	6,314	29.91	61,545	4.85	39,814	5.70	50,347	3.32	78,870
<b>n</b>	13,549	12,513	12,513 <sub>3</sub>	12,513	12,513	7,788	7,788	7,788	7,788	6,341	6,341	6,341	6,341
<b>Max/Mean</b>	4.09	-	4.25	-	6.05	-	16.91	-	10.88	-	11.21	-	17.55

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 due to the built-in control for extreme values. For an explanation, see Chapter 2.

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

<sup>2</sup> Based on eligible dwelling units.

<sup>3</sup> Based on screener-complete dwelling units.

<sup>4</sup> Based on screener-complete dwelling units, occupants verified eligible.

<sup>5</sup> Based on selected persons.

<sup>6</sup> Based on questionnaire-complete persons.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

## **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 percent Owner-occupied  $\times$  percent Black or African American, State  $\times$  Group quarters, and State  $\times$  percent Hispanic or Latino interactions. Out of 86 proposed variables, 81 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 96 proposed variables, 47 were included in the model.

In the final model, a total of 150 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 Age  $\times$  Race  $\times$  Hispanicity and State  $\times$  Race  $\times$  Hispanicity interactions. Out of 85 proposed variables, 81 were included in the model.

In the final model, a total of 158 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 State  $\times$  percent Hispanic or Latino interactions. Out of 122 proposed variables, 121 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, 80 were included in the model.

In the final model, a total of 236 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 State  $\times$  percent Hispanic or Latino interactions. Out of 122 proposed variables, 121 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, Race  $\times$  Hispanicity  $\times$  Gender, State  $\times$  Hispanicity  $\times$  Gender, State  $\times$  Age  $\times$  Gender interactions. Out of 85 proposed variables, 65 were included in the model.

In the final model, a total of 221 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, 65 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, 81 were included in the model.

In the final model, a total of 164 variables were included; see Exhibit D7.5.

**Exhibit D7.1 Covariates for 2009 NSDUH Person Weights (res.sdu.nr), Model Group 7: West South Central**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>		<b>22</b>	<b>22</b>	
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.
<b>Two-Factor Effects</b>		<b>86</b>	<b>81</b>	
% 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	4 × 4	9	9	All levels present.
State × Population Density	4 × 4	9	9	All levels present.
State × Group Quarter	4 × 3	6	2	Drop (2,*), (3,2); zero. Drop (3,1); sing.
State × % Black or African American	4 × 3	6	6	All levels present.
State × % Hispanic or Latino	4 × 3	6	5	Drop (2,1); zero.
State × % Owner-Occupied	4 × 3	6	6	All levels present.
State × Rent/Housing	4 × 5	12	12	All levels present.
<b>Three-Factor Effects</b>		<b>96</b>	<b>47</b>	
State × % Owner-Occupied × % Black or African American	4 × 3 × 3	12	6	Drop (2,3,1), (3,2,1) & (3,3,1); zero. Drop (2,3,2), (3,3,2) & (4,3,1); sing.
State × % Owner-Occupied × % Hispanic or Latino	4 × 3 × 3	12	5	Drop (2,3,*), (2,2,1) & (3,3,*); zero. Drop (3,2,1) & (4,3,1); sing.
State × % Owner-Occupied × Rent/Housing	4 × 3 × 5	24	12	Drop (2,2,1), (2,3,1), (2,3,2), (2,3,3), (3,3,1), (3,3,2), (3,3,4) & (4,3,2); zero. Drop (2,3,4), (3,2,4), (3,3,3) & (4,3,1); sing.
State × Rent/Housing × % Black or African American	4 × 3 × 5	24	17	Drop (2,1,2) (2,4,1), (3,3,1), (3,4,2) & (4,4,1); sing. Drop (3,2,1), (3,4,1); sing.
State × Rent/Housing × % Hispanic or Latino	4 × 3 × 5	24	7	Keep (2,2,2), (3,1,2), (3,2,2), (4,1,2), (4,2,2), (4,3,2) & (4, 4,2). Drop remainder due to zero, sing.
<b>Total</b>		<b>204</b>	<b>150</b>	

**Exhibit D7.2 Covariates for 2009 NSDUH Person Weights (res.sdu.ps), Model Group 7: West South Central**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>		<b>17</b>	<b>17</b>	
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.
<b>Two-Factor Effects</b>		<b>60</b>	<b>60</b>	
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.
<b>Three-Factor Effects</b>		<b>85</b>	<b>81</b>	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	6	Coll. (3,2,1) & (3,3,1), (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	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	4	Coll. (2,2,1) & (2,3,1), (3,2,1) & (3,3,1); 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.
<b>Total</b>		<b>162</b>	<b>158</b>	

**Exhibit D7.3 Covariates for 2009 NSDUH Person Weights (sel.per.ps), Model Group 7: West South Central**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>				
		<b>35</b>	<b>35</b>	
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.
<b>Two-Factor Effects</b>				
		<b>122</b>	<b>121</b>	
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	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.
<b>Three-Factor Effects</b>				
		<b>85</b>	<b>80</b>	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	7	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)	4 × 5 × 3	24	23	Coll. (2,4,2) & (2,4,3); 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	3	Coll. (3,2,1) & (3,3,1); zero. 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.
<b>Total</b>		<b>242</b>	<b>236</b>	

**Exhibit D7.4 Covariates for 2009 NSDUH Person Weights (res.per.nr), Model Group 7: West South Central**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>				
		<b>35</b>	<b>35</b>	
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.
<b>Two-Factor Effects</b>				
		<b>122</b>	<b>121</b>	
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	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	Drop (2,1); zero.
State × % Owner-Occupied	4 × 3	6	6	All levels present.
State × Rent/Housing	4 × 5	12	12	All levels present.
<b>Three-Factor Effects</b>				
		<b>85</b>	<b>65</b>	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	6	Drop (4,2,1); zero. Drop (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. (4,1,2) & (4,1,3), Repeat for all ST and ages; conv.
State × Age × Hispanicity	4 × 5 × 2	12	9	Drop (2,4,1), (2,3,1), (3,4,1); conv.
State × Age × Gender	4 × 5 × 2	12	12	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	4	Drop (2,2,1); sing. Coll. (1,2,1) & (1,3,1); zero.
State × Race (3 levels) × Gender	4 × 3 × 2	6	5	Coll. (2,2,1) & (2,3,1); conv.
State × Hispanicity × Gender	4 × 2 × 2	3	3	All levels present.
<b>Total</b>		<b>242</b>	<b>221</b>	

**Exhibit D7.5 Covariates for 2009 NSDUH Person Weights (res.per.ps), Model Group 7: West South Central**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>				
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.
<b>Two-Factor Effects</b>				
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	11	Coll. (4,3) & (4,4); conv.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
<b>Three-Factor Effects</b>				
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	3	Coll. (1,2,1) & (1,3,1); repeat for age = 2,3, heir. Drop (5,2/3,1); zero. Drop (4,2/3,1); 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. (2,1,1) & (3,1,1); heir.
State × Age × Race (3 levels)	4 × 6 × 3	30	26	Coll. (2,5,2) & (2,5,3), (4,5,2) & (4,5,3); conv. Drop (3,5,2/3); conv.
State × Age × Hispanicity	4 × 6 × 2	15	12	Drop (2,5,1),(3,5,1); sing. Drop (2,4,1); conv.
State × Age × Gender	4 × 6 × 2	15	15	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	6	All levels present.
State × Hispanicity × Gender	4 × 2 × 2	3	3	All levels present.
<b>Total</b>		<b>187</b>	<b>164</b>	



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



**Table D.8a 2009 NSDUH Person Weight GEM Modeling Summary (Model Group 8: Mountain)**

Modeling Step <sup>1</sup>	Extreme Weight Proportions			UWE <sup>2</sup>	# XVAR <sup>3</sup>	Bounds <sup>4</sup>	
	% Unweighted	% Weighted	% Outwisor			Nominal	Realized
<i>res.sdu.nr</i>	2.35	5.49	0.70	1.82794	408	(1.09, 2.17)	(1.09, 2.17)
	0.91	3.33	0.63	2.21001	212	(1.00, 2.17)	(1.00, 2.16)
						(1.03, 1.13)	(1.03, 1.12)
<i>res.sdu.ps</i>	0.91	3.33	0.63	2.21001	302	(0.64, 1.10)	(0.64, 1.10)
	2.03	3.21	0.56	1.80029	266	(0.20, 5.00)	(0.20, 4.97)
						(0.10, 10.00)	N/A
<i>sel.per.ps</i>	3.14	8.97	1.86	3.95680	422	(0.20, 2.60)	(0.21, 2.60)
	1.85	3.69	0.75	4.05552	374	(0.20, 4.46)	(0.20, 4.25)
						(0.30, 2.92)	(0.30, 2.07)
<i>res.per.nr</i>	1.74	3.78	0.81	4.11488	422	(1.00, 2.80)	(1.00, 2.80)
	1.71	5.38	1.21	4.74457	341	(1.00, 4.90)	(1.00, 4.88)
						(1.00, 4.85)	(1.00, 4.82)
<i>res.per.ps</i>	1.78	5.68	1.23	4.74457	347	(0.20, 1.80)	(0.20, 1.80)
	1.03	4.12	0.79	4.82659	235	(0.20, 3.81)	(0.20, 3.80)
						(0.80, 5.00)	(0.80, 0.99)

N/A = not applicable.

<sup>1</sup> For a key to modeling abbreviations, see Chapter 5, Exhibit 5.1.

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

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

<sup>4</sup> 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, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table D.8b Distribution of Weight Adjustment Factors and Weight Products for the 2009 NSDUH Person Weight (Model Group 8: Mountain)**

	<i>sel.sdu.des</i> <sup>1</sup>	<i>res.sdu.nr</i> <sup>1</sup>		<i>res.sdu.ps</i> <sup>1</sup>		<i>sel.per.des</i> <sup>1</sup>		<i>sel.per.ps</i> <sup>1</sup>		<i>res.per.nr</i> <sup>1</sup>		<i>res.per.ps</i> <sup>1</sup>	
	1-7 <sup>2</sup>	8 <sup>3</sup>	1-8 <sup>3</sup>	9 <sup>4</sup>	1-9 <sup>4</sup>	11 <sup>5</sup>	1-11 <sup>5</sup>	12 <sup>5</sup>	1-12 <sup>5</sup>	13 <sup>6</sup>	1-13 <sup>6</sup>	14 <sup>6</sup>	1-14 <sup>6</sup>
<b>Minimum</b>	53	0.97	86	0.20	26	1.01	33	0.15	9	0.48	10	0.12	2
<b>1%</b>	87	1.00	92	0.41	83	1.01	84	0.26	52	0.97	56	0.20	35
<b>5%</b>	92	1.00	98	0.67	108	1.01	133	0.58	121	1.00	138	0.34	124
<b>10%</b>	101	1.02	108	0.84	122	1.01	186	0.70	168	1.01	193	0.80	177
<b>25%</b>	198	1.04	211	1.00	233	1.11	405	0.84	385	1.05	431	0.97	418
<b>Median</b>	324	1.06	339	1.12	408	1.27	837	0.99	819	1.14	909	1.03	905
<b>75%</b>	646	1.08	718	1.26	750	5.20	2,039	1.16	2,032	1.27	2,313	1.11	2,380
<b>90%</b>	862	1.12	908	1.51	1,123	8.25	4,774	1.35	4,660	1.52	5,642	1.26	5,796
<b>95%</b>	1,060	1.19	1,222	1.74	1,434	12.04	6,662	1.54	7,218	1.75	9,038	1.33	9,071
<b>99%</b>	2,801	1.53	2,768	2.44	2,357	14.64	14,449	2.20	18,554	2.66	23,292	1.73	23,898
<b>Maximum</b>	4,225	2.16	7,043	4.97	5,732	35.56	64,484	4.87	49,091	6.52	82,892	3.80	88,717
<b>n</b>	15,727	14,631	14,631	14,631	14,631	9,046	9,046	9,046	9,046	7,414	7,414	7,414	7,414
<b>Max/Mean</b>	8.92	-	13.84	-	10.24	-	33.77	-	24.92	-	34.49	-	36.91

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 due to the built-in control for extreme values. For an explanation, see Chapter 2.

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

<sup>2</sup> Based on eligible dwelling units.

<sup>3</sup> Based on screener-complete dwelling units.

<sup>4</sup> Based on screener-complete dwelling units, occupants verified eligible.

<sup>5</sup> Based on selected persons.

<sup>6</sup> Based on questionnaire-complete persons.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

## **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, State  $\times$  Quarter, State  $\times$  percent Owner-occupied, and State  $\times$  Rent/housing interactions. All the others were affected by variable collapsing or dropping. Out of 158 proposed variables, 123 were included in the model.

All three-factor effects were affected by variable collapsing and dropping. Out of 224 proposed variables, 64 were included in the model.

In the final model, a total of 212 variables were included; see Exhibit D8.1.

### **Dwelling Unit Poststratification**

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

For two-factor effects, variable collapsing was present in the State  $\times$  Race interaction. Out of 112 proposed variables, 110 were included in the model.

For three-factor effects, variable collapsing 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 169 proposed variables, 136 were included in the model.

In the final model, a total of 267 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  $\times$  Race, State  $\times$  percent Black African American, and State  $\times$  percent Hispanic or Latino 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, and State  $\times$  Race  $\times$  Hispanicity interactions. Out of 169 proposed variables, 136 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  $\times$  Race, State  $\times$  percent Black or African American, and State  $\times$  percent Hispanic or Latino interactions. Out of 214 proposed variables, 192 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, and State  $\times$  Age  $\times$  Gender interactions. All the others were affected by variable collapsing or dropping. Out of 169 proposed variables, 112 were included in the model.

In the final model, a total of 341 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 State  $\times$  Race interaction. Out of 123 proposed variables, 120 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  $\times$  Hispanicity  $\times$  Gender interactions. Out of 202 proposed variables, 93 were included in the model.

In the final model, a total of 235 variables were included; see Exhibit D8.5.

**Exhibit D8.1 Covariates for 2009 NSDUH Person Weights (res.sdu.nr), Model Group 8: Mountain**

Variables	Levels	Proposed	Final	Comments
<b>One-Factor Effects</b>		<b>26</b>	<b>26</b>	
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.
<b>Two-Factor Effects</b>		<b>158</b>	<b>123</b>	
% 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	4	Drop (1,1), (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 (3,1), (2,1), (5,1), (7,1), (6,1) & (4,3); zero.
State × Group Quarter	8 × 3	14	5	Drop (1,*), (2,*), (5,*), (4,1), (3,2), (6,2); zero.
State × % Black or African American	8 × 3	14	4	Drop (1,1), (5,1), (7,1), (2,*), (3,*), (6,*); zero. Drop (4,1); sing.
State × % Hispanic or Latino	8 × 3	14	10	Drop (2,1), (7,1) & (3,*); zero.
State × % Owner-Occupied	8 × 3	14	14	All levels present.
State × Rent/Housing	8 × 5	28	28	All levels present.
<b>Three-Factor Effects</b>		<b>224</b>	<b>64</b>	
State × % Owner-Occupied × % Black or African American	8 × 3 × 3	28	1	Keep (4,3,2). Drop (1,3,2); conv. Drop remainder; sing., zero.
State × % Owner-Occupied × % Hispanic or Latino	8 × 3 × 3	28	11	Coll. (2,2,2) & (2,3,2); conv. Keep (7,*), (6,*), (5,2,1), (1,2,*), (4,3*), (4,2,2). Drop remainder; sing., zero.
State × % Owner-Occupied × Rent/Housing	8 × 3 × 5	56	22	Keep (1,2,1/3/4), (1,3,4), (2,2,1/2/3), (2,3,2), (3,2,1/2/3), (3,3,2), (4,3,3), (4,2,2/3/4), (5,2,1/2/3), (6,2,2/3) & (7,2,3). Drop remainder; sing., zero.
State × Rent/Housing × % Black or African American	8 × 3 × 5	56	3	Keep (1,1,2), (1,3,2) & (1,2,2). Drop (1,4,2); conv. Drop remainder; sing., zero.
State × Rent/Housing × % Hispanic or Latino	8 × 3 × 5	56	26	Keep (1,1,1), (1,3/4,*), (1,2,2), (2,1,2), (2,3,2), (2,2,2), (2,4,2), (4,3,1/2), (4,1,2), (4,2,1), (4,2,2), (4,4,2), (5,1/3,1), (5,1,2), (5,2,2/3), (6,1/3,2), (7,1/3,2) & (7,2,2). Drop (6,2,2); conv. Drop remainder; sing., zero.
<b>Total</b>		<b>408</b>	<b>212</b>	

**Exhibit D8.2 Covariates for 2009 NSDUH Person Weights (res.sdu.ps), Model Group 8: Mountain**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>				
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.
<b>Two-Factor Effects</b>				
		<b>112</b>	<b>110</b>	
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	26	Coll. (2,2) & (2,5), (3,2) & (3,5); conv.
State × Hispanicity	8 × 2	7	7	All levels present.
State × Gender	8 × 2	7	7	All levels present.
<b>Three-Factor Effects</b>				
		<b>169</b>	<b>136</b>	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1); conv. Repeat for all levels of age.
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. (2,2,1), (3,2,1); conv.
State × Age × Race (3 levels)	8 × 5 × 3	56	37	Coll. (2,1,*) & (3,1,*) zero, conv. Repeat for all levels of age. Coll. (7,2,2) & (7,3,3); conv. Repeat for all levels of age. Coll. (6,2,2) & (6,2,3), (6,3,2) & (6,3,3), (6,4,2) & (6,4,3); 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	7	Coll. (1,2,1) & (1,3,1); zero, conv. Repeat for all States.
State × Race (3 levels) × Gender	8 × 3 × 2	14	12	Coll. (2,2,1) & (2,3,1), (3,2,1) & (3,3,1); conv.
State × Hispanicity × Gender	8 × 2 × 2	7	7	All levels present.
<b>Total</b>		<b>302</b>	<b>267</b>	

**Exhibit D8.3 Covariates for 2009 NSDUH Person Weights (sel.per.ps), Model Group 8: Mountain**

<b>Variables</b>	<b>Levels</b>	<b>Proposed</b>	<b>Final</b>	<b>Comments</b>
<b>One-Factor Effects</b>		<b>39</b>	<b>39</b>	
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.
<b>Two-Factor Effects</b>		<b>214</b>	<b>193</b>	
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	Coll. (2,1) & (2,2), (3,1) & (3,2); 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	4	Coll. (1,1) & (1,2); zero, sing. Repeat for all levels of Rent/housing.
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	27	Coll. (1,3) & (1,4); conv.
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	Coll. (1,1) & (1,2), (4,1) & (4,2), (5,1) & (5,2), (7,1) & (7,2); zero, sing. Drop (2,*), (3,*), (6*); zero.
State × % Hispanic or Latino	8 × 3	14	10	Coll. (2,1) & (2,2), (7,1) & (7,2); zero, sing. Drop (3,*), zero.
State × % Owner-Occupied	8 × 3	14	14	All levels present.
State × Rent/Housing	8 × 5	28	28	All levels present.
<b>Three-Factor Effects</b>		<b>169</b>	<b>142</b>	
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)	8 × 5 × 3	56	35	Coll. (1,1/2/3/4,2) & (1,1/2/3/4,3), (6,1,2) & (6,1,3), (7,1/2,2) & (7,1/2,3); conv. Coll. (6,2,2), (6,2,3), (6,3,2) & (6,3,3); conv. Coll. (2,1/2/3/4,2) & (2,1/2/3/4,3), (3,2/3/4,2) & (3,2/3/4,3), (6,4,2) & (6,4,3), (7,3,2) & (7,3,3); zero, sing. Drop (7,4,*); conv.
State × Age × Hispanicity	8 × 5 × 2	28	27	Drop (3,4,1); sing., zero.
State × Age × Gender	8 × 5 × 2	28	28	All levels present.
State × Race (3 levels) × Hispanicity	8 × 3 × 2	14	10	Coll. (6,2,1) & (6,3,1); conv. Coll. (2,2,1) & (2,3,1), (3,2,1) & (3,3,1), (7,2,1) & (7,3,1); zero.
State × Race (3 levels) × Gender	8 × 3 × 2	14	14	All levels present.
State × Hispanicity × Gender	8 × 2 × 2	7	7	All levels present.
<b>Total</b>		<b>422</b>	<b>374</b>	

**Exhibit D8.4 Covariates for 2009 NSDUH Person Weights (res.per.nr), Model Group 8: Mountain**

Variables	Levels	Proposed	Final	Comments
<b>One-Factor Effects</b>				
Intercept	1	39	39	
State	8	1	1	All levels present.
Quarter	4	7	7	All levels present.
Age	4	3	3	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	4	4	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	1	1	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	3	3	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.
<b>Two-Factor Effects</b>				
		<b>214</b>	<b>192</b>	
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	Coll. (2,1) & (2,2), (3,1) & (3,2); 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	4	Coll. (1,1) & (1,2); zero, sing. Repeat for all levels of Rent/housing.
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	27	Coll. (6,3) & (6,4); conv.
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	Coll. (1,1) & (1,2), (4,1) & (4,2), (5,1) & (5,2), (7,1) & (7,2); zero, sing. Drop (2,*), (3,*), (6*); zero.
State × % Hispanic or Latino	8 × 3	14	9	Coll. (2,1) & (2,2), (7,1) & (7,2), (8,1) & (8,2); zero, sing. Coll. (6,1) & (6,2); conv. Drop (3,*), zero.
State × % Owner-Occupied	8 × 3	14	14	All levels present.
State × Rent/Housing	8 × 5	28	28	All levels present.
<b>Three-Factor Effects</b>				
		<b>169</b>	<b>112</b>	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	6	Drop (4*,1); conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	7	Coll. (4,2,1) & (4,3,1); 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	16	Coll. (1,1/2/3,2) & (1,1/2/3,3), (2,2/3/4,2) & (2,2/3/4,3), (3,1,2) & (3,1,3), (5,1/2/3/4,2) & (5,1/2/3/4,3), (6,1,2) & (6,1,3), (7,1/2/4,2) & (7,1/2/4,3); conv. Coll. (2,1,2) & (2,1,3), (3,2/3/4,2) & (3,2/3/4,3), (7,3,2) & (7,3,3); zero, sing. Drop (1,4*), (4,*), (6,2/3/4,*), (7,*); conv., zero, sing.
State × Age × Hispanicity	8 × 5 × 2	28	25	Drop (3,2,1); conv. Drop (3,3/4,1); zero, sing.
State × Age × Gender	8 × 5 × 2	28	28	All levels present.
State × Race (3 levels) × Hispanicity	8 × 3 × 2	14	6	Coll. (2,2,1) & (2,3,1); zero. Coll. (4,2,1) & (4,3,1), (6,2,1) & (6,3,1); conv. Drop (2*,1), (3*,1), (7,*1) conv.
State × Race (3 levels) × Gender	8 × 3 × 2	14	10	Coll. (1,2,1) & (1,3,1); conv. Repeat for States (4), (5), and (7).
State × Hispanicity × Gender	8 × 2 × 2	7	6	Coll. (3,1,1) & (7,1,1); conv.
<b>Total</b>		<b>422</b>	<b>341</b>	

**Exhibit D8.5 Covariates for 2009 NSDUH Person Weights (res.per.ps), Model Group 8: Mountain**

Variables	Levels	Proposed	Final	Comments
<b>One-Factor Effects</b>		<b>22</b>	<b>22</b>	
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.
<b>Two-Factor Effects</b>		<b>123</b>	<b>120</b>	
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	8 × 4	21	21	All levels present.
State × Age	8 × 6	35	35	All levels present.
State × Race (5 levels)	8 × 5	28	25	Coll. (2,2) & (2,5), (3,2) & (3,5), (7,2) & (7,5); conv.
State × Hispanicity	8 × 2	7	7	All levels present.
State × Gender	8 × 2	7	7	All levels present.
<b>Three-Factor Effects</b>		<b>202</b>	<b>93</b>	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	3	Coll. (4,2,1) & (4,3,1), (5,2,1) & (5,3,1); zero, sing. Drop (5,2/3,1); sing. Coll. (1,2,1) & (1,3,1), repeat for ages 2 and 3; conv. Drop (4,2/3,1); 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	0	Drop all; conv.
State × Age × Race (3 levels)	8 × 6 × 3	70	15	Coll. (2,1,2) & (2,1,3), repeat for States MT and WY and all ages; hier. Coll. (*,1,2) & (*,1,3) for other States; sing., zero, conv. Drop (1/2/4,4,2/3), (1/2/4,5,2/3), (3,3,2/3), (3,4,2/3), (3,5,2/3), (5,5,2/3), (6,*,2/3), (7,*,2/3); conv.
State × Age × Hispanicity	8 × 6 × 2	35	20	Drop (1,4/5,1), (2,4/5,1), (3,3/4/5,1), (4,5,1), (5,5,1), (6,3/4/5,1), (7,3/4/5,1); sing., zero, conv.
State × Age × Gender	8 × 6 × 2	35	28	Drop (*,5,1); conv.
State × Race (3 levels) × Hispanicity	8 × 3 × 2	14	0	Drop all; hier., sing., zero, conv.
State × Race (3 levels) × Gender	8 × 3 × 2	14	6	Coll. (*,2,1) & (*,3,1); conv. Drop (7,2/3,1); conv.
State × Hispanicity × Gender	8 × 2 × 2	7	7	All levels present.
<b>Total</b>		<b>347</b>	<b>235</b>	



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



**Table D.9a 2009 NSDUH Person Weight GEM Modeling Summary (Model Group 9: Pacific)**

Modeling Step <sup>1</sup>	Extreme Weight Proportions			UWE <sup>2</sup>	# XVAR <sup>3</sup>	Bounds <sup>4</sup>	
	% Unweighted	% Weighted	% Outwisor			Nominal	Realized
<i>res.sdu.nr</i>	1.24	0.47	0.02	1.38148	255	(1.09, 2.27)	(1.10, 2.27)
	2.13	1.93	0.19	1.41010	149	(1.00, 2.33)	(1.00, 2.29)
						(1.09, 1.28)	(1.09, 1.28)
<i>res.sdu.ps</i>	2.13	1.93	0.19	1.41014	197	(0.27, 1.40)	(0.27, 1.40)
	1.75	3.20	0.62	1.48897	184	(0.26, 4.91)	(0.27, 4.89)
						(0.54, 1.27)	(0.54, 1.25)
<i>sel.per.ps</i>	2.87	5.58	1.30	2.67764	287	(0.31, 1.96)	(0.31, 1.96)
	1.32	2.07	0.44	2.64143	257	(0.29, 3.55)	(0.29, 3.55)
						(0.41, 1.41)	(0.41, 1.40)
<i>res.per.nr</i>	1.39	2.42	0.49	2.68542	287	(1.00, 2.90)	(1.00, 2.90)
	1.24	3.58	0.91	3.09778	236	(1.00, 3.43)	(1.00, 3.40)
						(1.01, 1.97)	(1.01, 1.97)
<i>res.per.ps</i>	1.32	3.80	0.95	3.09778	227	(0.20, 2.13)	(0.20, 2.13)
	1.16	1.84	0.35	3.18382	182	(0.20, 3.37)	(0.20, 3.37)
						(0.30, 1.01)	(0.30, 1.01)

<sup>1</sup> For a key to modeling abbreviations, see Chapter 5, Exhibit 5.1.

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

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

<sup>4</sup> 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, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table D.9b Distribution of Weight Adjustment Factors and Weight Products for the 2009 NSDUH Person Weight (Model Group 9: Pacific)**

	<i>sel.sdu.des</i> <sup>1</sup>	<i>res.sdu.nr</i> <sup>1</sup>		<i>res.sdu.ps</i> <sup>1</sup>		<i>sel.per.des</i> <sup>1</sup>		<i>sel.per.ps</i> <sup>1</sup>		<i>res.per.nr</i> <sup>1</sup>		<i>res.per.ps</i> <sup>1</sup>	
	1-7 <sup>2</sup>	8 <sup>3</sup>	1-8 <sup>3</sup>	9 <sup>4</sup>	1-9 <sup>4</sup>	11 <sup>5</sup>	1-11 <sup>5</sup>	12 <sup>5</sup>	1-12 <sup>5</sup>	13 <sup>6</sup>	1-13 <sup>6</sup>	14 <sup>6</sup>	1-14 <sup>6</sup>
<b>Minimum</b>	54	1.00	59	0.19	33	1.01	42	0.20	25	0.60	29	0.10	6
<b>1%</b>	100	1.00	105	0.48	86	1.01	91	0.49	79	1.00	91	0.20	49
<b>5%</b>	106	1.04	115	0.76	119	1.01	149	0.70	142	1.03	172	0.21	147
<b>10%</b>	111	1.05	123	0.88	140	1.01	228	0.78	225	1.06	266	0.37	226
<b>25%</b>	200	1.08	272	1.01	333	1.18	898	0.89	884	1.11	1,086	0.92	801
<b>Median</b>	1,124	1.13	1,237	1.11	1,273	1.50	2,066	0.98	2,059	1.22	2,450	1.04	2,496
<b>75%</b>	1,325	1.21	1,586	1.23	1,799	5.34	5,390	1.10	5,475	1.38	5,598	1.19	5,388
<b>90%</b>	1,495	1.27	1,745	1.42	2,154	9.98	11,295	1.24	11,348	1.57	14,975	1.33	15,517
<b>95%</b>	1,526	1.36	1,863	1.59	2,420	11.67	17,052	1.35	16,600	1.73	22,007	1.42	22,165
<b>99%</b>	1,678	1.95	2,294	2.29	3,232	14.14	24,497	1.67	24,322	2.26	35,661	1.82	37,180
<b>Maximum</b>	3,197	9.95	4,795	4.89	8,745	21.55	52,367	3.55	44,580	3.66	91,620	3.37	72,822
<b>n</b>	16,724	14,381	14,381	14,380	14,380	9,493	9,493	9,493	9,493	7,405	7,405	7,405	7,405
<b>Max/Mean</b>	3.58	-	4.62	-	7.38	-	12.13	-	10.48	-	16.80	-	13.35

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 due to the built-in control for extreme values. For an explanation, see Chapter 2.

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

<sup>2</sup> Based on eligible dwelling units.

<sup>3</sup> Based on screener-complete dwelling units.

<sup>4</sup> Based on screener-complete dwelling units, occupants verified eligible.

<sup>5</sup> Based on selected persons.

<sup>6</sup> Based on questionnaire-complete persons.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

## **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 percent Owner-occupied  $\times$  percent Black or African American, 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, 44 were included in the model.

In the final model, a total of 149 variables were included; see Exhibit D9.1.

### **Dwelling Unit Poststratification**

All 18 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 73 proposed variables, 72 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, some State  $\times$  Age  $\times$  Race, some State  $\times$  Race  $\times$  Hispanicity, and some State  $\times$  Race  $\times$  Gender interactions. Out of 106 proposed variables, 94 were included in the model.

In the final model, a total of 184 variables was 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 percent Owner-occupied  $\times$  percent Black or African American, 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, 134 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  $\times$  Race  $\times$  Hispanicity, and State  $\times$  Race  $\times$  Gender interactions. Out of 106 proposed variables, 87 were included in the model.

In the final model, a total of 257 variables was 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 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  $\times$  Rent/housing interactions. Out of 145 proposed variables, 135 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, 65 were included in the model.

In the final model, a total of 236 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 only present in the Race  $\times$  Hispanicity and State  $\times$  Race interactions. Out of 81 proposed variables, 78 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 127 proposed variables, 85 were included in the model.

In the final model, a total of 182 variables were included; see Exhibit D9.5.

**Exhibit D9.1 Covariates for 2009 NSDUH Person Weights (res.sdu.nr), Model Group 9: Pacific**

Variables	Levels	Proposed	Final	Comments
<b>One-Factor Effects</b>		<b>23</b>	<b>23</b>	
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.
<b>Two-Factor Effects</b>		<b>104</b>	<b>82</b>	
% Owner-Occupied × % Black or African American	3 × 3	4	3	Drop (3,1); 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	6	Drop (1,1), (4,1); zero.
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	5	Drop (1,1), (2,1), (2,3), (3,3); zero. Drop (1,3), (2,2); sing. Drop (5,3); conv.
State × Group Quarter	5 × 3	8	3	Drop (1,1), (2,1), (2,2), (3,1), (3,2); zero.
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.
<b>Three-Factor Effects</b>		<b>128</b>	<b>44</b>	
State × % Owner-Occupied × % Black or African American	5 × 3 × 3	16	4	Drop (1,2,1), (1,3,1), (2,2,1), (2,2,2), (2,3,1), (3,2,1), (3,3,1), (5,3,1); zero.
State × % Owner-Occupied × % Hispanic	5 × 3 × 3	16	9	Drop (2,3,2), (3,2/3,2), (5,2,1); sing. Drop (1,2,1), (1,3,1), (2,2,1), (2,3,1); zero. Drop (3,2,1); sing. Coll. (1,2,2) & (1,3,2), (3,3,1) & (3,3,2); sing.
State × % Owner-Occupied × Rent/Housing	5 × 3 × 5	32	18	Drop (1,3,1), (2,3,2), (2,3,3), (3,2,4), (3,3,4); zero. Drop (1,2,4), (1,3,3/4), (2,2,4), (2,3,1), (2,3,4), (3,2,3), (3,3,2), (3,3,3); sing.
State × Rent/Housing × % Black or African American	5 × 3 × 5	32	4	Keep (5,* ,2). Drop remainder; zero, sing.
State × Rent/Housing × % Hispanic or Latino	5 × 3 × 5	32	9	Keep (1,2,2), (2,1,2), (2,2,2), (3,2,2), (5,* ,2). Coll. (3,1,1) & (3,1,2); sing. Drop remainder; zero, sing.
<b>Total</b>		<b>255</b>	<b>149</b>	

**Exhibit D9.2 Covariates for 2009 NSDUH Person Weights (res.sdu.ps), Model Group 9: Pacific**

Variables	Levels	Proposed	Final	Comments
<b>One-Factor Effects</b>		<b>18</b>	<b>18</b>	
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.
<b>Two-Factor Effects</b>		<b>73</b>	<b>72</b>	
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. (2,2) & (2,5); conv.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
<b>Three-Factor-Effects</b>		<b>106</b>	<b>94</b>	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1), repeat for all ages; 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); hier.
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. (2,2,1) & (2,3,1); hier. Coll. (1,2,1) & (1,3,1); conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	7	Coll. (2,2,1) & (2,3,1); hier.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
<b>Total</b>		<b>197</b>	<b>184</b>	

**Exhibit D9.3 Covariates for 2009 NSDUH Person Weights (sel.per.ps), Model Group 9: Pacific**

Variables	Levels	Proposed	Final	Comments
<b>One-Factor Effects</b>		<b>36</b>	<b>36</b>	
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.
<b>Two-Factor Effects</b>		<b>145</b>	<b>134</b>	
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. (3,1) & (3,2); 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	6	Coll. (1,1) & (1,2), (4,1) & (4,2); zero.
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	15	Coll. (2,2) & (2,5); 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	Coll. (1,1) & (1,2), (2,1) & (2,2), (3,1) & (3,2); zero. Coll. (5,1) & (5,2); 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.
<b>Three-Factor Effects</b>		<b>106</b>	<b>87</b>	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (4,2,1) & (4,3,1); zero. Coll. remaining ages; 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	24	Coll. (2,2,2) & (2,2,3), (2,3,2) & (2,3,3), (2,4,2) & (2,4,3); zero. Coll. (1,4,2) & (1,4,3), (3,1,2) & (3,1,3), (3,2,2) & (3,2,3), (3,3,2) & (3,3,3), (3,4,2) & (3,4,3); 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	4	Coll. (1,2,1) & (1,3,1), (2,2,1) & (2,3,1); zero. Coll. (3,2,1) & (3,3,1); sing. Coll. (5,2,1) & (5,3,1); conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	6	Coll. (2,2,1) & (2,3,1); zero. Coll. (3,2,1) & (3,3,1); sing.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
<b>Total</b>		<b>287</b>	<b>257</b>	

**Exhibit D9.4 Covariates for 2009 NSDUH Person Weights (res.per.nr), Model Group 9: Pacific**

Variables	Levels	Proposed	Final	Comments
<b>One-Factor Effects</b>		<b>36</b>	<b>36</b>	
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.
<b>Two-Factor Effects</b>		<b>145</b>	<b>135</b>	
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	Drop (3,1); 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	6	Drop (1,1), (4,1); zero.
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.
<b>Three-Factor Effects</b>		<b>106</b>	<b>65</b>	
Age × 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.
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	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	5 × 5 × 3	32	9	Coll. (1,1,2) & (1,1,3), repeat for all States and all ages; zero, sing., conv. Drop (1,4,2/3), (2,4,2/3), (3,1,2/3), (3,2,2/3), (3,3,2/3), (3,4,2/3), (5,4,2/3); conv.
State × Age × Hispanicity	5 × 5 × 2	16	15	Drop (3,4,1); conv.
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 (1,2/3,1), repeat for all States; conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	3	Coll. (1,2,1) & (1,3,1), repeat for all States; zero, conv. Drop (1,2/3,1); conv.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
<b>Total</b>		<b>287</b>	<b>257</b>	

**Exhibit D9.5 Covariates for 2009 NSDUH Person Weights (res.per.ps), Model Group 9: Pacific**

Variables	Levels	Proposed	Final	Comments
<b>One-Factor Effects</b>		<b>19</b>	<b>19</b>	
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.
<b>Two-Factor Effects</b>		<b>81</b>	<b>78</b>	
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. (2,2) & (2,5); zero. Coll. (5,3) & (5,4); conv.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
<b>Three-Factor Effects</b>		<b>127</b>	<b>85</b>	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	4	Coll. (1,2,1) & (1,3,1), repeat for all ages; hier. Coll. (3,2/3,1) & (4,2/3,1); conv.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	5	Coll. (1,2,1) & (1,3,1), repeat for all ages; 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); hier.
State × Age × Race (3 levels)	5 × 6 × 3	40	19	Drop (3,5,2), (3,5,3); sing. Coll. (1,1,2) & (1,1,3), repeat for all ages in States (1), (3), and (5); conv. Coll. (2,1,2) & (2,1,3), repeat for all ages; zero, hier. Drop (2,5,1), (3,5,1); sing.
State × Age × Hispanicity	5 × 6 × 2	20	18	All levels present.
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	5	Coll. (1,2,1) & (1,3,1), (2,2,1) & (2,3,1), (3,2,1) & (3,3,1); conv.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
<b>Total</b>		<b>227</b>	<b>182</b>	



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



**Table E.1 2009 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 <sup>1</sup>	Weight 1-12 <sup>2</sup>
United States	195,132	161,321	143,565	82.73%	88.77%	85,429	68,700	75.68%	75.62%
Alabama	2,831	2,286	2,128	80.27%	92.98%	1,174	944	78.44%	77.61%
Alaska	2,303	1,768	1,631	76.43%	92.08%	1,110	902	79.33%	79.12%
Arizona	2,723	2,050	1,778	75.74%	82.93%	1,110	916	79.47%	79.60%
Arkansas	2,574	2,104	1,965	81.51%	93.31%	1,133	914	77.30%	78.06%
California	8,934	7,761	6,499	86.08%	83.86%	4,734	3,660	71.83%	72.25%
Colorado	2,727	2,272	2,088	82.80%	92.12%	1,195	984	77.36%	76.67%
Connecticut	2,331	2,061	1,805	88.30%	87.50%	1,147	915	76.43%	75.94%
Delaware	2,595	2,135	1,862	82.38%	87.26%	1,129	920	73.59%	75.25%
District of Columbia	4,322	3,511	2,851	81.56%	80.59%	1,042	886	83.69%	84.13%
Florida	11,388	8,721	8,040	75.19%	91.93%	4,407	3,648	76.74%	76.42%
Georgia	2,295	1,864	1,716	80.74%	91.79%	1,082	907	78.24%	78.00%
Hawaii	3,209	2,718	2,154	81.82%	76.85%	1,321	960	67.00%	67.64%
Idaho	2,252	1,765	1,671	76.85%	94.66%	1,119	916	77.15%	76.66%
Illinois	10,108	8,781	7,097	86.92%	80.81%	4,786	3,655	71.70%	71.91%
Indiana	2,719	2,226	2,087	82.34%	93.64%	1,119	904	79.31%	78.18%
Iowa	2,567	2,203	2,049	85.68%	93.14%	1,099	924	81.80%	82.01%
Kansas	2,364	2,053	1,906	87.16%	92.80%	1,132	909	76.12%	76.49%
Kentucky	2,411	1,946	1,828	80.55%	93.94%	1,118	912	76.64%	77.15%
Louisiana	2,615	2,125	1,993	81.02%	93.91%	1,143	923	78.89%	77.75%
Maine	3,209	2,339	2,150	69.58%	92.05%	1,132	964	82.64%	83.08%
Maryland	2,231	1,911	1,581	83.03%	82.74%	1,050	887	80.27%	80.97%
Massachusetts	3,277	2,813	2,385	85.71%	84.82%	1,239	969	73.77%	73.00%
Michigan	10,360	8,303	7,345	79.42%	88.44%	4,530	3,639	76.86%	76.46%
Minnesota	2,334	1,984	1,854	84.07%	93.46%	1,132	925	77.67%	77.78%
Mississippi	2,084	1,619	1,527	77.17%	94.27%	1,090	891	77.67%	77.61%

(continued)

**Table E.1 2009 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 <sup>1</sup>	Weight 1-12 <sup>2</sup>
Missouri	2,529	2,077	1,933	81.79%	93.09%	1,112	889	75.54%	75.38%
Montana	2,513	2,148	2,026	85.47%	94.20%	1,119	909	75.98%	75.92%
Nebraska	2,274	1,940	1,830	84.64%	94.35%	1,125	911	78.61%	78.82%
Nevada	2,605	2,063	1,941	79.56%	94.25%	1,149	930	72.30%	72.80%
New Hampshire	2,786	2,255	2,004	78.71%	88.82%	1,190	944	74.46%	74.80%
New Jersey	2,317	1,990	1,766	85.23%	88.80%	1,172	906	72.36%	71.72%
New Mexico	2,548	2,032	1,916	79.87%	94.26%	1,115	918	77.27%	77.42%
New York	13,014	10,782	8,289	82.19%	76.73%	5,021	3,707	70.67%	71.18%
North Carolina	2,517	2,090	1,919	83.37%	91.91%	1,112	929	79.41%	79.65%
North Dakota	2,919	2,427	2,290	83.07%	94.35%	1,149	929	76.67%	77.02%
Ohio	9,800	8,405	7,847	85.77%	93.27%	4,392	3,585	74.92%	75.06%
Oklahoma	2,648	2,142	1,964	80.93%	91.82%	1,124	908	74.49%	73.65%
Oregon	2,802	2,379	2,184	84.99%	91.95%	1,170	947	79.93%	79.12%
Pennsylvania	9,705	8,305	7,205	85.86%	86.72%	4,391	3,557	75.72%	75.23%
Rhode Island	2,779	2,343	2,061	84.49%	87.87%	1,155	913	76.51%	75.81%
South Carolina	3,097	2,362	2,145	72.51%	90.20%	1,153	954	76.22%	76.43%
South Dakota	2,417	2,030	1,942	83.99%	95.66%	1,088	920	81.15%	80.35%
Tennessee	3,023	2,465	2,298	81.70%	93.13%	1,172	949	73.45%	72.80%
Texas	8,652	7,178	6,591	83.26%	91.91%	4,388	3,596	77.65%	77.48%
Utah	1,539	1,376	1,306	89.42%	94.90%	1,101	918	80.38%	80.46%
Vermont	2,779	2,062	1,908	73.25%	92.57%	1,056	897	79.32%	79.69%
Virginia	2,499	2,171	1,924	86.77%	88.59%	1,125	918	77.07%	77.00%
Washington	2,359	2,098	1,913	88.66%	91.14%	1,158	936	77.01%	76.92%
West Virginia	3,116	2,520	2,288	80.93%	90.81%	1,118	890	73.90%	73.93%
Wisconsin	2,732	2,341	2,180	85.96%	93.19%	1,163	943	76.66%	76.64%
Wyoming	2,400	2,021	1,905	84.23%	94.26%	1,138	923	78.67%	79.40%

<sup>1</sup> Includes DU-level and person-level design weights, DU nonresponse adjustment, and DU poststratification adjustment.

<sup>2</sup> Includes a selected person poststratification weight.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009

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



**Table F.1 2009 NSDUH Dwelling Unit–Level Percentages of Extreme Weights and Outwinsors: United States, District of Columbia, and the 50 States**

Domain	n	Before nr <sup>1</sup> (Weight1*…*Weight7)			After nr <sup>1</sup> & Before ps <sup>2</sup> (Weight1*…*Weight8)			After ps <sup>2</sup> (Weight1*…*Weight9)		
		% Unweighted	% Weighted <sup>3</sup>	% Outwinsor <sup>4</sup>	% Unweighted	% Weighted <sup>3</sup>	% Outwinsor <sup>4</sup>	% Unweighted	% Weighted <sup>3</sup>	% Outwinsor <sup>4</sup>
United States	143,565	3.00%	3.45%	0.39%	2.21%	2.74%	0.26%	1.86%	2.93%	0.70%
Alabama	2,128	2.49%	4.01%	0.29%	2.07%	3.65%	0.41%	1.79%	2.83%	0.52%
Alaska	1,631	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.53%	4.14%	0.93%
Arizona	1,778	8.77%	11.49%	2.04%	3.77%	7.44%	1.50%	0.28%	0.60%	0.06%
Arkansas	1,965	4.02%	4.21%	0.26%	0.56%	0.47%	0.00%	1.63%	1.45%	0.27%
California	6,499	0.08%	0.01%	0.04%	1.00%	1.21%	0.10%	1.54%	2.79%	0.59%
Colorado	2,088	5.32%	4.47%	0.37%	0.00%	0.00%	0.00%	2.59%	4.21%	0.62%
Connecticut	1,805	0.00%	0.00%	0.00%	0.44%	0.80%	0.07%	1.72%	3.53%	1.18%
Delaware	1,862	0.05%	0.04%	0.00%	1.61%	1.93%	0.20%	4.46%	4.96%	1.01%
District of Columbia	2,851	7.19%	8.72%	0.89%	3.19%	4.31%	0.49%	1.61%	3.64%	0.59%
Florida	8,040	5.06%	7.83%	2.08%	2.38%	2.78%	0.17%	0.83%	1.42%	0.21%
Georgia	1,716	0.17%	0.06%	0.02%	0.00%	0.00%	0.00%	0.64%	1.36%	0.15%
Hawaii	2,154	6.73%	10.41%	0.41%	7.94%	16.48%	2.69%	1.39%	4.68%	1.21%
Idaho	1,671	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.44%	2.23%	0.35%
Illinois	7,097	2.04%	1.81%	0.11%	3.09%	3.09%	0.13%	3.20%	3.81%	0.90%
Indiana	2,087	8.91%	12.27%	0.88%	5.22%	7.17%	0.73%	2.11%	4.38%	1.30%
Iowa	2,049	0.00%	0.00%	0.00%	0.20%	0.29%	0.03%	2.05%	4.91%	1.72%
Kansas	1,906	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.63%	1.48%	0.50%
Kentucky	1,828	14.99%	17.53%	1.21%	8.53%	10.19%	0.63%	2.52%	2.19%	0.39%
Louisiana	1,993	16.76%	20.56%	1.81%	12.49%	14.99%	1.58%	1.10%	2.57%	0.47%
Maine	2,150	0.56%	1.41%	0.38%	0.56%	1.00%	0.10%	9.12%	4.44%	2.71%
Maryland	1,581	0.70%	1.33%	0.14%	2.02%	1.75%	0.12%	2.09%	3.39%	0.23%
Massachusetts	2,385	0.04%	0.02%	0.01%	2.10%	2.44%	0.48%	2.64%	6.79%	2.15%
Michigan	7,345	4.22%	3.26%	0.42%	2.06%	1.87%	0.17%	0.44%	0.54%	0.11%
Minnesota	1,854	9.06%	8.47%	1.18%	0.86%	1.01%	0.05%	1.78%	2.58%	0.58%
Mississippi	1,527	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.05%	3.04%	0.88%

(continued)

**Table F.1 2009 NSDUH Dwelling Unit–Level Percentages of Extreme Weights and Outwinsors: United States, District of Columbia, and the 50 States (continued)**

Domain	n	Before nr <sup>1</sup> (Weight1*…*Weight7)			After nr <sup>1</sup> & Before ps <sup>2</sup> (Weight1*…*Weight8)			After ps <sup>2</sup> (Weight1*…*Weight9)		
		% Unweighted	% Weighted <sup>3</sup>	% Outwinsor <sup>4</sup>	% Unweighted	% Weighted <sup>3</sup>	% Outwinsor <sup>4</sup>	% Unweighted	% Weighted <sup>3</sup>	% Outwinsor <sup>4</sup>
Missouri	1,933	2.33%	2.03%	0.11%	0.00%	0.00%	0.00%	0.62%	1.16%	0.08%
Montana	2,026	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.89%	1.98%	0.46%
Nebraska	1,830	10.93%	13.79%	0.76%	4.15%	5.18%	0.28%	3.06%	6.49%	2.26%
Nevada	1,941	2.73%	7.67%	1.46%	2.73%	7.35%	1.23%	2.22%	5.63%	1.25%
New Hampshire	2,004	6.59%	7.64%	0.47%	6.64%	7.72%	0.47%	2.25%	2.49%	0.83%
New Jersey	1,766	6.68%	7.08%	0.42%	2.94%	3.35%	0.17%	2.60%	3.98%	1.40%
New Mexico	1,916	0.00%	0.00%	0.00%	0.68%	1.04%	0.00%	1.62%	4.11%	0.85%
New York	8,289	0.11%	0.13%	0.01%	2.63%	3.68%	0.35%	1.63%	4.12%	1.31%
North Carolina	1,919	3.44%	4.06%	0.17%	3.86%	4.46%	0.25%	2.55%	2.59%	0.55%
North Dakota	2,290	1.62%	1.84%	0.08%	0.00%	0.00%	0.00%	3.93%	4.83%	0.99%
Ohio	7,847	0.10%	0.01%	0.06%	2.14%	2.64%	0.26%	1.12%	1.80%	0.28%
Oklahoma	1,964	0.00%	0.00%	0.00%	0.97%	0.81%	0.08%	0.97%	1.78%	0.52%
Oregon	2,184	0.23%	0.12%	0.03%	0.00%	0.00%	0.00%	0.96%	1.70%	0.21%
Pennsylvania	7,205	10.12%	11.02%	0.64%	5.45%	6.03%	0.52%	1.21%	2.14%	0.58%
Rhode Island	2,061	2.33%	1.68%	0.29%	0.15%	0.49%	0.29%	1.31%	3.21%	0.51%
South Carolina	2,145	0.28%	0.44%	0.17%	1.03%	2.04%	0.27%	1.12%	2.19%	0.19%
South Dakota	1,942	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.11%	3.12%	1.40%
Tennessee	2,298	0.13%	0.05%	0.02%	0.00%	0.00%	0.00%	2.57%	4.42%	0.98%
Texas	6,591	0.46%	0.36%	0.07%	0.82%	0.92%	0.05%	2.14%	3.66%	0.90%
Utah	1,306	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.36%	6.30%	1.89%
Vermont	1,908	0.94%	1.52%	0.17%	0.00%	0.00%	0.00%	1.26%	1.69%	0.35%
Virginia	1,924	0.16%	0.03%	0.05%	1.35%	1.40%	0.10%	2.34%	2.89%	0.48%
Washington	1,913	1.25%	1.33%	0.03%	3.66%	4.19%	0.43%	3.97%	5.71%	1.32%
West Virginia	2,288	5.68%	7.10%	0.66%	5.55%	6.77%	0.55%	1.84%	2.36%	0.38%
Wisconsin	2,180	0.55%	0.85%	0.05%	0.00%	0.00%	0.00%	0.50%	0.70%	0.13%
Wyoming	1,905	1.26%	1.86%	0.13%	0.00%	0.00%	0.00%	2.73%	2.07%	0.49%

<sup>1</sup> nr = nonresponse adjustment.

<sup>2</sup> ps = poststratification adjustment.

<sup>3</sup> 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.

<sup>4</sup> Outwinsor 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, Office of Applied Studies, National Survey on Drug Use and Health, 2009

## **Appendix G: Evaluation of Calibration Weights: Person-Level Percentages of Extreme Weights and Outwinsors**



**Table G.1 2009 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 <sup>1</sup> (Weight1*...*Weight11)			After sel.per.ps <sup>1</sup> (Weight1*...*Weight12)		
		% Unweighted	% Weighted <sup>2</sup>	% Outwinor <sup>3</sup>	% Unweighted	% Weighted <sup>2</sup>	% Outwinor <sup>3</sup>
United States	85,429	3.20%	5.97%	1.54%	1.77%	3.85%	0.88%
Alabama	1,174	2.30%	3.83%	0.72%	2.64%	7.75%	2.22%
Alaska	1,110	2.34%	5.02%	1.32%	1.17%	1.81%	0.21%
Arizona	1,110	1.98%	12.34%	2.61%	0.45%	1.35%	0.20%
Arkansas	1,133	3.09%	2.64%	0.49%	2.03%	3.90%	0.56%
California	4,734	2.09%	5.53%	1.31%	1.04%	1.86%	0.44%
Colorado	1,195	3.85%	8.58%	1.57%	2.18%	5.00%	1.03%
Connecticut	1,147	2.70%	5.41%	1.27%	1.92%	9.10%	2.87%
Delaware	1,129	2.21%	3.69%	0.93%	1.51%	5.29%	1.66%
District of Columbia	1,042	2.50%	3.83%	0.95%	2.02%	3.73%	0.85%
Florida	4,407	1.45%	3.17%	0.64%	0.82%	1.32%	0.21%
Georgia	1,082	1.11%	1.78%	0.17%	1.29%	2.10%	0.21%
Hawaii	1,321	3.41%	11.58%	2.42%	2.35%	6.55%	0.80%
Idaho	1,119	2.86%	5.72%	1.63%	1.25%	2.45%	0.26%
Illinois	4,786	3.99%	7.96%	1.75%	1.38%	3.11%	0.53%
Indiana	1,119	4.92%	11.21%	2.86%	2.06%	3.53%	0.82%
Iowa	1,099	5.46%	9.38%	3.11%	3.18%	6.83%	1.42%
Kansas	1,132	2.92%	4.00%	0.82%	1.86%	4.66%	0.96%
Kentucky	1,118	4.11%	5.44%	1.13%	2.33%	2.96%	0.63%
Louisiana	1,143	2.89%	5.55%	1.03%	1.92%	4.25%	0.98%
Maine	1,132	12.72%	10.71%	4.96%	5.57%	9.19%	3.08%
Maryland	1,050	3.43%	7.51%	1.19%	3.24%	9.00%	1.25%
Massachusetts	1,239	4.36%	8.57%	2.48%	5.33%	11.64%	3.98%
Michigan	4,530	2.03%	3.04%	0.54%	1.92%	4.01%	0.64%
Minnesota	1,132	4.59%	6.92%	1.84%	2.30%	2.55%	0.67%
Mississippi	1,090	3.39%	5.92%	1.50%	1.47%	4.44%	1.03%

(continued)

**Table G.1 2009 NSDUH Selected Person-Level Percentages of Extreme Weights and Outwinors: United States, District of Columbia, and the 50 States (continued)**

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Domain	n	Before sel.per.ps <sup>1</sup> (Weight1*...*Weight11)			After sel.per.ps <sup>1</sup> (Weight1*...*Weight12)		
		% Unweighted	% Weighted <sup>2</sup>	% Outwinor <sup>3</sup>	% Unweighted	% Weighted <sup>2</sup>	% Outwinor <sup>3</sup>
Missouri	1,112	1.53%	2.89%	0.45%	1.08%	4.59%	0.94%
Montana	1,119	1.97%	4.29%	0.73%	1.16%	3.00%	1.05%
Nebraska	1,125	5.78%	9.21%	2.66%	2.04%	6.12%	2.43%
Nevada	1,149	3.22%	7.65%	1.68%	2.18%	7.26%	1.14%
New Hampshire	1,190	3.95%	4.62%	1.58%	2.02%	3.22%	1.16%
New Jersey	1,172	3.07%	7.02%	2.12%	2.13%	6.86%	1.15%
New Mexico	1,115	3.05%	7.04%	2.37%	2.33%	5.13%	1.06%
New York	5,021	3.27%	7.28%	2.23%	2.19%	4.74%	1.27%
North Carolina	1,112	3.24%	4.66%	0.55%	2.07%	4.91%	0.90%
North Dakota	1,149	4.61%	4.77%	1.24%	1.04%	2.34%	0.33%
Ohio	4,392	2.91%	3.83%	0.76%	0.89%	0.96%	0.10%
Oklahoma	1,124	1.69%	4.61%	1.66%	1.25%	4.38%	0.73%
Oregon	1,170	4.19%	5.87%	1.09%	1.03%	2.61%	0.33%
Pennsylvania	4,391	3.44%	6.65%	2.19%	1.62%	3.51%	0.97%
Rhode Island	1,155	2.08%	4.70%	0.76%	2.34%	6.17%	2.16%
South Carolina	1,153	1.39%	1.74%	0.12%	1.65%	6.07%	0.74%
South Dakota	1,088	4.14%	6.27%	2.20%	1.29%	4.05%	0.67%
Tennessee	1,172	1.88%	3.11%	0.59%	1.45%	2.20%	0.56%
Texas	4,388	3.97%	9.92%	3.59%	1.80%	4.03%	1.06%
Utah	1,101	6.72%	11.26%	3.41%	2.36%	4.05%	1.24%
Vermont	1,056	3.41%	4.93%	1.50%	1.23%	1.42%	0.31%
Virginia	1,125	1.60%	2.78%	0.31%	1.60%	3.35%	0.93%
Washington	1,158	3.20%	4.36%	1.19%	1.81%	3.50%	0.86%
West Virginia	1,118	4.74%	5.97%	1.68%	1.25%	2.26%	0.39%
Wisconsin	1,163	2.32%	2.70%	0.72%	1.98%	3.80%	0.91%
Wyoming	1,138	2.11%	3.14%	0.54%	1.93%	3.30%	1.25%

<sup>1</sup> 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.

<sup>2</sup> Weighted extreme value percentage =  $100 * \sum_k w_{ek} / \sum_k w_k$ , where  $w_{ek}$  denotes the weight for extreme weights and  $w_k$  denotes the weight for both extreme weights and nonextreme weights.

<sup>3</sup> Outwinor weight percentage =  $100 * \sum_k (w_{ek} - b_k) / \sum_k w_k$ , where  $b_k$  denotes the cutoff point for defining the extreme weight.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table G.2 2009 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 <sup>1</sup> (Weight1*...*Weight12)			After res.per.nr <sup>1</sup> (Weight1*...*Weight13)			Before res.per.ps <sup>2</sup> (Weight1*...*Weight13)			After res.per.ps <sup>2</sup> (Weight1*...*Weight14)		
		% Unweighted	% Weighted <sup>3</sup>	% Outwinsor <sup>4</sup>	% Unweighted	% Weighted <sup>3</sup>	% Outwinsor <sup>4</sup>	% Unweighted	% Weighted <sup>3</sup>	% Outwinsor <sup>4</sup>	% Unweighted	% Weighted <sup>3</sup>	% Outwinsor <sup>4</sup>
United States	68,700	1.80%	4.00%	0.90%	1.67%	4.41%	0.91%	1.74%	4.56%	0.98%	1.27%	3.49%	0.77%
Alabama	944	2.97%	8.44%	2.24%	2.75%	7.20%	1.82%	2.75%	7.20%	1.78%	1.59%	5.77%	0.69%
Alaska	902	1.44%	2.59%	0.28%	0.22%	0.28%	0.04%	0.33%	0.45%	0.08%	1.33%	4.22%	0.83%
Arizona	916	0.44%	1.51%	0.18%	0.87%	2.95%	0.25%	0.87%	2.95%	0.24%	0.87%	3.66%	0.50%
Arkansas	914	1.64%	3.99%	0.62%	1.09%	1.82%	0.33%	1.31%	2.87%	0.35%	0.44%	1.41%	0.13%
California	3,660	1.04%	2.29%	0.46%	0.90%	3.12%	0.69%	1.01%	3.42%	0.71%	0.16%	0.48%	0.05%
Colorado	984	2.13%	4.72%	1.08%	3.15%	8.14%	2.17%	3.05%	8.03%	2.20%	2.44%	6.53%	1.54%
Connecticut	915	1.75%	9.25%	3.07%	2.19%	11.74%	2.76%	2.30%	11.85%	2.69%	2.30%	10.97%	3.61%
Delaware	920	1.74%	6.65%	2.01%	0.87%	4.40%	0.72%	0.98%	4.81%	0.74%	0.87%	8.96%	1.64%
District of Columbia	886	2.60%	5.85%	1.05%	1.81%	2.07%	0.30%	1.92%	2.31%	0.39%	2.71%	5.46%	0.99%
Florida	3,648	0.90%	1.64%	0.26%	0.96%	2.02%	0.29%	1.01%	2.26%	0.40%	0.19%	0.26%	0.02%
Georgia	907	1.32%	2.91%	0.20%	2.09%	6.22%	0.84%	2.09%	5.99%	1.15%	0.55%	2.19%	0.07%
Hawaii	960	2.81%	8.00%	0.97%	2.50%	10.76%	1.70%	2.50%	11.16%	2.01%	3.44%	12.31%	1.81%
Idaho	916	0.98%	1.14%	0.23%	1.75%	6.68%	1.05%	1.75%	6.68%	1.08%	0.87%	2.74%	0.19%
Illinois	3,655	1.29%	3.06%	0.62%	1.09%	2.63%	0.35%	1.23%	2.95%	0.44%	1.01%	2.78%	0.43%
Indiana	904	2.65%	4.27%	0.94%	1.44%	3.97%	0.73%	1.55%	4.09%	0.90%	1.33%	2.91%	0.47%
Iowa	924	3.25%	6.85%	1.52%	1.95%	4.63%	1.01%	1.95%	4.63%	1.01%	2.27%	4.77%	1.52%
Kansas	909	1.32%	3.69%	0.76%	2.53%	8.14%	2.52%	2.42%	7.25%	2.52%	1.54%	4.21%	0.84%
Kentucky	912	2.74%	4.27%	0.83%	1.86%	2.94%	1.00%	1.97%	3.09%	1.07%	1.32%	1.68%	0.45%
Louisiana	923	1.84%	3.33%	0.61%	2.28%	4.62%	0.44%	2.06%	4.44%	0.36%	1.08%	2.47%	0.17%
Maine	964	5.60%	9.75%	3.17%	2.80%	5.47%	1.46%	3.01%	5.30%	1.42%	3.22%	3.41%	1.01%
Maryland	887	3.27%	8.17%	0.98%	3.04%	7.70%	1.29%	3.27%	8.49%	1.69%	3.38%	9.74%	4.37%
Massachusetts	969	5.57%	12.42%	3.96%	4.85%	11.52%	3.55%	5.16%	12.46%	3.52%	2.89%	8.19%	2.36%
Michigan	3,639	1.95%	3.89%	0.52%	1.90%	5.15%	0.97%	2.14%	5.51%	1.11%	1.46%	3.03%	0.66%
Minnesota	925	2.27%	2.51%	0.72%	4.32%	6.23%	1.25%	4.32%	6.20%	1.23%	2.49%	3.53%	0.92%
Mississippi	891	1.01%	2.37%	0.47%	1.01%	3.35%	0.92%	1.12%	3.52%	1.00%	0.79%	1.59%	0.14%

(continued)

**Table G.2 2009 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 <sup>1</sup> (Weight1*...*Weight12)			After res.per.nr <sup>1</sup> (Weight1*...*Weight13)			Before res.per.ps <sup>2</sup> (Weight1*...*Weight13)			After res.per.ps <sup>2</sup> (Weight1*...*Weight14)		
		% Unweighted	% Weighted <sup>3</sup>	% Outwinsor <sup>4</sup>	% Unweighted	% Weighted <sup>3</sup>	% Outwinsor <sup>4</sup>	% Unweighted	% Weighted <sup>3</sup>	% Outwinsor <sup>4</sup>	% Unweighted	% Weighted <sup>3</sup>	% Outwinsor <sup>4</sup>
Missouri	889	1.12%	5.46%	1.14%	1.24%	4.73%	0.51%	1.24%	4.73%	0.61%	0.67%	2.75%	0.38%
Montana	909	1.21%	2.89%	1.06%	1.32%	2.78%	0.88%	1.32%	2.78%	0.89%	0.33%	0.62%	0.10%
Nebraska	911	1.87%	6.33%	2.53%	2.31%	6.73%	2.53%	2.41%	7.36%	2.85%	2.85%	12.52%	3.72%
Nevada	930	2.47%	10.14%	1.77%	3.23%	8.44%	2.55%	3.44%	10.36%	2.57%	0.97%	4.53%	1.18%
New Hampshire	944	2.86%	3.60%	1.30%	2.01%	3.67%	1.17%	2.12%	4.03%	1.16%	2.44%	5.89%	1.02%
New Jersey	906	2.21%	6.99%	1.50%	1.55%	5.24%	0.67%	1.66%	5.40%	0.67%	0.77%	3.60%	0.45%
New Mexico	918	2.61%	6.00%	1.39%	1.96%	8.90%	1.48%	1.96%	8.90%	1.40%	1.53%	7.05%	1.45%
New York	3,707	2.24%	4.99%	1.46%	1.65%	3.39%	0.62%	1.78%	3.89%	0.78%	1.67%	5.86%	1.36%
North Carolina	929	1.83%	2.92%	0.61%	1.51%	3.24%	0.23%	1.29%	2.32%	0.21%	0.86%	4.29%	0.49%
North Dakota	929	0.97%	1.78%	0.19%	2.37%	4.50%	1.18%	2.26%	4.40%	1.14%	2.80%	5.73%	2.11%
Ohio	3,585	0.92%	1.00%	0.10%	1.17%	1.74%	0.24%	1.17%	1.55%	0.26%	0.89%	3.11%	0.65%
Oklahoma	908	1.10%	4.12%	0.62%	0.77%	3.27%	0.19%	0.77%	3.27%	0.17%	0.44%	4.02%	0.65%
Oregon	947	1.37%	2.75%	0.39%	0.84%	3.03%	1.35%	0.84%	3.03%	1.35%	1.69%	5.53%	1.12%
Pennsylvania	3,557	1.60%	3.44%	0.96%	1.24%	3.17%	0.75%	1.24%	3.14%	0.80%	0.82%	1.73%	0.16%
Rhode Island	913	2.08%	6.55%	2.43%	2.63%	10.85%	2.98%	2.52%	10.41%	3.04%	2.74%	11.32%	3.77%
South Carolina	954	1.78%	7.14%	0.71%	0.84%	3.20%	0.42%	0.94%	3.41%	0.51%	0.73%	3.05%	0.23%
South Dakota	920	0.98%	3.81%	0.78%	1.63%	7.90%	1.95%	1.85%	8.53%	2.03%	0.65%	2.27%	0.53%
Tennessee	949	1.69%	2.96%	0.76%	1.90%	6.13%	1.35%	1.79%	6.04%	1.35%	1.16%	1.93%	0.40%
Texas	3,596	1.92%	4.45%	1.16%	1.97%	4.90%	0.98%	2.09%	5.23%	1.08%	1.25%	4.31%	0.97%
Utah	918	1.74%	2.98%	0.89%	1.96%	5.16%	1.51%	1.96%	5.16%	1.53%	1.20%	2.48%	0.53%
Vermont	897	1.34%	1.64%	0.32%	0.45%	0.73%	0.15%	0.45%	0.73%	0.15%	0.22%	0.47%	0.02%
Virginia	918	1.63%	3.63%	0.82%	1.09%	4.36%	0.79%	1.20%	3.90%	0.74%	1.09%	4.38%	1.24%
Washington	936	1.60%	3.03%	0.79%	1.71%	5.28%	1.82%	1.60%	4.91%	1.98%	1.50%	4.67%	1.26%
West Virginia	890	1.35%	2.87%	0.55%	0.56%	0.90%	0.23%	0.56%	0.90%	0.20%	0.90%	2.13%	0.45%
Wisconsin	943	1.91%	2.80%	0.62%	1.59%	3.61%	0.73%	1.80%	4.41%	0.98%	0.74%	2.51%	0.81%
Wyoming	923	2.17%	4.11%	1.43%	2.06%	4.64%	1.00%	2.17%	4.73%	1.00%	1.08%	3.58%	1.09%

<sup>1</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> Weighted outlier percentage =  $100 * \sum_k w_{ok} / \sum_k w_k$ , where  $w_{ok}$  denotes the weight for outliers and  $w_k$  denotes the weight for both outliers and nonoutliers.

<sup>4</sup> Outwinsor weight percentage =  $100 * \sum_k (w_{ok} - b_k) / \sum_k w_k$ , where  $b_k$  denotes the cutoff point for defining the extreme weight.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

## **Appendix H: Evaluation of Calibration Weights: Slippage Rates**



**Table H.1 2009 NSDUH Slippage Rates: UNITED STATES**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		68,700	251,815,533	251,815,533	251,815,533	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	16,958	62,755,651	62,755,651	62,755,651	0.00	0.00
	<b>Quarter 2</b>	17,907	62,876,653	62,876,653	62,876,653	0.00	0.00
	<b>Quarter 3</b>	17,220	63,022,952	63,022,952	63,022,952	0.00	0.00
	<b>Quarter 4</b>	16,615	63,160,277	63,160,277	63,160,277	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	22,626	24,633,556	24,608,987	24,608,987	0.10	0.00
	<b>18-25</b>	23,004	33,422,238	33,579,988	33,579,988	-0.47	0.00
	<b>26-34</b>	6,624	36,406,416	36,214,628	36,214,628	0.53	0.00
	<b>35-49</b>	9,696	63,078,967	63,166,074	63,166,074	-0.14	-0.00
	<b>50-64</b>	4,161	58,850,624	56,272,026	56,272,026	4.58	0.00
	<b>65+</b>	2,589	35,423,732	37,973,830	37,973,830	-6.72	0.00
<b>Race</b>	<b>White</b>	51,292	193,777,981	203,021,394	203,021,394	-4.55	-0.00
	<b>Black or African American</b>	8,839	31,222,036	30,793,468	30,793,468	1.39	0.00
	<b>Other</b>	8,569	26,815,516	18,000,671	18,000,671	48.97	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	10,777	36,752,815	35,945,659	35,945,659	2.25	0.00
	<b>Non-Hispanic or Latino</b>	57,923	215,062,718	215,869,873	215,869,873	-0.37	0.00
<b>Gender</b>	<b>Male</b>	33,275	122,255,154	122,291,138	122,291,138	-0.03	0.00
	<b>Female</b>	35,425	129,560,379	129,524,394	129,524,395	0.03	-0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.2 2009 NSDUH Slippage Rates: ALABAMA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		944	3,876,035	3,876,035	3,876,035	0.00	-0.00
<b>Quarter</b>	<b>Quarter 1</b>	209	966,682	966,682	966,682	0.00	-0.00
	<b>Quarter 2</b>	276	967,974	967,974	967,974	0.00	-0.00
	<b>Quarter 3</b>	240	969,785	969,785	969,785	-0.00	-0.00
	<b>Quarter 4</b>	219	971,593	971,593	971,593	0.00	-0.00
<b>Age Group</b>	<b>12-17</b>	326	377,817	377,817	377,817	-0.00	-0.00
	<b>18-25</b>	279	506,464	510,045	510,045	-0.70	-0.00
	<b>26-34</b>	90	540,848	538,939	538,939	0.35	0.00
	<b>35-49</b>	134	926,564	934,813	934,813	-0.88	-0.00
	<b>50-64</b>	57	746,620	887,958	887,958	-15.92	0.00
	<b>65+</b>	58	777,722	626,463	626,463	24.14	-0.00
<b>Race</b>	<b>White</b>	658	2,743,336	2,796,167	2,796,167	-1.89	0.00
	<b>Black or African American</b>	247	989,439	983,658	983,658	0.59	0.00
	<b>Other</b>	39	143,260	96,210	96,210	48.90	-0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	48	133,083	99,330	99,330	33.98	-0.00
	<b>Non-Hispanic or Latino</b>	896	3,742,951	3,776,705	3,776,705	-0.89	-0.00
<b>Gender</b>	<b>Male</b>	416	1,830,931	1,843,299	1,843,299	-0.67	-0.00
	<b>Female</b>	528	2,045,104	2,032,736	2,032,736	0.61	-0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.3 2009 NSDUH Slippage Rates: ALASKA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		902	554,006	554,006	554,006	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	295	137,482	137,482	137,482	0.00	0.00
	<b>Quarter 2</b>	238	138,287	138,287	138,287	0.00	0.00
	<b>Quarter 3</b>	195	138,924	138,924	138,924	-0.00	0.00
	<b>Quarter 4</b>	174	139,313	139,313	139,313	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	301	59,956	60,144	60,144	-0.31	0.00
	<b>18-25</b>	297	78,438	78,273	78,273	0.21	0.00
	<b>26-34</b>	89	90,011	88,720	88,720	1.46	0.00
	<b>35-49</b>	126	140,268	141,536	141,536	-0.90	0.00
	<b>50-64</b>	64	131,526	133,420	133,420	-1.42	0.00
	<b>65+</b>	25	53,808	51,914	51,914	3.65	0.00
<b>Race</b>	<b>White</b>	576	391,242	400,183	400,183	-2.23	0.00
	<b>Black or African American</b>	23	19,727	19,830	19,830	-0.52	0.00
	<b>Other</b>	303	143,037	133,993	133,993	6.75	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	47	29,965	30,351	30,351	-1.27	0.00
	<b>Non-Hispanic or Latino</b>	855	524,041	523,656	523,656	0.07	0.00
<b>Gender</b>	<b>Male</b>	410	278,991	280,971	280,971	-0.70	0.00
	<b>Female</b>	492	275,016	273,036	273,036	0.73	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.4 2009 NSDUH Slippage Rates: ARIZONA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		916	5,310,817	5,310,817	5,310,817	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	262	1,320,591	1,320,591	1,320,591	0.00	0.00
	<b>Quarter 2</b>	222	1,325,285	1,325,285	1,325,285	0.00	0.00
	<b>Quarter 3</b>	215	1,330,234	1,330,234	1,330,234	0.00	0.00
	<b>Quarter 4</b>	217	1,334,707	1,334,707	1,334,707	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	299	536,489	538,805	538,805	-0.43	0.00
	<b>18-25</b>	323	689,313	696,689	696,689	-1.06	0.00
	<b>26-34</b>	90	832,573	833,885	833,885	-0.16	0.00
	<b>35-49</b>	123	1,288,645	1,282,446	1,282,446	0.48	0.00
	<b>50-64</b>	48	1,152,386	1,106,327	1,106,327	4.16	0.00
	<b>65+</b>	33	811,411	852,666	852,666	-4.84	0.00
<b>Race</b>	<b>White</b>	707	4,373,200	4,634,377	4,634,377	-5.64	0.00
	<b>Black or African American</b>	59	265,188	220,239	210,042	26.25	4.85
	<b>Other</b>	150	672,428	456,201	466,398	44.17	-2.19
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	361	1,538,029	1,463,732	1,463,732	5.08	0.00
	<b>Non-Hispanic or Latino</b>	555	3,772,788	3,847,085	3,847,085	-1.93	0.00
<b>Gender</b>	<b>Male</b>	441	2,629,065	2,629,869	2,629,869	-0.03	0.00
	<b>Female</b>	475	2,681,752	2,680,948	2,680,948	0.03	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009

**Table H.5 2009 NSDUH Slippage Rates: ARKANSAS**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		914	2,358,363	2,358,363	2,358,363	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	228	588,000	588,000	588,000	0.00	0.00
	<b>Quarter 2</b>	219	588,914	588,914	588,914	0.00	0.00
	<b>Quarter 3</b>	233	590,130	590,130	590,130	0.00	0.00
	<b>Quarter 4</b>	234	591,319	591,319	591,319	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	302	227,679	231,302	231,302	-1.57	0.00
	<b>18-25</b>	302	304,320	298,338	298,338	2.00	0.00
	<b>26-34</b>	99	329,163	339,142	339,142	-2.94	0.00
	<b>35-49</b>	117	575,228	562,247	562,247	2.31	0.00
	<b>50-64</b>	45	446,242	533,213	533,213	-16.31	0.00
	<b>65+</b>	49	475,732	394,121	394,121	20.71	0.00
<b>Race</b>	<b>White</b>	656	1,862,044	1,933,584	1,933,584	-3.70	0.00
	<b>Black or African American</b>	150	354,151	349,820	349,820	1.24	0.00
	<b>Other</b>	108	142,168	74,960	74,960	89.66	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	99	110,490	115,876	115,876	-4.65	0.00
	<b>Non-Hispanic or Latino</b>	815	2,247,873	2,242,487	2,242,487	0.24	0.00
<b>Gender</b>	<b>Male</b>	446	1,137,886	1,137,886	1,137,886	0.00	0.00
	<b>Female</b>	468	1,220,477	1,220,477	1,220,477	0.00	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.6 2009 NSDUH Slippage Rates: CALIFORNIA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		3,660	30,079,762	30,079,762	30,079,762	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	949	7,492,075	7,492,075	7,492,075	0.00	0.00
	<b>Quarter 2</b>	802	7,509,827	7,509,827	7,509,827	0.00	0.00
	<b>Quarter 3</b>	991	7,529,727	7,529,727	7,529,727	0.00	0.00
	<b>Quarter 4</b>	918	7,548,133	7,548,133	7,548,133	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	1,167	3,116,116	3,117,227	3,117,227	-0.04	0.00
	<b>18-25</b>	1,225	4,363,216	4,383,689	4,383,689	-0.47	0.00
	<b>26-34</b>	391	4,572,234	4,578,515	4,578,515	-0.14	0.00
	<b>35-49</b>	546	7,754,108	7,745,045	7,745,045	0.12	0.00
	<b>50-64</b>	212	6,581,256	6,222,009	6,222,009	5.77	0.00
	<b>65+</b>	119	3,692,832	4,033,277	4,033,277	-8.44	0.00
<b>Race</b>	<b>White</b>	2,403	20,521,656	23,005,544	23,005,544	-10.80	0.00
	<b>Black or African American</b>	243	2,013,693	1,945,943	1,945,943	3.48	0.00
	<b>Other</b>	1,014	7,544,412	5,128,276	5,128,276	47.11	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	1,789	10,522,062	10,260,609	10,260,609	2.55	0.00
	<b>Non-Hispanic or Latino</b>	1,871	19,557,699	19,819,153	19,819,153	-1.32	0.00
<b>Gender</b>	<b>Male</b>	1,812	14,798,552	14,828,014	14,828,014	-0.20	0.00
	<b>Female</b>	1,848	15,281,210	15,251,748	15,251,748	0.19	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009

**Table H.7 2009 NSDUH Slippage Rates: COLORADO**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		984	4,096,077	4,096,077	4,096,077	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	261	1,017,681	1,017,681	1,017,681	0.00	0.00
	<b>Quarter 2</b>	196	1,021,895	1,021,895	1,021,895	0.00	0.00
	<b>Quarter 3</b>	230	1,026,267	1,026,267	1,026,267	0.00	0.00
	<b>Quarter 4</b>	297	1,030,235	1,030,235	1,030,235	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	366	383,966	383,909	383,909	0.01	0.00
	<b>18-25</b>	329	520,710	533,064	533,064	-2.32	0.00
	<b>26-34</b>	89	668,408	661,373	661,373	1.06	0.00
	<b>35-49</b>	134	1,053,311	1,069,166	1,069,166	-1.48	0.00
	<b>50-64</b>	47	1,065,304	933,359	933,359	14.14	0.00
	<b>65+</b>	19	404,378	515,206	515,206	-21.51	0.00
<b>Race</b>	<b>White</b>	840	3,589,480	3,703,904	3,703,904	-3.09	0.00
	<b>Black or African American</b>	33	167,898	162,714	162,714	3.19	0.00
	<b>Other</b>	111	338,699	229,459	229,459	47.61	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	254	741,212	736,669	736,669	0.62	0.00
	<b>Non-Hispanic or Latino</b>	730	3,354,865	3,359,408	3,359,408	-0.14	0.00
<b>Gender</b>	<b>Male</b>	455	2,036,645	2,036,645	2,036,645	0.00	0.00
	<b>Female</b>	529	2,059,432	2,059,432	2,059,432	0.00	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.8 2009 NSDUH Slippage Rates: CONNECTICUT**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		915	2,937,125	2,937,125	2,937,125	0.00	-0.00
<b>Quarter</b>	<b>Quarter 1</b>	225	732,579	732,579	732,579	0.00	0.00
	<b>Quarter 2</b>	275	733,583	733,583	733,583	0.00	0.00
	<b>Quarter 3</b>	212	734,885	734,885	734,885	0.00	-0.00
	<b>Quarter 4</b>	203	736,078	736,078	736,078	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	308	287,217	286,054	286,054	0.41	0.00
	<b>18-25</b>	305	359,875	368,953	368,953	-2.46	0.00
	<b>26-34</b>	74	366,934	362,402	362,402	1.25	0.00
	<b>35-49</b>	139	767,368	766,834	766,834	0.07	-0.00
	<b>50-64</b>	58	739,677	691,101	691,101	7.03	0.00
	<b>65+</b>	31	416,054	461,782	461,782	-9.90	-0.00
<b>Race</b>	<b>White</b>	707	2,367,898	2,502,213	2,502,213	-5.37	0.00
	<b>Black or African American</b>	104	327,239	285,780	285,780	14.51	-0.00
	<b>Other</b>	104	241,988	149,132	149,132	62.26	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	148	334,412	326,133	326,133	2.54	0.00
	<b>Non-Hispanic or Latino</b>	767	2,602,713	2,610,992	2,610,992	-0.32	-0.00
<b>Gender</b>	<b>Male</b>	442	1,435,060	1,414,085	1,414,085	1.48	-0.00
	<b>Female</b>	473	1,502,065	1,523,040	1,523,040	-1.38	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.9 2009 NSDUH Slippage Rates: DELAWARE**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		920	731,769	731,769	731,769	0.00	-0.00
<b>Quarter</b>	<b>Quarter 1</b>	233	182,287	182,287	182,287	0.00	0.00
	<b>Quarter 2</b>	231	182,712	182,712	182,712	0.00	-0.00
	<b>Quarter 3</b>	221	183,179	183,179	183,179	-0.00	0.00
	<b>Quarter 4</b>	235	183,592	183,592	183,592	0.00	-0.00
<b>Age Group</b>	<b>12-17</b>	310	68,377	68,377	68,377	-0.00	0.00
	<b>18-25</b>	343	93,093	94,723	94,723	-1.72	0.00
	<b>26-34</b>	74	99,320	97,691	97,691	1.67	-0.00
	<b>35-49</b>	115	180,679	180,679	180,679	0.00	-0.00
	<b>50-64</b>	59	218,048	168,196	168,196	29.64	-0.00
	<b>65+</b>	19	72,252	122,104	122,104	-40.83	0.00
<b>Race</b>	<b>White</b>	598	528,320	552,138	552,138	-4.31	-0.00
	<b>Black or African American</b>	232	147,838	147,099	147,099	0.50	0.00
	<b>Other</b>	90	55,611	32,533	32,533	70.94	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	99	50,380	44,646	44,646	12.84	0.00
	<b>Non-Hispanic or Latino</b>	821	681,389	687,123	687,123	-0.83	-0.00
<b>Gender</b>	<b>Male</b>	409	345,553	348,826	348,826	-0.94	-0.00
	<b>Female</b>	511	386,216	382,944	382,944	0.85	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.10 2009 NSDUH Slippage Rates: DISTRICT OF COLUMBIA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		886	510,289	510,289	510,289	-0.00	-0.00
<b>Quarter</b>	<b>Quarter 1</b>	255	126,844	126,844	126,844	-0.00	-0.00
	<b>Quarter 2</b>	219	127,274	127,274	127,274	0.00	-0.00
	<b>Quarter 3</b>	207	127,803	127,803	127,803	0.00	-0.00
	<b>Quarter 4</b>	205	128,369	128,369	128,369	0.00	-0.00
<b>Age Group</b>	<b>12-17</b>	249	34,967	35,126	35,126	-0.45	0.00
	<b>18-25</b>	338	88,872	88,250	88,250	0.70	0.00
	<b>26-34</b>	121	99,951	99,652	99,652	0.30	0.00
	<b>35-49</b>	101	117,699	119,787	119,787	-1.74	0.00
	<b>50-64</b>	44	97,369	100,867	100,867	-3.47	-0.00
	<b>65+</b>	33	71,432	66,607	66,607	7.24	-0.00
<b>Race</b>	<b>White</b>	316	195,320	216,251	216,251	-9.68	-0.00
	<b>Black or African American</b>	473	268,579	266,416	266,416	0.81	0.00
	<b>Other</b>	97	46,390	27,622	27,622	67.95	-0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	105	42,470	42,289	42,289	0.43	0.00
	<b>Non-Hispanic or Latino</b>	781	467,819	468,000	468,000	-0.04	-0.00
<b>Gender</b>	<b>Male</b>	429	235,941	235,941	235,941	0.00	0.00
	<b>Female</b>	457	274,349	274,349	274,349	-0.00	-0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009

**Table H.11 2009 NSDUH Slippage Rates: FLORIDA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		3,648	15,484,832	15,484,832	15,484,832	-0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	911	3,862,533	3,862,533	3,862,533	-0.00	0.00
	<b>Quarter 2</b>	1,023	3,867,569	3,867,569	3,867,569	-0.00	0.00
	<b>Quarter 3</b>	811	3,874,305	3,874,305	3,874,305	-0.00	0.00
	<b>Quarter 4</b>	903	3,880,426	3,880,426	3,880,426	0.00	-0.00
<b>Age Group</b>	<b>12-17</b>	1,126	1,345,068	1,343,518	1,343,518	0.12	0.00
	<b>18-25</b>	1,312	1,820,198	1,829,604	1,829,604	-0.51	0.00
	<b>26-34</b>	327	2,059,980	2,038,364	2,038,364	1.06	0.00
	<b>35-49</b>	470	3,698,377	3,711,080	3,711,080	-0.34	0.00
	<b>50-64</b>	222	3,446,944	3,450,339	3,450,339	-0.10	0.00
	<b>65+</b>	191	3,114,264	3,111,927	3,111,927	0.08	-0.00
<b>Race</b>	<b>White</b>	2,445	11,911,938	12,580,441	12,580,441	-5.31	0.00
	<b>Black or African American</b>	789	2,369,869	2,275,380	2,275,380	4.15	0.00
	<b>Other</b>	414	1,203,024	629,011	629,011	91.26	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	1,064	3,291,762	3,219,382	3,219,382	2.25	0.00
	<b>Non-Hispanic or Latino</b>	2,584	12,193,070	12,265,449	12,265,449	-0.59	0.00
<b>Gender</b>	<b>Male</b>	1,754	7,483,566	7,487,898	7,487,898	-0.06	0.00
	<b>Female</b>	1,894	8,001,265	7,996,934	7,996,934	0.05	-0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.12 2009 NSDUH Slippage Rates: GEORGIA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		907	7,846,856	7,846,855	7,846,856	0.00	-0.00
<b>Quarter</b>	<b>Quarter 1</b>	240	1,952,767	1,952,767	1,952,767	0.00	0.00
	<b>Quarter 2</b>	245	1,958,549	1,958,549	1,958,549	0.00	0.00
	<b>Quarter 3</b>	240	1,964,865	1,964,865	1,964,865	0.00	-0.00
	<b>Quarter 4</b>	182	1,970,675	1,970,675	1,970,675	0.00	-0.00
<b>Age Group</b>	<b>12-17</b>	305	819,599	821,827	821,827	-0.27	0.00
	<b>18-25</b>	297	1,031,846	1,025,485	1,025,485	0.62	-0.00
	<b>26-34</b>	94	1,222,593	1,203,860	1,203,860	1.56	0.00
	<b>35-49</b>	143	2,153,963	2,115,606	2,115,606	1.81	0.00
	<b>50-64</b>	42	1,583,170	1,702,651	1,702,651	-7.02	0.00
	<b>65+</b>	26	1,035,684	977,426	977,426	5.96	-0.00
<b>Race</b>	<b>White</b>	499	5,026,782	5,197,357	5,197,357	-3.28	-0.00
	<b>Black or African American</b>	322	2,334,980	2,306,159	2,306,159	1.25	-0.00
	<b>Other</b>	86	485,093	343,340	343,340	41.29	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	82	640,855	557,676	557,676	14.92	-0.00
	<b>Non-Hispanic or Latino</b>	825	7,206,001	7,289,179	7,289,179	-1.14	-0.00
<b>Gender</b>	<b>Male</b>	455	3,770,790	3,766,134	3,766,134	0.12	0.00
	<b>Female</b>	452	4,076,065	4,080,721	4,080,721	-0.11	-0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.13 2009 NSDUH Slippage Rates: HAWAII**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		960	1,052,232	1,052,232	1,052,232	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	303	262,680	262,680	262,680	0.00	0.00
	<b>Quarter 2</b>	221	262,903	262,903	262,903	0.00	0.00
	<b>Quarter 3</b>	143	263,197	263,197	263,197	0.00	0.00
	<b>Quarter 4</b>	293	263,453	263,453	263,453	0.00	-0.00
<b>Age Group</b>	<b>12-17</b>	311	92,100	92,363	92,363	-0.28	0.00
	<b>18-25</b>	278	130,683	131,979	131,979	-0.98	0.00
	<b>26-34</b>	92	146,620	151,923	151,923	-3.49	-0.00
	<b>35-49</b>	167	262,608	249,379	249,379	5.30	-0.00
	<b>50-64</b>	68	243,962	241,812	241,812	0.89	-0.00
	<b>65+</b>	44	176,260	184,776	184,776	-4.61	0.00
<b>Race</b>	<b>White</b>	182	257,859	307,538	307,538	-16.15	-0.00
	<b>Black or African American</b>	0	0	0	24,907	-100.00	-100.00
	<b>Other</b>	778	794,373	744,694	719,787	10.36	3.46
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	155	99,982	78,681	78,681	27.07	0.00
	<b>Non-Hispanic or Latino</b>	805	952,251	973,551	973,551	-2.19	0.00
<b>Gender</b>	<b>Male</b>	461	512,049	514,331	514,331	-0.44	0.00
	<b>Female</b>	499	540,183	537,902	537,902	0.42	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.14 2009 NSDUH Slippage Rates: IDAHO**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		916	1,235,558	1,235,558	1,235,558	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	216	307,589	307,589	307,589	-0.00	0.00
	<b>Quarter 2</b>	251	308,457	308,457	308,457	0.00	0.00
	<b>Quarter 3</b>	220	309,367	309,367	309,367	0.00	0.00
	<b>Quarter 4</b>	229	310,144	310,144	310,144	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	282	131,977	133,111	133,111	-0.85	0.00
	<b>18-25</b>	307	166,205	165,070	165,070	0.69	0.00
	<b>26-34</b>	120	186,873	188,871	188,871	-1.06	0.00
	<b>35-49</b>	112	292,876	290,878	290,878	0.69	0.00
	<b>50-64</b>	50	243,530	275,952	275,952	-11.75	0.00
	<b>65+</b>	45	214,096	181,674	181,674	17.85	0.00
<b>Race</b>	<b>White</b>	823	1,144,339	1,176,816	1,176,816	-2.76	0.00
	<b>Black or African American</b>	1	662	144	9,306	-92.89	-98.46
	<b>Other</b>	92	90,556	58,598	49,436	83.18	18.53
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	112	121,069	113,334	113,334	6.82	0.00
	<b>Non-Hispanic or Latino</b>	804	1,114,488	1,122,224	1,122,224	-0.69	0.00
<b>Gender</b>	<b>Male</b>	440	612,829	612,829	612,829	0.00	0.00
	<b>Female</b>	476	622,728	622,728	622,728	-0.00	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.15 2009 NSDUH Slippage Rates: ILLINOIS**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		3,655	10,592,236	10,592,235	10,592,236	0.00	-0.00
<b>Quarter</b>	<b>Quarter 1</b>	850	2,642,459	2,642,459	2,642,459	0.00	0.00
	<b>Quarter 2</b>	1,023	2,645,591	2,645,591	2,645,591	0.00	0.00
	<b>Quarter 3</b>	886	2,649,972	2,649,972	2,649,972	0.00	-0.00
	<b>Quarter 4</b>	896	2,654,213	2,654,213	2,654,213	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	1,186	1,073,920	1,056,872	1,056,872	1.61	0.00
	<b>18-25</b>	1,158	1,426,355	1,467,611	1,467,611	-2.81	0.00
	<b>26-34</b>	417	1,593,194	1,571,313	1,571,313	1.39	0.00
	<b>35-49</b>	533	2,707,645	2,675,997	2,675,997	1.18	0.00
	<b>50-64</b>	230	2,422,472	2,306,334	2,306,334	5.04	0.00
	<b>65+</b>	131	1,368,651	1,514,108	1,514,109	-9.61	-0.00
<b>Race</b>	<b>White</b>	2,677	8,045,919	8,458,665	8,458,665	-4.88	-0.00
	<b>Black or African American</b>	548	1,518,350	1,510,040	1,510,040	0.55	0.00
	<b>Other</b>	430	1,027,967	623,531	623,531	64.86	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	631	1,514,468	1,454,492	1,454,492	4.12	-0.00
	<b>Non-Hispanic or Latino</b>	3,024	9,077,767	9,137,744	9,137,744	-0.66	0.00
<b>Gender</b>	<b>Male</b>	1,765	5,160,787	5,153,349	5,153,349	0.14	0.00
	<b>Female</b>	1,890	5,431,448	5,438,887	5,438,887	-0.14	-0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.16 2009 NSDUH Slippage Rates: INDIANA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		904	5,261,392	5,261,391	5,261,391	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	215	1,312,381	1,312,381	1,312,381	0.00	0.00
	<b>Quarter 2</b>	220	1,314,065	1,314,065	1,314,065	0.00	0.00
	<b>Quarter 3</b>	204	1,316,375	1,316,375	1,316,375	0.00	0.00
	<b>Quarter 4</b>	265	1,318,571	1,318,571	1,318,571	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	284	528,580	527,261	527,261	0.25	0.00
	<b>18-25</b>	282	689,469	683,131	683,131	0.93	0.00
	<b>26-34</b>	105	769,165	763,775	763,775	0.71	0.00
	<b>35-49</b>	125	1,317,413	1,310,923	1,310,923	0.50	0.00
	<b>50-64</b>	72	1,338,687	1,193,500	1,193,500	12.16	0.00
	<b>65+</b>	36	618,077	782,802	782,802	-21.04	0.00
<b>Race</b>	<b>White</b>	784	4,615,610	4,671,059	4,671,059	-1.19	0.00
	<b>Black or African American</b>	70	451,931	446,137	446,137	1.30	0.00
	<b>Other</b>	50	193,851	144,195	144,195	34.44	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	58	248,391	245,104	245,104	1.34	0.00
	<b>Non-Hispanic or Latino</b>	846	5,013,001	5,016,287	5,016,287	-0.07	0.00
<b>Gender</b>	<b>Male</b>	458	2,555,746	2,563,919	2,563,919	-0.32	0.00
	<b>Female</b>	446	2,705,646	2,697,472	2,697,472	0.30	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.17 2009 NSDUH Slippage Rates: IOWA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		924	2,486,476	2,486,476	2,486,476	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	207	620,466	620,466	620,466	0.00	0.00
	<b>Quarter 2</b>	264	620,995	620,995	620,995	0.00	0.00
	<b>Quarter 3</b>	213	621,979	621,979	621,979	0.00	0.00
	<b>Quarter 4</b>	240	623,036	623,035	623,036	0.00	-0.00
<b>Age Group</b>	<b>12-17</b>	301	237,229	237,996	237,996	-0.32	0.00
	<b>18-25</b>	306	338,721	340,764	340,764	-0.60	0.00
	<b>26-34</b>	79	345,028	332,034	332,034	3.91	0.00
	<b>35-49</b>	129	575,258	585,442	585,442	-1.74	-0.00
	<b>50-64</b>	59	548,438	574,221	574,221	-4.49	0.00
	<b>65+</b>	50	441,802	416,019	416,019	6.20	0.00
<b>Race</b>	<b>White</b>	854	2,374,410	2,357,617	2,357,617	0.71	0.00
	<b>Black or African American</b>	37	54,959	58,865	58,865	-6.64	0.00
	<b>Other</b>	33	57,106	69,994	69,994	-18.41	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	32	69,770	91,250	91,250	-23.54	0.00
	<b>Non-Hispanic or Latino</b>	892	2,416,706	2,395,226	2,395,226	0.90	0.00
<b>Gender</b>	<b>Male</b>	469	1,244,532	1,220,720	1,220,720	1.95	0.00
	<b>Female</b>	455	1,241,943	1,265,756	1,265,756	-1.88	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.18 2009 NSDUH Slippage Rates: KANSAS**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		909	2,279,789	2,279,789	2,279,789	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	241	568,297	568,297	568,297	0.00	0.00
	<b>Quarter 2</b>	201	569,210	569,210	569,210	0.00	0.00
	<b>Quarter 3</b>	252	570,485	570,485	570,485	-0.00	0.00
	<b>Quarter 4</b>	215	571,797	571,797	571,797	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	301	227,142	227,693	227,693	-0.24	0.00
	<b>18-25</b>	321	321,215	323,487	323,487	-0.70	0.00
	<b>26-34</b>	72	321,793	324,708	324,708	-0.90	0.00
	<b>35-49</b>	124	545,081	543,679	543,679	0.26	0.00
	<b>50-64</b>	47	459,019	516,520	516,520	-11.13	0.00
	<b>65+</b>	44	405,538	343,703	343,703	17.99	0.00
<b>Race</b>	<b>White</b>	732	1,982,500	2,042,239	2,042,239	-2.93	0.00
	<b>Black or African American</b>	83	124,643	127,377	127,377	-2.15	0.00
	<b>Other</b>	94	172,646	110,173	110,173	56.70	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	106	194,365	183,353	183,353	6.01	0.00
	<b>Non-Hispanic or Latino</b>	803	2,085,424	2,096,436	2,096,436	-0.53	0.00
<b>Gender</b>	<b>Male</b>	461	1,100,096	1,117,114	1,117,114	-1.52	0.00
	<b>Female</b>	448	1,179,693	1,162,675	1,162,675	1.46	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.19 2009 NSDUH Slippage Rates: KENTUCKY**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		912	3,550,066	3,550,066	3,550,066	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	265	885,843	885,843	885,843	0.00	0.00
	<b>Quarter 2</b>	223	886,653	886,653	886,653	0.00	0.00
	<b>Quarter 3</b>	204	888,049	888,049	888,049	0.00	0.00
	<b>Quarter 4</b>	220	889,522	889,522	889,522	0.00	-0.00
<b>Age Group</b>	<b>12-17</b>	266	334,706	335,609	335,609	-0.27	0.00
	<b>18-25</b>	328	436,637	431,390	431,390	1.22	0.00
	<b>26-34</b>	90	524,366	521,382	521,382	0.57	-0.00
	<b>35-49</b>	130	881,449	888,778	888,778	-0.82	0.00
	<b>50-64</b>	53	742,774	829,193	829,193	-10.42	0.00
	<b>65+</b>	45	630,134	543,715	543,715	15.89	0.00
<b>Race</b>	<b>White</b>	760	3,170,790	3,221,061	3,221,061	-1.56	0.00
	<b>Black or African American</b>	96	249,689	253,165	253,165	-1.37	0.00
	<b>Other</b>	56	129,587	75,841	75,841	70.87	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	29	77,578	75,795	75,795	2.35	0.00
	<b>Non-Hispanic or Latino</b>	883	3,472,488	3,474,272	3,474,272	-0.05	0.00
<b>Gender</b>	<b>Male</b>	454	1,706,439	1,710,692	1,710,692	-0.25	0.00
	<b>Female</b>	458	1,843,628	1,839,374	1,839,375	0.23	-0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.20 2009 NSDUH Slippage Rates: LOUISIANA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		923	3,640,052	3,640,052	3,640,052	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	195	907,213	907,213	907,213	0.00	0.00
	<b>Quarter 2</b>	256	908,779	908,779	908,779	0.00	0.00
	<b>Quarter 3</b>	266	910,918	910,919	910,919	-0.00	0.00
	<b>Quarter 4</b>	206	913,141	913,141	913,141	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	285	371,821	369,414	369,414	0.65	0.00
	<b>18-25</b>	305	522,329	528,427	528,427	-1.15	0.00
	<b>26-34</b>	102	534,114	530,424	530,424	0.70	0.00
	<b>35-49</b>	127	849,520	859,555	859,555	-1.17	0.00
	<b>50-64</b>	64	822,789	824,376	824,376	-0.19	0.00
	<b>65+</b>	40	539,479	527,856	527,856	2.20	0.00
<b>Race</b>	<b>White</b>	564	2,358,912	2,422,291	2,422,291	-2.62	0.00
	<b>Black or African American</b>	314	1,107,048	1,109,863	1,109,863	-0.25	0.00
	<b>Other</b>	45	174,092	107,898	107,898	61.35	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	28	134,069	124,062	124,062	8.07	0.00
	<b>Non-Hispanic or Latino</b>	895	3,505,983	3,515,989	3,515,989	-0.28	0.00
<b>Gender</b>	<b>Male</b>	424	1,727,825	1,727,596	1,727,596	0.01	0.00
	<b>Female</b>	499	1,912,227	1,912,456	1,912,456	-0.01	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.21 2009 NSDUH Slippage Rates: MAINE**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		964	1,128,941	1,128,941	1,128,941	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	215	282,195	282,195	282,195	0.00	0.00
	<b>Quarter 2</b>	250	282,185	282,185	282,185	0.00	-0.00
	<b>Quarter 3</b>	262	282,268	282,268	282,268	0.00	-0.00
	<b>Quarter 4</b>	237	282,292	282,292	282,292	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	337	98,248	98,248	98,248	0.00	0.00
	<b>18-25</b>	331	124,403	125,394	125,394	-0.79	0.00
	<b>26-34</b>	75	133,670	132,679	132,679	0.75	0.00
	<b>35-49</b>	123	286,929	282,463	282,463	1.58	-0.00
	<b>50-64</b>	67	333,995	292,511	292,511	14.18	0.00
	<b>65+</b>	31	151,696	197,647	197,647	-23.25	0.00
<b>Race</b>	<b>White</b>	860	1,059,987	1,093,259	1,093,259	-3.04	0.00
	<b>Black or African American</b>	8	10,449	10,012	10,012	4.37	0.00
	<b>Other</b>	96	58,505	25,670	25,670	127.91	-0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	15	14,565	12,838	12,838	13.45	-0.00
	<b>Non-Hispanic or Latino</b>	949	1,114,376	1,116,103	1,116,103	-0.15	0.00
<b>Gender</b>	<b>Male</b>	472	545,098	545,098	545,098	0.00	-0.00
	<b>Female</b>	492	583,843	583,843	583,843	0.00	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.22 2009 NSDUH Slippage Rates: MARYLAND**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		887	4,705,966	4,705,966	4,705,966	0.00	-0.00
<b>Quarter</b>	<b>Quarter 1</b>	237	1,173,405	1,173,405	1,173,405	0.00	0.00
	<b>Quarter 2</b>	241	1,175,363	1,175,362	1,175,363	0.00	-0.00
	<b>Quarter 3</b>	212	1,177,623	1,177,623	1,177,623	0.00	0.00
	<b>Quarter 4</b>	197	1,179,576	1,179,576	1,179,576	-0.00	-0.00
<b>Age Group</b>	<b>12-17</b>	311	458,379	456,070	456,071	0.51	-0.00
	<b>18-25</b>	285	637,596	618,887	618,887	3.02	-0.00
	<b>26-34</b>	92	617,998	656,430	656,430	-5.85	-0.00
	<b>35-49</b>	128	1,229,540	1,227,629	1,227,629	0.16	0.00
	<b>50-64</b>	50	1,293,948	1,076,874	1,076,874	20.16	0.00
	<b>65+</b>	21	468,504	670,075	670,075	-30.08	0.00
<b>Race</b>	<b>White</b>	495	2,798,677	3,019,237	3,019,238	-7.31	-0.00
	<b>Black or African American</b>	283	1,365,440	1,356,889	1,356,889	0.63	0.00
	<b>Other</b>	109	541,849	329,839	329,839	64.28	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	50	305,104	300,493	300,493	1.53	-0.00
	<b>Non-Hispanic or Latino</b>	837	4,400,861	4,405,473	4,405,473	-0.10	0.00
<b>Gender</b>	<b>Male</b>	445	2,231,252	2,236,283	2,236,283	-0.22	-0.00
	<b>Female</b>	442	2,474,713	2,469,682	2,469,682	0.20	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.23 2009 NSDUH Slippage Rates: MASSACHUSETTS**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		969	5,563,652	5,563,652	5,563,652	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	203	1,386,355	1,386,355	1,386,355	0.00	-0.00
	<b>Quarter 2</b>	226	1,389,060	1,389,060	1,389,060	-0.00	0.00
	<b>Quarter 3</b>	228	1,392,463	1,392,463	1,392,463	0.00	0.00
	<b>Quarter 4</b>	312	1,395,773	1,395,773	1,395,773	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	288	499,857	496,369	496,369	0.70	0.00
	<b>18-25</b>	350	776,629	771,025	771,025	0.73	-0.00
	<b>26-34</b>	93	786,052	759,367	759,367	3.51	-0.00
	<b>35-49</b>	141	1,387,296	1,431,117	1,431,117	-3.06	0.00
	<b>50-64</b>	58	1,288,603	1,262,150	1,262,150	2.10	0.00
	<b>65+</b>	39	825,215	843,624	843,624	-2.18	0.00
<b>Race</b>	<b>White</b>	817	4,663,459	4,832,920	4,832,920	-3.51	0.00
	<b>Black or African American</b>	48	364,728	371,280	365,916	-0.32	1.47
	<b>Other</b>	104	535,465	359,452	364,816	46.78	-1.47
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	103	460,504	439,614	439,614	4.75	0.00
	<b>Non-Hispanic or Latino</b>	866	5,103,148	5,124,037	5,124,037	-0.41	0.00
<b>Gender</b>	<b>Male</b>	461	2,665,197	2,677,104	2,677,104	-0.44	0.00
	<b>Female</b>	508	2,898,455	2,886,548	2,886,548	0.41	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.24 2009 NSDUH Slippage Rates: MICHIGAN**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		3,639	8,323,828	8,323,828	8,323,828	0.00	-0.00
<b>Quarter</b>	<b>Quarter 1</b>	791	2,082,091	2,082,091	2,082,091	0.00	-0.00
	<b>Quarter 2</b>	1,116	2,080,907	2,080,907	2,080,907	0.00	0.00
	<b>Quarter 3</b>	869	2,080,664	2,080,664	2,080,664	0.00	0.00
	<b>Quarter 4</b>	863	2,080,167	2,080,166	2,080,167	0.00	-0.00
<b>Age Group</b>	<b>12-17</b>	1,245	831,796	829,913	829,913	0.23	-0.00
	<b>18-25</b>	1,192	1,097,014	1,090,449	1,090,449	0.60	0.00
	<b>26-34</b>	294	1,090,839	1,088,646	1,088,646	0.20	0.00
	<b>35-49</b>	539	2,043,068	2,064,725	2,064,725	-1.05	0.00
	<b>50-64</b>	239	2,102,380	1,956,606	1,956,606	7.45	0.00
	<b>65+</b>	130	1,158,731	1,293,490	1,293,490	-10.42	-0.00
<b>Race</b>	<b>White</b>	2,775	6,673,839	6,846,727	6,846,727	-2.53	-0.00
	<b>Black or African American</b>	622	1,126,216	1,121,723	1,121,723	0.40	0.00
	<b>Other</b>	242	523,773	355,378	355,378	47.38	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	159	291,138	305,649	305,649	-4.75	0.00
	<b>Non-Hispanic or Latino</b>	3,480	8,032,690	8,018,179	8,018,179	0.18	-0.00
<b>Gender</b>	<b>Male</b>	1,766	4,057,794	4,040,597	4,040,597	0.43	0.00
	<b>Female</b>	1,873	4,266,034	4,283,231	4,283,231	-0.40	-0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.25 2009 NSDUH Slippage Rates: MINNESOTA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		925	4,356,170	4,356,171	4,356,171	-0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	246	1,086,227	1,086,227	1,086,227	-0.00	0.00
	<b>Quarter 2</b>	230	1,087,959	1,087,959	1,087,959	0.00	0.00
	<b>Quarter 3</b>	195	1,090,072	1,090,072	1,090,072	0.00	0.00
	<b>Quarter 4</b>	254	1,091,912	1,091,912	1,091,912	-0.00	0.00
<b>Age Group</b>	<b>12-17</b>	307	417,528	417,528	417,528	-0.00	0.00
	<b>18-25</b>	316	571,135	575,857	575,857	-0.82	0.00
	<b>26-34</b>	87	648,531	628,236	628,236	3.23	0.00
	<b>35-49</b>	132	1,088,296	1,103,870	1,103,870	-1.41	0.00
	<b>50-64</b>	51	1,040,241	997,658	997,658	4.27	0.00
	<b>65+</b>	32	590,438	633,022	633,022	-6.73	0.00
<b>Race</b>	<b>White</b>	779	3,921,037	3,930,260	3,930,260	-0.23	0.00
	<b>Black or African American</b>	68	184,497	178,576	178,576	3.32	0.00
	<b>Other</b>	78	250,636	247,335	247,335	1.33	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	43	145,161	152,590	152,590	-4.87	0.00
	<b>Non-Hispanic or Latino</b>	882	4,211,009	4,203,581	4,203,581	0.18	0.00
<b>Gender</b>	<b>Male</b>	421	2,156,058	2,156,058	2,156,058	-0.00	0.00
	<b>Female</b>	504	2,200,112	2,200,112	2,200,112	0.00	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.26 2009 NSDUH Slippage Rates: MISSISSIPPI**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		891	2,365,526	2,365,526	2,365,526	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	256	590,639	590,639	590,639	0.00	0.00
	<b>Quarter 2</b>	202	590,982	590,982	590,982	0.00	0.00
	<b>Quarter 3</b>	257	591,629	591,629	591,629	0.00	0.00
	<b>Quarter 4</b>	176	592,276	592,276	592,276	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	254	248,888	250,210	250,210	-0.53	0.00
	<b>18-25</b>	316	334,709	332,057	332,057	0.80	0.00
	<b>26-34</b>	103	339,408	334,414	334,414	1.49	0.00
	<b>35-49</b>	129	555,794	562,118	562,118	-1.13	0.00
	<b>50-64</b>	57	568,961	528,163	528,163	7.72	0.00
	<b>65+</b>	32	317,765	358,564	358,564	-11.38	0.00
<b>Race</b>	<b>White</b>	490	1,422,959	1,474,584	1,474,584	-3.50	-0.00
	<b>Black or African American</b>	387	884,254	843,167	843,167	4.87	0.00
	<b>Other</b>	14	58,314	47,775	47,775	22.06	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	22	27,635	50,077	50,077	-44.82	0.00
	<b>Non-Hispanic or Latino</b>	869	2,337,891	2,315,449	2,315,449	0.97	0.00
<b>Gender</b>	<b>Male</b>	416	1,117,904	1,117,407	1,117,407	0.04	0.00
	<b>Female</b>	475	1,247,622	1,248,119	1,248,119	-0.04	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.27 2009 NSDUH Slippage Rates: MISSOURI**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		889	4,926,491	4,926,491	4,926,491	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	200	1,229,009	1,229,009	1,229,009	0.00	0.00
	<b>Quarter 2</b>	282	1,230,397	1,230,397	1,230,397	0.00	0.00
	<b>Quarter 3</b>	221	1,232,492	1,232,492	1,232,492	0.00	0.00
	<b>Quarter 4</b>	186	1,234,592	1,234,592	1,234,592	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	311	487,861	480,290	480,290	1.58	0.00
	<b>18-25</b>	285	617,710	630,416	630,416	-2.02	0.00
	<b>26-34</b>	83	698,527	702,329	702,329	-0.54	0.00
	<b>35-49</b>	125	1,214,099	1,205,163	1,205,163	0.74	0.00
	<b>50-64</b>	51	1,145,302	1,130,541	1,130,541	1.31	0.00
	<b>65+</b>	34	762,991	777,753	777,753	-1.90	-0.00
<b>Race</b>	<b>White</b>	710	4,191,324	4,237,009	4,237,009	-1.08	0.00
	<b>Black or African American</b>	119	525,277	530,899	530,899	-1.06	0.00
	<b>Other</b>	60	209,889	158,583	158,583	32.35	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	37	117,789	141,516	141,516	-16.77	0.00
	<b>Non-Hispanic or Latino</b>	852	4,808,701	4,784,975	4,784,975	0.50	0.00
<b>Gender</b>	<b>Male</b>	427	2,367,182	2,372,737	2,372,737	-0.23	0.00
	<b>Female</b>	462	2,559,308	2,553,753	2,553,753	0.22	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.28 2009 NSDUH Slippage Rates: MONTANA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		909	814,381	814,381	814,381	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	272	203,078	203,078	203,078	0.00	0.00
	<b>Quarter 2</b>	197	203,407	203,407	203,407	0.00	0.00
	<b>Quarter 3</b>	237	203,788	203,788	203,788	0.00	0.00
	<b>Quarter 4</b>	203	204,109	204,109	204,109	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	295	75,210	75,210	75,210	0.00	0.00
	<b>18-25</b>	332	105,072	105,702	105,702	-0.60	0.00
	<b>26-34</b>	78	105,960	107,322	107,322	-1.27	0.00
	<b>35-49</b>	127	183,310	182,895	182,895	0.23	0.00
	<b>50-64</b>	45	196,378	207,942	207,942	-5.56	0.00
	<b>65+</b>	32	148,451	135,311	135,311	9.71	0.00
<b>Race</b>	<b>White</b>	782	737,378	746,338	746,338	-1.20	0.00
	<b>Black or African American</b>	5	1,198	298	4,271	-71.95	-93.03
	<b>Other</b>	122	75,805	67,746	63,773	18.87	6.23
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	41	24,679	21,443	21,443	15.09	0.00
	<b>Non-Hispanic or Latino</b>	868	789,702	792,938	792,938	-0.41	0.00
<b>Gender</b>	<b>Male</b>	444	403,999	403,999	403,999	0.00	0.00
	<b>Female</b>	465	410,382	410,382	410,382	0.00	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.29 2009 NSDUH Slippage Rates: NEBRASKA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		911	1,457,382	1,457,382	1,457,382	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	232	363,386	363,387	363,387	-0.00	0.00
	<b>Quarter 2</b>	250	363,911	363,911	363,911	0.00	0.00
	<b>Quarter 3</b>	191	364,664	364,664	364,664	-0.00	0.00
	<b>Quarter 4</b>	238	365,421	365,421	365,421	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	288	143,214	143,848	143,848	-0.44	0.00
	<b>18-25</b>	302	207,520	209,977	209,977	-1.17	0.00
	<b>26-34</b>	101	209,189	207,201	207,201	0.96	0.00
	<b>35-49</b>	129	354,109	343,774	343,774	3.01	0.00
	<b>50-64</b>	60	361,071	327,163	327,163	10.36	0.00
	<b>65+</b>	31	182,279	225,420	225,420	-19.14	0.00
<b>Race</b>	<b>White</b>	820	1,331,607	1,344,164	1,344,164	-0.93	0.00
	<b>Black or African American</b>	55	58,985	60,650	60,650	-2.74	0.00
	<b>Other</b>	36	66,789	52,568	52,568	27.05	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	58	104,346	101,001	101,001	3.31	0.00
	<b>Non-Hispanic or Latino</b>	853	1,353,036	1,356,381	1,356,381	-0.25	0.00
<b>Gender</b>	<b>Male</b>	460	716,652	716,652	716,652	-0.00	0.00
	<b>Female</b>	451	740,730	740,730	740,730	0.00	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.30 2009 NSDUH Slippage Rates: NEVADA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		930	2,144,323	2,144,323	2,144,323	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	198	534,164	534,164	534,164	0.00	0.00
	<b>Quarter 2</b>	297	535,467	535,467	535,467	0.00	0.00
	<b>Quarter 3</b>	195	536,806	536,806	536,806	0.00	0.00
	<b>Quarter 4</b>	240	537,887	537,887	537,887	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	312	215,718	214,441	214,441	0.60	0.00
	<b>18-25</b>	329	244,549	250,525	250,525	-2.39	0.00
	<b>26-34</b>	97	352,975	346,923	346,923	1.74	0.00
	<b>35-49</b>	122	543,418	557,582	557,582	-2.54	0.00
	<b>50-64</b>	43	451,207	472,950	472,950	-4.60	0.00
	<b>65+</b>	27	336,455	301,902	301,902	11.45	0.00
<b>Race</b>	<b>White</b>	703	1,635,510	1,743,756	1,743,756	-6.21	0.00
	<b>Black or African American</b>	66	186,433	167,402	167,402	11.37	0.00
	<b>Other</b>	161	322,380	233,165	233,165	38.26	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	342	496,643	505,139	505,139	-1.68	0.00
	<b>Non-Hispanic or Latino</b>	588	1,647,679	1,639,184	1,639,184	0.52	0.00
<b>Gender</b>	<b>Male</b>	454	1,081,284	1,081,598	1,081,598	-0.03	0.00
	<b>Female</b>	476	1,063,039	1,062,725	1,062,725	0.03	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.31 2009 NSDUH Slippage Rates: NEW HAMPSHIRE**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		944	1,125,160	1,125,160	1,125,160	0.00	-0.00
<b>Quarter</b>	<b>Quarter 1</b>	225	280,890	280,890	280,890	0.00	0.00
	<b>Quarter 2</b>	236	281,155	281,155	281,155	0.00	0.00
	<b>Quarter 3</b>	252	281,460	281,460	281,460	0.00	-0.00
	<b>Quarter 4</b>	231	281,655	281,654	281,655	0.00	-0.00
<b>Age Group</b>	<b>12-17</b>	326	104,788	105,079	105,079	-0.28	0.00
	<b>18-25</b>	283	133,722	134,825	134,825	-0.82	0.00
	<b>26-34</b>	90	136,251	136,115	136,115	0.10	-0.00
	<b>35-49</b>	166	304,962	299,680	299,681	1.76	-0.00
	<b>50-64</b>	51	295,853	279,762	279,762	5.75	0.00
	<b>65+</b>	28	149,586	169,699	169,699	-11.85	-0.00
<b>Race</b>	<b>White</b>	869	1,065,489	1,079,528	1,079,528	-1.30	-0.00
	<b>Black or African American</b>	8	2,389	7,133	12,498	-80.89	-42.92
	<b>Other</b>	67	57,282	38,499	33,135	72.88	16.19
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	27	27,412	26,862	26,862	2.05	-0.00
	<b>Non-Hispanic or Latino</b>	917	1,097,748	1,098,299	1,098,299	-0.05	-0.00
<b>Gender</b>	<b>Male</b>	476	551,587	551,587	551,587	0.00	-0.00
	<b>Female</b>	468	573,574	573,573	573,574	0.00	-0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.32 2009 NSDUH Slippage Rates: NEW JERSEY**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		906	7,241,790	7,241,790	7,241,791	-0.00	-0.00
<b>Quarter</b>	<b>Quarter 1</b>	243	1,806,245	1,806,245	1,806,245	-0.00	-0.00
	<b>Quarter 2</b>	226	1,808,649	1,808,649	1,808,649	0.00	0.00
	<b>Quarter 3</b>	211	1,811,902	1,811,902	1,811,902	-0.00	0.00
	<b>Quarter 4</b>	226	1,814,995	1,814,995	1,814,995	0.00	-0.00
<b>Age Group</b>	<b>12-17</b>	289	696,390	697,510	697,510	-0.16	0.00
	<b>18-25</b>	318	893,226	881,986	881,986	1.27	0.00
	<b>26-34</b>	75	976,132	947,902	947,902	2.98	0.00
	<b>35-49</b>	130	1,920,318	1,942,006	1,942,006	-1.12	-0.00
	<b>50-64</b>	60	1,805,077	1,647,052	1,647,052	9.59	0.00
	<b>65+</b>	34	950,647	1,125,336	1,125,336	-15.52	-0.00
<b>Race</b>	<b>White</b>	603	5,156,512	5,571,215	5,571,215	-7.44	-0.00
	<b>Black or African American</b>	125	1,038,724	994,038	994,038	4.50	-0.00
	<b>Other</b>	178	1,046,555	676,537	676,537	54.69	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	240	1,126,997	1,131,327	1,131,327	-0.38	0.00
	<b>Non-Hispanic or Latino</b>	666	6,114,794	6,110,463	6,110,463	0.07	-0.00
<b>Gender</b>	<b>Male</b>	459	3,501,480	3,501,428	3,501,429	0.00	-0.00
	<b>Female</b>	447	3,740,310	3,740,362	3,740,362	-0.00	-0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.33 2009 NSDUH Slippage Rates: NEW MEXICO**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		918	1,628,498	1,628,498	1,628,498	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	239	405,785	405,785	405,785	0.00	0.00
	<b>Quarter 2</b>	226	406,611	406,611	406,611	0.00	0.00
	<b>Quarter 3</b>	243	407,593	407,593	407,593	0.00	0.00
	<b>Quarter 4</b>	210	408,509	408,509	408,509	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	303	161,485	161,883	161,883	-0.25	0.00
	<b>18-25</b>	307	227,554	230,548	230,548	-1.30	0.00
	<b>26-34</b>	90	242,864	239,472	239,472	1.42	0.00
	<b>35-49</b>	131	377,668	377,668	377,668	0.00	0.00
	<b>50-64</b>	58	415,679	364,200	364,200	14.13	0.00
	<b>65+</b>	29	203,249	254,728	254,728	-20.21	0.00
<b>Race</b>	<b>White</b>	745	1,355,371	1,382,969	1,382,969	-2.00	0.00
	<b>Black or African American</b>	15	42,578	44,286	44,286	-3.86	0.00
	<b>Other</b>	158	230,549	201,243	201,243	14.56	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	515	716,874	707,079	707,079	1.39	0.00
	<b>Non-Hispanic or Latino</b>	403	911,624	921,420	921,420	-1.06	0.00
<b>Gender</b>	<b>Male</b>	440	791,543	790,995	790,995	0.07	0.00
	<b>Female</b>	478	836,956	837,503	837,503	-0.07	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.34 2009 NSDUH Slippage Rates: NEW YORK**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		3,707	16,380,098	16,380,098	16,380,098	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	788	4,088,176	4,088,176	4,088,176	0.00	0.00
	<b>Quarter 2</b>	972	4,091,687	4,091,687	4,091,687	0.00	0.00
	<b>Quarter 3</b>	1,052	4,097,315	4,097,315	4,097,315	-0.00	0.00
	<b>Quarter 4</b>	895	4,102,920	4,102,920	4,102,920	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	1,202	1,520,061	1,521,667	1,521,667	-0.11	0.00
	<b>18-25</b>	1,243	2,304,164	2,285,210	2,285,210	0.83	0.00
	<b>26-34</b>	335	2,199,669	2,266,582	2,266,582	-2.95	0.00
	<b>35-49</b>	595	4,204,955	4,133,420	4,133,420	1.73	0.00
	<b>50-64</b>	209	3,849,955	3,662,718	3,662,718	5.11	0.00
	<b>65+</b>	123	2,301,293	2,510,502	2,510,502	-8.33	0.00
<b>Race</b>	<b>White</b>	2,366	11,000,673	12,178,603	12,178,604	-9.67	-0.00
	<b>Black or African American</b>	627	2,809,372	2,704,966	2,704,966	3.86	0.00
	<b>Other</b>	714	2,570,053	1,496,528	1,496,528	71.73	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	795	2,576,553	2,598,479	2,598,479	-0.84	0.00
	<b>Non-Hispanic or Latino</b>	2,912	13,803,545	13,781,619	13,781,619	0.16	0.00
<b>Gender</b>	<b>Male</b>	1,808	7,853,134	7,847,151	7,847,151	0.08	0.00
	<b>Female</b>	1,899	8,526,964	8,532,947	8,532,947	-0.07	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.35 2009 NSDUH Slippage Rates: NORTH CAROLINA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		929	7,612,327	7,612,327	7,612,327	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	197	1,893,351	1,893,351	1,893,351	0.00	0.00
	<b>Quarter 2</b>	263	1,899,682	1,899,682	1,899,682	0.00	0.00
	<b>Quarter 3</b>	215	1,906,502	1,906,502	1,906,502	0.00	0.00
	<b>Quarter 4</b>	254	1,912,792	1,912,792	1,912,792	-0.00	0.00
<b>Age Group</b>	<b>12-17</b>	274	730,166	727,521	727,521	0.36	0.00
	<b>18-25</b>	350	937,340	958,312	958,312	-2.19	0.00
	<b>26-34</b>	85	1,089,739	1,071,412	1,071,412	1.71	0.00
	<b>35-49</b>	120	1,963,937	1,978,366	1,978,366	-0.73	0.00
	<b>50-64</b>	77	2,309,220	1,734,165	1,734,165	33.16	0.00
	<b>65+</b>	23	581,925	1,142,552	1,142,552	-49.07	0.00
<b>Race</b>	<b>White</b>	647	5,538,679	5,696,829	5,696,829	-2.78	0.00
	<b>Black or African American</b>	197	1,592,547	1,599,305	1,599,305	-0.42	0.00
	<b>Other</b>	85	481,100	316,193	316,193	52.15	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	78	506,171	471,850	471,850	7.27	0.00
	<b>Non-Hispanic or Latino</b>	851	7,106,156	7,140,477	7,140,477	-0.48	0.00
<b>Gender</b>	<b>Male</b>	439	3,632,490	3,635,413	3,635,413	-0.08	0.00
	<b>Female</b>	490	3,979,837	3,976,914	3,976,914	0.07	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.36 2009 NSDUH Slippage Rates: NORTH DAKOTA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		929	534,362	534,362	534,362	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	242	133,159	133,159	133,159	-0.00	-0.00
	<b>Quarter 2</b>	210	133,406	133,406	133,406	0.00	0.00
	<b>Quarter 3</b>	232	133,733	133,733	133,733	0.00	0.00
	<b>Quarter 4</b>	245	134,065	134,065	134,065	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	323	47,408	48,044	48,044	-1.33	0.00
	<b>18-25</b>	288	90,227	89,285	89,285	1.06	0.00
	<b>26-34</b>	85	69,251	71,040	71,040	-2.52	0.00
	<b>35-49</b>	121	116,432	115,727	115,727	0.61	0.00
	<b>50-64</b>	69	132,708	122,475	122,475	8.36	0.00
	<b>65+</b>	43	78,336	87,791	87,791	-10.77	-0.00
<b>Race</b>	<b>White</b>	831	494,070	494,222	494,222	-0.03	-0.00
	<b>Black or African American</b>	15	5,283	4,873	4,873	8.41	0.00
	<b>Other</b>	83	35,008	35,267	35,267	-0.73	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	18	9,416	9,961	9,961	-5.46	0.00
	<b>Non-Hispanic or Latino</b>	911	524,946	524,401	524,401	0.10	-0.00
<b>Gender</b>	<b>Male</b>	484	266,013	266,013	266,013	0.00	0.00
	<b>Female</b>	445	268,349	268,349	268,349	0.00	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.37 2009 NSDUH Slippage Rates: OHIO**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		3,585	9,581,963	9,581,963	9,581,963	0.00	-0.00
<b>Quarter</b>	<b>Quarter 1</b>	894	2,393,551	2,393,551	2,393,551	0.00	-0.00
	<b>Quarter 2</b>	927	2,394,177	2,394,177	2,394,177	0.00	-0.00
	<b>Quarter 3</b>	1,014	2,396,149	2,396,149	2,396,149	0.00	-0.00
	<b>Quarter 4</b>	750	2,398,087	2,398,087	2,398,087	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	1,212	932,212	931,091	931,091	0.12	0.00
	<b>18-25</b>	1,195	1,206,523	1,217,923	1,217,923	-0.94	0.00
	<b>26-34</b>	325	1,297,200	1,306,462	1,306,462	-0.71	0.00
	<b>35-49</b>	501	2,378,711	2,357,668	2,357,669	0.89	-0.00
	<b>50-64</b>	218	2,308,205	2,246,608	2,246,608	2.74	0.00
	<b>65+</b>	134	1,459,111	1,522,210	1,522,210	-4.15	-0.00
<b>Race</b>	<b>White</b>	2,976	8,139,670	8,219,434	8,219,434	-0.97	-0.00
	<b>Black or African American</b>	401	1,048,027	1,080,120	1,080,120	-2.97	0.00
	<b>Other</b>	208	394,265	282,409	282,409	39.61	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	135	221,022	232,687	232,687	-5.01	-0.00
	<b>Non-Hispanic or Latino</b>	3,450	9,360,941	9,349,276	9,349,276	0.12	0.00
<b>Gender</b>	<b>Male</b>	1,728	4,624,499	4,619,258	4,619,258	0.11	-0.00
	<b>Female</b>	1,857	4,957,463	4,962,704	4,962,704	-0.11	-0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.38 2009 NSDUH Slippage Rates: OKLAHOMA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		908	2,970,916	2,970,916	2,970,916	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	244	739,823	739,823	739,823	0.00	0.00
	<b>Quarter 2</b>	218	741,527	741,527	741,527	0.00	0.00
	<b>Quarter 3</b>	218	743,686	743,686	743,686	0.00	0.00
	<b>Quarter 4</b>	228	745,881	745,881	745,881	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	307	290,282	292,731	292,731	-0.84	0.00
	<b>18-25</b>	285	411,547	412,462	412,462	-0.22	0.00
	<b>26-34</b>	115	450,232	438,455	438,455	2.69	0.00
	<b>35-49</b>	118	678,937	690,537	690,537	-1.68	0.00
	<b>50-64</b>	44	527,541	665,932	665,932	-20.78	0.00
	<b>65+</b>	39	612,375	470,799	470,799	30.07	0.00
<b>Race</b>	<b>White</b>	587	2,180,181	2,360,132	2,360,132	-7.62	-0.00
	<b>Black or African American</b>	69	213,108	217,503	217,503	-2.02	0.00
	<b>Other</b>	252	577,626	393,281	393,281	46.87	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	116	207,062	204,549	204,549	1.23	0.00
	<b>Non-Hispanic or Latino</b>	792	2,763,853	2,766,366	2,766,366	-0.09	0.00
<b>Gender</b>	<b>Male</b>	414	1,438,686	1,438,686	1,438,686	0.00	0.00
	<b>Female</b>	494	1,532,230	1,532,230	1,532,230	0.00	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.39 2009 NSDUH Slippage Rates: OREGON**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		947	3,199,775	3,199,775	3,199,775	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	239	796,680	796,680	796,680	0.00	0.00
	<b>Quarter 2</b>	207	798,754	798,754	798,754	0.00	0.00
	<b>Quarter 3</b>	244	801,096	801,096	801,096	0.00	0.00
	<b>Quarter 4</b>	257	803,245	803,245	803,245	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	335	290,114	290,722	290,722	-0.21	0.00
	<b>18-25</b>	263	386,651	390,321	390,321	-0.94	0.00
	<b>26-34</b>	105	499,686	478,999	478,999	4.32	0.00
	<b>35-49</b>	138	749,728	766,138	766,138	-2.14	0.00
	<b>50-64</b>	64	710,256	770,402	770,402	-7.81	0.00
	<b>65+</b>	42	563,339	503,194	503,194	11.95	0.00
<b>Race</b>	<b>White</b>	820	2,852,895	2,900,498	2,900,498	-1.64	0.00
	<b>Black or African American</b>	14	68,420	58,164	58,164	17.63	0.00
	<b>Other</b>	113	278,461	241,113	241,113	15.49	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	155	320,143	299,021	299,021	7.06	0.00
	<b>Non-Hispanic or Latino</b>	792	2,879,632	2,900,754	2,900,754	-0.73	0.00
<b>Gender</b>	<b>Male</b>	482	1,573,247	1,569,490	1,569,490	0.24	0.00
	<b>Female</b>	465	1,626,528	1,630,286	1,630,286	-0.23	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.40 2009 NSDUH Slippage Rates: PENNSYLVANIA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		3,557	10,583,565	10,583,566	10,583,566	-0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	869	2,641,886	2,641,886	2,641,886	-0.00	0.00
	<b>Quarter 2</b>	963	2,643,605	2,643,605	2,643,605	0.00	0.00
	<b>Quarter 3</b>	921	2,647,143	2,647,143	2,647,143	-0.00	-0.00
	<b>Quarter 4</b>	804	2,650,931	2,650,931	2,650,931	-0.00	0.00
<b>Age Group</b>	<b>12-17</b>	1,185	976,789	973,827	973,827	0.30	0.00
	<b>18-25</b>	1,252	1,347,313	1,356,120	1,356,120	-0.65	-0.00
	<b>26-34</b>	266	1,322,977	1,319,478	1,319,478	0.27	0.00
	<b>35-49</b>	498	2,561,699	2,585,595	2,585,595	-0.92	0.00
	<b>50-64</b>	204	2,518,434	2,507,901	2,507,901	0.42	-0.00
	<b>65+</b>	152	1,856,354	1,840,645	1,840,645	0.85	0.00
<b>Race</b>	<b>White</b>	2,906	8,978,477	9,159,226	9,159,226	-1.97	0.00
	<b>Black or African American</b>	465	1,025,403	1,053,135	1,053,135	-2.63	0.00
	<b>Other</b>	186	579,685	371,204	371,204	56.16	-0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	222	513,036	455,711	455,711	12.58	0.00
	<b>Non-Hispanic or Latino</b>	3,335	10,070,529	10,127,855	10,127,855	-0.57	0.00
<b>Gender</b>	<b>Male</b>	1,718	5,092,413	5,092,413	5,092,413	-0.00	0.00
	<b>Female</b>	1,839	5,491,153	5,491,153	5,491,153	-0.00	-0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.41 2009 NSDUH Slippage Rates: RHODE ISLAND**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		913	889,360	889,360	889,360	0.00	-0.00
<b>Quarter</b>	<b>Quarter 1</b>	212	222,238	222,238	222,238	0.00	0.00
	<b>Quarter 2</b>	296	222,240	222,240	222,240	0.00	-0.00
	<b>Quarter 3</b>	171	222,369	222,369	222,369	0.00	-0.00
	<b>Quarter 4</b>	234	222,513	222,513	222,513	0.00	-0.00
<b>Age Group</b>	<b>12-17</b>	334	80,440	80,228	80,228	0.26	-0.00
	<b>18-25</b>	270	127,163	128,448	128,448	-1.00	-0.00
	<b>26-34</b>	76	119,031	115,140	115,140	3.38	-0.00
	<b>35-49</b>	141	217,623	220,442	220,442	-1.28	-0.00
	<b>50-64</b>	59	211,006	203,116	203,116	3.88	-0.00
	<b>65+</b>	33	134,097	141,987	141,987	-5.56	0.00
<b>Race</b>	<b>White</b>	722	759,366	795,065	795,065	-4.49	-0.00
	<b>Black or African American</b>	53	45,455	52,410	52,410	-13.27	0.00
	<b>Other</b>	138	84,540	41,885	41,885	101.84	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	145	87,538	94,835	94,835	-7.70	-0.00
	<b>Non-Hispanic or Latino</b>	768	801,823	794,525	794,525	0.92	-0.00
<b>Gender</b>	<b>Male</b>	419	425,292	426,275	426,275	-0.23	-0.00
	<b>Female</b>	494	464,068	463,085	463,085	0.21	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.42 2009 NSDUH Slippage Rates: SOUTH CAROLINA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		954	3,730,181	3,730,181	3,730,181	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	246	928,343	928,343	928,343	0.00	0.00
	<b>Quarter 2</b>	183	931,148	931,148	931,148	-0.00	-0.00
	<b>Quarter 3</b>	250	934,073	934,073	934,073	0.00	-0.00
	<b>Quarter 4</b>	275	936,618	936,618	936,618	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	348	354,296	354,659	354,659	-0.10	-0.00
	<b>18-25</b>	320	475,438	474,729	474,729	0.15	0.00
	<b>26-34</b>	80	495,527	506,303	506,303	-2.13	-0.00
	<b>35-49</b>	118	908,658	912,670	912,670	-0.44	-0.00
	<b>50-64</b>	52	846,619	879,503	879,503	-3.74	-0.00
	<b>65+</b>	36	649,643	602,317	602,317	7.86	0.00
<b>Race</b>	<b>White</b>	528	2,591,663	2,623,828	2,623,828	-1.23	0.00
	<b>Black or African American</b>	352	988,056	1,012,848	1,012,848	-2.45	-0.00
	<b>Other</b>	74	150,462	93,505	93,505	60.91	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	74	142,068	137,582	137,582	3.26	0.00
	<b>Non-Hispanic or Latino</b>	880	3,588,114	3,592,600	3,592,600	-0.12	-0.00
<b>Gender</b>	<b>Male</b>	457	1,770,863	1,770,863	1,770,863	0.00	-0.00
	<b>Female</b>	497	1,959,318	1,959,318	1,959,318	0.00	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.43 2009 NSDUH Slippage Rates: SOUTH DAKOTA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		920	659,093	659,093	659,093	-0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	228	164,252	164,252	164,252	-0.00	0.00
	<b>Quarter 2</b>	262	164,547	164,547	164,547	0.00	0.00
	<b>Quarter 3</b>	206	164,942	164,942	164,942	0.00	0.00
	<b>Quarter 4</b>	224	165,352	165,352	165,352	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	289	63,708	64,477	64,477	-1.19	0.00
	<b>18-25</b>	329	92,337	91,186	91,186	1.26	0.00
	<b>26-34</b>	80	87,756	89,675	89,675	-2.14	0.00
	<b>35-49</b>	119	149,055	149,394	149,394	-0.23	0.00
	<b>50-64</b>	50	137,082	154,202	154,202	-11.10	0.00
	<b>65+</b>	53	129,154	110,159	110,159	17.24	0.00
<b>Race</b>	<b>White</b>	792	576,658	592,203	592,203	-2.62	0.00
	<b>Black or African American</b>	9	7,186	6,102	6,102	17.76	0.00
	<b>Other</b>	119	75,249	60,788	60,788	23.79	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	29	19,446	14,755	14,755	31.79	0.00
	<b>Non-Hispanic or Latino</b>	891	639,647	644,338	644,338	-0.73	0.00
<b>Gender</b>	<b>Male</b>	447	325,053	325,054	325,054	-0.00	0.00
	<b>Female</b>	473	334,040	334,040	334,040	0.00	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.44 2009 NSDUH Slippage Rates: TENNESSEE**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		949	5,196,019	5,196,019	5,196,019	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	196	1,295,081	1,295,081	1,295,081	-0.00	0.00
	<b>Quarter 2</b>	195	1,297,435	1,297,435	1,297,435	0.00	0.00
	<b>Quarter 3</b>	284	1,300,361	1,300,361	1,300,361	-0.00	0.00
	<b>Quarter 4</b>	274	1,303,142	1,303,142	1,303,142	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	351	493,904	492,599	492,599	0.26	-0.00
	<b>18-25</b>	286	619,941	627,894	627,894	-1.27	0.00
	<b>26-34</b>	108	779,266	755,643	755,643	3.13	0.00
	<b>35-49</b>	129	1,284,522	1,310,007	1,310,007	-1.95	0.00
	<b>50-64</b>	50	1,222,507	1,203,861	1,203,861	1.55	0.00
	<b>65+</b>	25	795,878	806,015	806,015	-1.26	0.00
<b>Race</b>	<b>White</b>	709	4,164,410	4,236,117	4,236,117	-1.69	0.00
	<b>Black or African American</b>	206	839,716	824,839	824,839	1.80	0.00
	<b>Other</b>	34	191,893	135,063	135,063	42.08	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	40	174,375	172,701	172,701	0.97	0.00
	<b>Non-Hispanic or Latino</b>	909	5,021,644	5,023,318	5,023,318	-0.03	0.00
<b>Gender</b>	<b>Male</b>	454	2,496,686	2,494,190	2,494,190	0.10	0.00
	<b>Female</b>	495	2,699,333	2,701,829	2,701,829	-0.09	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.45 2009 NSDUH Slippage Rates: TEXAS**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		3,596	19,519,442	19,519,442	19,519,442	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	888	4,847,046	4,847,046	4,847,046	-0.00	0.00
	<b>Quarter 2</b>	936	4,868,331	4,868,331	4,868,331	0.00	0.00
	<b>Quarter 3</b>	934	4,891,133	4,891,133	4,891,133	0.00	0.00
	<b>Quarter 4</b>	838	4,912,933	4,912,933	4,912,933	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	1,181	2,116,839	2,118,403	2,118,403	-0.07	0.00
	<b>18-25</b>	1,179	2,752,099	2,768,449	2,768,449	-0.59	0.00
	<b>26-34</b>	429	3,196,098	3,151,426	3,151,426	1.42	0.00
	<b>35-49</b>	510	4,992,847	5,029,817	5,029,817	-0.74	0.00
	<b>50-64</b>	214	4,742,188	4,016,639	4,016,639	18.06	0.00
	<b>65+</b>	83	1,719,371	2,434,709	2,434,709	-29.38	0.00
<b>Race</b>	<b>White</b>	2,721	15,264,975	16,159,324	16,159,324	-5.53	0.00
	<b>Black or African American</b>	442	2,252,379	2,253,150	2,253,150	-0.03	0.00
	<b>Other</b>	433	2,002,088	1,106,968	1,106,968	80.86	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	1,525	6,847,071	6,715,296	6,715,296	1.96	0.00
	<b>Non-Hispanic or Latino</b>	2,071	12,672,371	12,804,146	12,804,146	-1.03	0.00
<b>Gender</b>	<b>Male</b>	1,761	9,541,813	9,579,902	9,579,902	-0.40	0.00
	<b>Female</b>	1,835	9,977,629	9,939,541	9,939,541	0.38	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.46 2009 NSDUH Slippage Rates: UTAH**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		918	2,144,172	2,144,172	2,144,172	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	242	532,202	532,202	532,202	0.00	0.00
	<b>Quarter 2</b>	213	534,744	534,744	534,744	0.00	0.00
	<b>Quarter 3</b>	234	537,388	537,388	537,388	0.00	0.00
	<b>Quarter 4</b>	229	539,837	539,837	539,837	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	316	251,842	253,766	253,766	-0.76	0.00
	<b>18-25</b>	297	373,082	377,293	377,293	-1.12	0.00
	<b>26-34</b>	98	403,005	398,021	398,021	1.25	0.00
	<b>35-49</b>	103	480,455	483,718	483,718	-0.67	0.00
	<b>50-64</b>	63	401,888	386,734	386,734	3.92	0.00
	<b>65+</b>	41	233,900	244,640	244,640	-4.39	0.00
<b>Race</b>	<b>White</b>	842	1,990,480	2,003,938	2,003,938	-0.67	0.00
	<b>Black or African American</b>	15	25,044	24,376	24,376	2.74	0.00
	<b>Other</b>	61	128,648	115,858	115,858	11.04	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	118	226,242	233,738	233,738	-3.21	0.00
	<b>Non-Hispanic or Latino</b>	800	1,917,929	1,910,434	1,910,434	0.39	0.00
<b>Gender</b>	<b>Male</b>	447	1,076,523	1,071,796	1,071,796	0.44	0.00
	<b>Female</b>	471	1,067,649	1,072,376	1,072,376	-0.44	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.47 2009 NSDUH Slippage Rates: VERMONT**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		897	535,921	535,921	535,921	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	241	133,892	133,892	133,892	0.00	0.00
	<b>Quarter 2</b>	255	133,945	133,945	133,945	0.00	0.00
	<b>Quarter 3</b>	211	134,021	134,021	134,021	0.00	0.00
	<b>Quarter 4</b>	190	134,063	134,063	134,063	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	287	46,581	46,695	46,695	-0.24	0.00
	<b>18-25</b>	318	68,259	68,659	68,659	-0.58	0.00
	<b>26-34</b>	58	64,360	63,847	63,847	0.80	-0.00
	<b>35-49</b>	139	130,344	131,319	131,319	-0.74	-0.00
	<b>50-64</b>	58	142,482	139,455	139,455	2.17	0.00
	<b>65+</b>	37	83,894	85,947	85,947	-2.39	0.00
<b>Race</b>	<b>White</b>	833	503,953	518,483	518,483	-2.80	0.00
	<b>Black or African American</b>	10	8,737	4,153	4,153	110.41	0.00
	<b>Other</b>	54	23,231	13,286	13,286	74.85	-0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	26	7,533	7,147	7,147	5.40	0.00
	<b>Non-Hispanic or Latino</b>	871	528,388	528,774	528,774	-0.07	0.00
<b>Gender</b>	<b>Male</b>	451	262,011	262,011	262,011	0.00	-0.00
	<b>Female</b>	446	273,911	273,911	273,911	0.00	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.48 2009 NSDUH Slippage Rates: VIRGINIA**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		918	6,410,227	6,410,227	6,410,227	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	219	1,596,065	1,596,065	1,596,065	0.00	0.00
	<b>Quarter 2</b>	255	1,600,326	1,600,326	1,600,326	0.00	0.00
	<b>Quarter 3</b>	237	1,604,903	1,604,903	1,604,903	0.00	-0.00
	<b>Quarter 4</b>	207	1,608,933	1,608,933	1,608,933	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	296	605,346	602,602	602,602	0.46	-0.00
	<b>18-25</b>	326	839,909	846,780	846,780	-0.81	-0.00
	<b>26-34</b>	79	914,015	922,137	922,137	-0.88	-0.00
	<b>35-49</b>	117	1,624,757	1,655,619	1,655,619	-1.86	0.00
	<b>50-64</b>	68	1,568,589	1,459,887	1,459,887	7.45	0.00
	<b>65+</b>	32	857,611	923,204	923,204	-7.10	0.00
<b>Race</b>	<b>White</b>	612	4,581,872	4,751,747	4,751,747	-3.58	0.00
	<b>Black or African American</b>	176	1,244,941	1,219,222	1,219,222	2.11	0.00
	<b>Other</b>	130	583,414	439,258	439,258	32.82	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	92	365,815	407,939	407,939	-10.33	0.00
	<b>Non-Hispanic or Latino</b>	826	6,044,412	6,002,289	6,002,289	0.70	0.00
<b>Gender</b>	<b>Male</b>	417	3,050,083	3,069,607	3,069,607	-0.64	-0.00
	<b>Female</b>	501	3,360,144	3,340,621	3,340,621	0.58	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.49 2009 NSDUH Slippage Rates: WASHINGTON**

Domain	<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>	936	5,509,332	5,509,332	5,509,332	-0.00	-0.00
<b>Quarter</b>						
<b>Quarter 1</b>	220	1,370,217	1,370,217	1,370,217	0.00	-0.00
<b>Quarter 2</b>	239	1,374,839	1,374,839	1,374,839	-0.00	-0.00
<b>Quarter 3</b>	282	1,379,832	1,379,832	1,379,832	0.00	-0.00
<b>Quarter 4</b>	195	1,384,445	1,384,445	1,384,445	-0.00	-0.00
<b>Age Group</b>						
<b>12-17</b>	311	520,358	520,243	520,243	0.02	-0.00
<b>18-25</b>	319	693,139	694,724	694,724	-0.23	-0.00
<b>26-34</b>	75	837,960	832,027	832,027	0.71	0.00
<b>35-49</b>	125	1,396,009	1,388,358	1,388,358	0.55	-0.00
<b>50-64</b>	69	1,355,004	1,290,118	1,290,118	5.03	0.00
<b>65+</b>	37	706,862	783,862	783,862	-9.82	-0.00
<b>Race</b>						
<b>White</b>	747	4,584,527	4,682,682	4,682,682	-2.10	-0.00
<b>Black or African American</b>	23	185,474	215,931	191,024	-2.91	13.04
<b>Other</b>	166	739,332	610,719	635,626	16.32	-3.92
<b>Hispanicity</b>						
<b>Hispanic or Latino</b>	123	502,168	473,069	473,069	6.15	-0.00
<b>Non-Hispanic or Latino</b>	813	5,007,165	5,036,263	5,036,263	-0.58	-0.00
<b>Gender</b>						
<b>Male</b>	469	2,714,143	2,712,012	2,712,012	0.08	-0.00
<b>Female</b>	467	2,795,189	2,797,320	2,797,320	-0.08	-0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.50 2009 NSDUH Slippage Rates: WEST VIRGINIA**

Domain	<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>	890	1,539,997	1,539,997	1,539,997	0.00	0.00
<b>Quarter</b>						
<b>Quarter 1</b>	201	384,535	384,535	384,535	0.00	0.00
<b>Quarter 2</b>	249	384,708	384,708	384,708	0.00	0.00
<b>Quarter 3</b>	278	385,141	385,141	385,141	0.00	0.00
<b>Quarter 4</b>	162	385,613	385,613	385,613	0.00	0.00
<b>Age Group</b>						
<b>12-17</b>	297	131,789	131,213	131,213	0.44	0.00
<b>18-25</b>	290	174,724	177,100	177,100	-1.34	-0.00
<b>26-34</b>	85	207,662	206,498	206,498	0.56	0.00
<b>35-49</b>	129	360,577	363,166	363,166	-0.71	0.00
<b>50-64</b>	45	329,798	384,787	384,787	-14.29	0.00
<b>65+</b>	44	335,448	277,233	277,233	21.00	0.00
<b>Race</b>						
<b>White</b>	809	1,454,447	1,465,016	1,465,016	-0.72	0.00
<b>Black or African American</b>	39	47,276	48,883	48,883	-3.29	-0.00
<b>Other</b>	42	38,275	26,098	26,098	46.65	0.00
<b>Hispanicity</b>						
<b>Hispanic or Latino</b>	19	9,837	16,354	16,354	-39.85	0.00
<b>Non-Hispanic or Latino</b>	871	1,530,160	1,523,644	1,523,644	0.43	0.00
<b>Gender</b>						
<b>Male</b>	435	762,128	747,545	747,545	1.95	0.00
<b>Female</b>	455	777,869	792,453	792,453	-1.84	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.51 2009 NSDUH Slippage Rates: WISCONSIN**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		943	4,708,003	4,708,003	4,708,003	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	207	1,174,718	1,174,718	1,174,718	0.00	0.00
	<b>Quarter 2</b>	257	1,176,015	1,176,015	1,176,015	-0.00	0.00
	<b>Quarter 3</b>	273	1,177,822	1,177,822	1,177,822	0.00	0.00
	<b>Quarter 4</b>	206	1,179,448	1,179,448	1,179,448	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	357	445,433	445,433	445,433	-0.00	0.00
	<b>18-25</b>	277	602,734	617,562	617,562	-2.40	0.00
	<b>26-34</b>	82	665,565	641,815	641,815	3.70	0.00
	<b>35-49</b>	133	1,200,024	1,176,744	1,176,744	1.98	0.00
	<b>50-64</b>	58	1,106,551	1,099,278	1,099,278	0.66	0.00
	<b>65+</b>	36	687,696	727,170	727,170	-5.43	0.00
<b>Race</b>	<b>White</b>	788	4,231,929	4,281,547	4,281,547	-1.16	0.00
	<b>Black or African American</b>	78	253,517	250,940	250,940	1.03	0.00
	<b>Other</b>	77	222,556	175,515	175,515	26.80	0.00
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	59	231,153	210,362	210,362	9.88	0.00
	<b>Non-Hispanic or Latino</b>	884	4,476,849	4,497,640	4,497,640	-0.46	0.00
<b>Gender</b>	<b>Male</b>	442	2,336,342	2,318,380	2,318,380	0.77	0.00
	<b>Female</b>	501	2,371,661	2,389,622	2,389,622	-0.75	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table H.52 2009 NSDUH Slippage Rates: WYOMING**

Domain		<i>n</i>	Initial Total (I) <sup>1</sup>	Final Total (F) <sup>2</sup>	Census Total (C)	(I-C)/C%	(F-C)/C%
<b>Total</b>		923	444,942	444,942	444,942	0.00	0.00
<b>Quarter</b>	<b>Quarter 1</b>	268	110,519	110,519	110,519	-0.00	0.00
	<b>Quarter 2</b>	223	110,964	110,964	110,964	0.00	0.00
	<b>Quarter 3</b>	208	111,474	111,474	111,474	0.00	0.00
	<b>Quarter 4</b>	224	111,986	111,986	111,986	0.00	0.00
<b>Age Group</b>	<b>12-17</b>	280	41,901	42,044	42,044	-0.34	0.00
	<b>18-25</b>	336	60,851	60,915	60,915	-0.10	0.00
	<b>26-34</b>	85	65,851	65,660	65,660	0.29	0.00
	<b>35-49</b>	125	102,827	102,811	102,811	0.02	0.00
	<b>50-64</b>	59	101,681	109,332	109,332	-7.00	0.00
	<b>65+</b>	38	71,831	64,180	64,180	11.92	-0.00
<b>Race</b>	<b>White</b>	827	414,353	421,091	421,091	-1.60	0.00
	<b>Black or African American</b>	15	5,043	7,572	4,634	8.83	63.42
	<b>Other</b>	81	25,546	16,279	19,218	32.93	-15.29
<b>Hispanicity</b>	<b>Hispanic or Latino</b>	109	32,906	31,234	31,234	5.35	0.00
	<b>Non-Hispanic or Latino</b>	814	412,036	413,708	413,708	-0.40	-0.00
<b>Gender</b>	<b>Male</b>	461	223,422	223,422	223,422	0.00	0.00
	<b>Female</b>	462	221,520	221,520	221,520	0.00	0.00

<sup>1</sup> Weight1\*...\*Weight13 (before person poststratification).

<sup>2</sup> Weight1\*...\*Weight14 (after person poststratification).

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009

# **Appendix I: Evaluation of Calibration Weights: Weight Summary Statistics**



**Table I.1 2009 NSDUH Dwelling Unit–Level Weight Summary Statistics: United States, District of Columbia, and the 50 States**

Domain	n	Before res.du.nr (Weight1*...*Weight7) <sup>1</sup>						After res.du.nr & Before res.du.ps (Weight1*...*Weight8) <sup>1</sup>						After res.du.ps (Weight1*...*Weight9) <sup>1</sup>					
		Min	Q1 <sup>2</sup>	Med	Q3 <sup>2</sup>	Max	UWE <sup>3</sup>	Min	Q1 <sup>2</sup>	Med	Q3 <sup>2</sup>	Max	UWE <sup>3</sup>	Min	Q1 <sup>2</sup>	Med	Q3 <sup>2</sup>	Max	UWE <sup>3</sup>
United States	143,565	16	390	575	855	4,225	1.41	52	422	657	959	7,043	1.43	23	431	698	1,057	8,745	1.49
Alaska	1,631	99	102	112	145	175	1.03	103	108	123	163	201	1.04	59	120	151	181	741	1.13
Alabama	2,128	687	733	815	861	1,468	1.02	723	791	886	933	1,797	1.02	151	772	870	994	3,517	1.06
Arkansas	1,965	400	424	485	506	616	1.02	412	460	526	574	704	1.02	94	509	594	669	1,763	1.08
Arizona	1,778	459	847	894	1,247	4,225	1.34	459	888	952	1,551	7,043	1.60	235	930	1,247	1,566	5,732	1.32
California	6,499	125	1,232	1,349	1,474	3,197	1.02	719	1,492	1,604	1,736	4,795	1.03	393	1,592	1,836	2,106	8,745	1.08
Colorado	2,088	622	654	770	791	1,098	1.02	633	770	823	851	1,126	1.01	173	766	879	1,017	2,852	1.09
Connecticut	1,805	482	565	610	692	713	1.01	562	638	694	795	1,438	1.02	130	620	741	823	3,277	1.11
District of Columbia	2,851	51	62	67	81	181	1.05	52	71	79	96	173	1.07	28	76	91	109	470	1.12
Delaware	1,862	92	127	132	140	176	1.01	122	144	153	160	291	1.01	28	163	179	197	484	1.06
Florida	8,040	126	634	657	742	3,327	1.09	443	685	729	791	1,351	1.02	228	785	885	1,008	3,338	1.05
Georgia	1,716	481	1,322	1,585	1,971	2,608	1.06	1,000	1,474	1,777	2,221	3,542	1.07	428	1,724	2,012	2,500	5,595	1.09
Hawaii	2,154	54	108	116	138	294	1.06	59	121	136	176	443	1.18	33	129	160	231	1,165	1.28
Iowa	2,049	439	457	467	557	683	1.01	454	496	518	586	821	1.01	153	505	565	651	2,819	1.09
Idaho	1,671	239	247	270	321	450	1.02	242	259	325	339	470	1.02	85	306	341	376	982	1.05
Illinois	7,097	101	466	515	527	552	1.00	381	567	608	665	1,085	1.02	140	586	654	736	3,144	1.06
Indiana	2,087	881	921	992	1,081	1,551	1.04	895	978	1,080	1,158	1,710	1.04	197	1,013	1,119	1,358	5,619	1.11
Kansas	1,906	375	390	523	592	700	1.04	384	427	586	666	829	1.04	79	486	590	664	3,255	1.07
Kentucky	1,828	331	733	744	778	1,608	1.01	665	771	802	833	1,326	1.01	174	859	926	1,035	2,056	1.04
Louisiana	1,993	640	664	710	721	968	1.02	645	726	749	786	1,103	1.02	138	716	805	950	3,511	1.09
Massachusetts	2,385	507	768	915	1,008	1,253	1.02	780	870	1,117	1,214	3,345	1.04	198	868	1,046	1,217	5,439	1.15
Maryland	1,581	321	820	945	1,067	1,842	1.02	390	1,026	1,179	1,282	2,581	1.02	203	1,080	1,217	1,406	3,040	1.07
Maine	2,150	175	190	217	240	541	1.03	182	202	234	260	415	1.02	37	233	263	289	1,249	1.13
Michigan	7,345	40	347	476	493	631	1.02	104	408	531	558	785	1.03	102	442	554	598	1,777	1.04
Minnesota	1,854	752	825	952	970	1,310	1.01	752	957	1,002	1,040	1,412	1.01	211	988	1,119	1,227	4,142	1.06
Missouri	1,933	711	881	1,034	1,087	1,210	1.01	711	991	1,094	1,155	1,555	1.01	212	1,028	1,238	1,374	2,881	1.05

(continued)

**Table I.1 2009 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) <sup>1</sup>						After res.du.nr & Before res.du.ps (Weight1*...*Weight8) <sup>1</sup>						After res.du.ps (Weight1*...*Weight9) <sup>1</sup>					
		Min	Q1 <sup>2</sup>	Med	Q3 <sup>2</sup>	Max	UWE <sup>3</sup>	Min	Q1 <sup>2</sup>	Med	Q3 <sup>2</sup>	Max	UWE <sup>3</sup>	Min	Q1 <sup>2</sup>	Med	Q3 <sup>2</sup>	Max	UWE <sup>3</sup>
Mississippi	1,527	397	413	560	636	747	1.04	415	441	588	685	804	1.04	121	565	679	798	2,996	1.11
Montana	2,026	156	160	164	193	283	1.02	158	171	177	203	305	1.02	39	176	202	233	725	1.06
North Carolina	1,919	1,407	1,453	1,551	1,883	2,336	1.02	1,445	1,600	1,693	1,898	2,435	1.02	365	1,743	1,890	2,224	6,198	1.07
North Dakota	2,290	88	97	104	122	131	1.01	93	104	110	125	147	1.01	23	108	115	123	574	1.04
Nebraska	1,830	290	305	317	340	473	1.02	298	317	339	389	514	1.02	63	330	366	411	2,058	1.11
New Hampshire	2,004	212	219	224	232	520	1.01	216	242	248	274	371	1.01	52	233	255	283	1,044	1.06
New Jersey	1,766	1,349	1,435	1,477	1,528	2,992	1.01	1,388	1,586	1,653	1,758	2,398	1.01	317	1,570	1,814	2,029	8,381	1.11
New Mexico	1,916	53	277	285	339	509	1.03	97	292	323	372	547	1.04	83	323	380	461	2,476	1.13
Nevada	1,941	255	265	299	421	994	1.13	256	289	316	439	1,011	1.12	216	385	455	538	2,090	1.14
New York	8,289	468	564	598	671	1,227	1.02	479	708	785	897	1,765	1.05	254	715	836	989	4,936	1.12
Ohio	7,847	38	474	501	535	621	1.01	343	505	537	583	1,380	1.01	111	520	578	654	1,773	1.04
Oklahoma	1,964	538	584	591	697	799	1.01	558	636	686	733	888	1.01	116	607	735	863	3,184	1.13
Oregon	2,184	293	490	560	612	636	1.01	477	562	617	664	726	1.01	209	610	685	764	1,906	1.05
Pennsylvania	7,205	62	537	547	613	1,712	1.04	346	595	633	686	2,006	1.05	144	597	655	734	2,787	1.08
Rhode Island	2,061	16	129	177	189	226	1.03	128	148	205	214	645	1.04	33	158	203	236	754	1.11
South Carolina	2,145	296	528	553	695	1,660	1.04	498	569	676	744	1,380	1.05	117	670	786	926	2,104	1.09
South Dakota	1,942	126	131	138	162	169	1.01	126	137	144	168	232	1.01	25	147	163	181	804	1.07
Tennessee	2,298	345	795	867	933	1,057	1.01	592	872	931	1,041	1,381	1.02	172	927	1,020	1,193	3,945	1.07
Texas	6,591	377	1,015	1,051	1,077	3,532	1.06	905	1,087	1,132	1,184	3,974	1.07	243	1,150	1,252	1,395	6,314	1.10
Utah	1,306	417	496	515	570	604	1.01	421	524	555	599	637	1.01	99	588	671	752	2,902	1.12
Virginia	1,924	253	1,131	1,219	1,319	1,499	1.01	832	1,270	1,399	1,509	1,819	1.01	239	1,321	1,510	1,756	4,527	1.08
Vermont	1,908	66	106	108	125	187	1.01	67	115	121	133	167	1.01	26	120	131	153	561	1.06
Washington	1,913	885	1,061	1,095	1,130	1,564	1.01	1,022	1,156	1,195	1,263	2,270	1.01	305	1,169	1,278	1,432	6,029	1.08
Wisconsin	2,180	400	711	844	983	1,892	1.04	430	774	908	1,103	1,669	1.04	195	890	998	1,205	3,477	1.05
West Virginia	2,288	246	255	276	288	378	1.02	253	278	307	322	437	1.02	54	290	317	365	954	1.06
Wyoming	1,905	86	89	94	101	142	1.01	86	95	100	107	137	1.01	26	104	114	124	295	1.04

<sup>1</sup> Weight1\*...\*Weight7 are design-based weight components; nr = nonresponse adjustment; ps = poststratification adjustment.

<sup>2</sup> Q1 and Q3 refer to the first and third quartile of the weight distribution.

<sup>3</sup> Unequal weighting effect (UWE) is defined as  $1 + [(n - 1)/n] * CV^2$ , where CV = coefficient of variation of weights.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table I.2 2009 NSDUH Selected Person-Level Weight Summary Statistics: United States, District of Columbia, and the 50 States**

Domain	n	Before sel.per.ps (Weight1*...*Weight11) <sup>1</sup>						After sel.per.ps (Weight1*...*Weight12) <sup>1</sup>					
		Min	Q1 <sup>2</sup>	Med	Q3 <sup>2</sup>	Max	UWE <sup>3</sup>	Min	Q1 <sup>2</sup>	Med	Q3 <sup>2</sup>	Max	UWE <sup>3</sup>
United States	85,429	27	693	1,310	3,476	64,484	2.91	6	671	1,300	3,413	67,009	2.98
Alaska	1,110	66	151	239	697	6,130	2.27	32	148	254	677	3,597	2.16
Alabama	1,174	249	1,002	1,550	5,024	22,310	2.12	114	997	1,535	4,685	49,596	2.24
Arkansas	1,133	105	605	898	3,061	12,216	2.15	22	605	935	3,052	18,894	2.28
Arizona	1,110	297	1,267	2,005	6,254	64,484	3.11	134	1,171	2,141	5,741	49,091	2.84
California	4,734	586	2,108	3,181	9,349	52,367	1.98	303	2,105	3,197	8,965	44,580	1.96
Colorado	1,195	176	896	1,246	4,306	23,077	2.39	45	825	1,292	4,385	30,777	2.98
Connecticut	1,147	131	736	1,030	3,854	22,563	2.44	34	710	1,091	3,607	46,059	2.84
District of Columbia	1,042	28	131	220	663	2,795	2.19	22	115	232	619	4,331	2.60
Delaware	1,129	35	182	236	965	6,513	2.53	17	175	248	954	8,615	2.56
Florida	4,407	283	954	1,301	5,351	29,974	2.20	242	938	1,354	5,427	23,536	2.25
Georgia	1,082	528	2,414	3,403	10,625	50,797	2.11	192	2,332	3,473	10,250	54,877	2.21
Hawaii	1,321	42	191	405	1,106	6,892	2.31	25	181	450	1,129	5,529	2.24
Iowa	1,099	189	651	926	3,348	16,826	2.22	79	649	964	3,325	14,509	2.14
Idaho	1,119	102	372	496	1,569	6,665	2.05	34	376	562	1,464	6,384	2.00
Illinois	4,786	142	730	1,006	3,189	20,427	2.02	54	735	1,064	3,050	33,906	2.03
Indiana	1,119	202	1,525	2,172	6,710	37,690	1.93	55	1,514	2,250	6,740	21,834	1.96
Kansas	1,132	94	630	844	3,277	10,102	2.07	20	578	841	3,013	13,865	2.27
Kentucky	1,118	178	992	1,252	5,230	18,664	2.14	81	960	1,329	4,789	23,312	2.08
Louisiana	1,143	151	1,058	1,546	4,341	23,009	1.97	122	1,018	1,664	4,115	32,949	2.14
Massachusetts	1,239	264	1,301	1,949	6,367	43,153	2.19	140	1,211	1,858	6,149	33,347	2.23
Maryland	1,050	232	1,313	1,904	6,148	34,053	2.13	72	1,201	1,870	5,645	51,224	2.73
Maine	1,132	37	264	332	1,531	17,932	2.92	9	240	317	1,516	10,351	2.72
Michigan	4,530	118	560	761	2,693	14,816	2.15	35	570	772	2,719	14,531	2.19
Minnesota	1,132	247	1,168	1,478	5,133	54,145	2.42	165	1,133	1,512	5,926	27,648	2.28
Missouri	1,112	215	1,298	1,859	6,089	28,126	2.22	43	1,223	1,948	5,940	38,369	2.44

(continued)

**Table I.2 2009 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) <sup>1</sup>						After sel.per.ps (Weight1*...*Weight12) <sup>1</sup>					
		Min	Q1 <sup>2</sup>	Med	Q3 <sup>2</sup>	Max	UWE <sup>3</sup>	Min	Q1 <sup>2</sup>	Med	Q3 <sup>2</sup>	Max	UWE <sup>3</sup>
Mississippi	1,090	140	746	1,028	3,277	15,969	2.05	57	738	1,083	2,819	18,526	2.11
Montana	1,119	48	203	275	994	6,860	2.55	10	194	294	936	5,098	2.64
North Carolina	1,112	455	2,037	2,666	10,407	41,638	2.30	259	1,898	2,778	10,872	67,009	2.34
North Dakota	1,149	27	135	253	647	2,610	1.93	29	148	256	641	3,251	1.95
Nebraska	1,125	71	420	566	1,758	7,779	2.13	52	416	600	1,709	12,532	2.22
New Hampshire	1,190	56	271	384	1,333	8,968	2.39	28	280	369	1,260	8,986	2.45
New Jersey	1,172	351	1,714	2,639	9,414	48,400	2.16	308	1,664	2,645	9,312	54,018	2.28
New Mexico	1,115	94	437	670	1,853	14,285	2.36	28	417	692	1,837	19,887	2.43
Nevada	1,149	231	485	727	2,881	24,132	2.40	143	476	759	2,515	22,757	2.56
New York	5,021	339	960	1,409	4,291	49,014	2.25	90	968	1,465	4,050	42,657	2.43
Ohio	4,392	112	679	884	3,289	21,683	2.06	85	672	917	3,389	12,508	2.06
Oklahoma	1,124	137	788	1,223	3,605	33,121	2.28	30	749	1,292	3,466	31,585	2.56
Oregon	1,170	212	712	1,243	4,158	21,756	2.10	123	716	1,252	4,036	21,803	2.16
Pennsylvania	4,391	172	700	902	3,455	24,431	2.25	36	685	936	3,435	17,825	2.33
Rhode Island	1,155	34	215	352	1,022	7,519	2.35	12	190	359	1,014	16,965	2.73
South Carolina	1,153	148	839	1,342	4,409	19,657	2.25	39	746	1,267	4,245	33,319	2.68
South Dakota	1,088	45	186	240	878	4,587	2.07	20	182	265	837	5,634	2.19
Tennessee	1,172	219	1,283	1,840	5,768	25,338	2.07	133	1,256	1,825	5,979	30,872	2.36
Texas	4,388	260	1,434	2,016	6,289	61,545	2.14	66	1,465	2,123	6,106	39,814	2.07
Utah	1,101	102	691	968	2,915	13,473	1.96	25	683	1,011	3,289	11,821	1.80
Virginia	1,125	275	1,626	2,439	8,680	37,195	2.14	63	1,675	2,416	8,935	58,520	2.25
Vermont	1,056	28	142	187	746	4,882	2.29	6	144	204	736	3,297	2.34
Washington	1,158	309	1,348	1,853	7,031	31,345	2.33	168	1,344	1,916	7,348	42,765	2.24
Wisconsin	1,163	214	1,128	1,696	5,944	19,697	2.21	60	1,075	1,773	5,958	48,038	2.35
West Virginia	1,118	64	369	492	1,985	7,543	2.33	22	370	515	1,973	10,268	2.41
Wyoming	1,138	33	126	158	664	2,808	2.03	9	121	169	550	2,830	2.29

<sup>1</sup> Weight1\*...\*Weight11 and Weight1\*...\*Weight12 used demographic variables from screener data; ps = poststratification adjustment.

<sup>2</sup> Q1 and Q3 refer to the first and third quartile of the weight distribution.

<sup>3</sup> Unequal weighting effect (UWE) is defined as  $1 + [(n - 1)/n] * CV^2$ , where CV = coefficient of variation of weights.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.

**Table I.3 2009 NSDUH Respondent Person-Level Weight Summary Statistics: United States, District of Columbia, and the 50 States**

Domain	n	Before res.per.nr (Weight1*...*Weight12) <sup>1</sup>						After res.per.nr (Weight1*...*Weight13) <sup>1</sup>						Before res.per.ps (Weight1*...*Weight13) <sup>2</sup>						Final Weight After res.per.ps (Weight1*...*Weight14) <sup>2</sup>					
		Min	Q1 <sup>3</sup>	Med	Q3 <sup>3</sup>	Max	UWE <sup>4</sup>	Min	Q1 <sup>3</sup>	Med	Q3 <sup>3</sup>	Max	UWE <sup>4</sup>	Min	Q1 <sup>3</sup>	Med	Q3 <sup>3</sup>	Max	UWE <sup>4</sup>	Min	Q1 <sup>3</sup>	Med	Q3 <sup>3</sup>	Max	UWE <sup>4</sup>
United States	68,700	6	649	1,235	3,117	58,520	3.05	6	766	1,484	3,962	95,365	3.43	6	766	1,484	3,962	95,365	3.43	1	730	1,466	3,930	112,978	3.59
Alaska	902	32	148	243	646	3,597	2.23	32	175	283	856	4,579	2.28	32	175	283	856	4,579	2.28	27	165	277	799	5,327	2.47
Alabama	944	137	977	1,512	4,430	49,596	2.31	138	1,125	1,840	5,484	45,188	2.34	138	1,125	1,840	5,484	45,188	2.34	49	1,121	1,865	5,412	37,168	2.32
Arkansas	914	22	606	920	2,850	18,894	2.37	22	697	1,077	3,489	19,307	2.46	22	697	1,077	3,489	19,307	2.46	6	708	1,101	3,610	25,476	2.64
Arizona	916	134	1,134	2,098	5,072	49,091	2.85	139	1,368	2,412	6,419	82,892	3.24	139	1,368	2,412	6,419	82,892	3.24	63	1,269	2,459	6,345	88,717	3.32
California	3,660	303	2,063	3,026	8,443	44,580	2.00	334	2,485	3,804	11,317	91,620	2.31	334	2,485	3,804	11,317	91,620	2.31	67	2,542	3,920	11,965	72,822	2.37
Colorado	984	45	818	1,244	3,942	30,684	2.98	46	889	1,405	4,869	77,467	3.60	46	889	1,405	4,869	77,467	3.60	11	895	1,427	4,757	79,191	3.64
Connecticut	915	34	693	1,072	3,223	46,059	3.02	34	796	1,296	3,906	46,624	3.16	34	796	1,296	3,906	46,624	3.16	27	771	1,227	4,142	64,672	3.33
District of Columbia	886	22	115	228	608	4,331	2.66	22	136	266	751	4,994	2.61	22	136	266	751	4,994	2.61	7	128	259	749	6,458	2.78
Delaware	920	17	169	242	812	8,615	2.72	19	192	291	1,046	7,359	2.90	19	192	291	1,046	7,359	2.90	15	195	306	1,014	12,348	3.46
Florida	3,648	242	914	1,286	5,007	22,704	2.30	242	1,037	1,541	6,069	36,497	2.66	242	1,037	1,541	6,069	36,497	2.66	95	1,076	1,599	6,155	33,545	2.70
Georgia	907	192	2,263	3,281	9,386	54,877	2.25	197	2,478	3,737	11,165	95,365	2.69	197	2,478	3,737	11,165	95,365	2.69	86	2,409	3,816	10,334	104,649	2.91
Hawaii	960	25	169	397	975	5,529	2.34	29	217	567	1,309	10,796	2.66	29	217	567	1,309	10,796	2.66	6	197	524	1,365	11,403	2.76
Iowa	924	79	633	947	3,224	14,424	2.17	79	764	1,142	3,879	24,919	2.26	79	764	1,142	3,879	24,919	2.26	27	749	1,174	3,848	20,600	2.33
Idaho	916	34	365	517	1,339	6,384	2.05	45	420	639	1,708	10,567	2.32	45	420	639	1,708	10,567	2.32	10	422	647	1,692	11,913	2.36
Illinois	3,655	54	715	1,007	2,910	33,906	2.09	58	894	1,287	3,867	26,754	2.25	58	894	1,287	3,867	26,754	2.25	17	919	1,326	3,818	40,207	2.34
Indiana	904	102	1,509	2,144	6,537	21,834	1.99	128	1,758	2,660	8,120	52,207	2.15	128	1,758	2,660	8,120	52,207	2.15	110	1,756	2,699	8,194	44,170	2.18
Kansas	909	20	571	827	2,745	13,865	2.32	31	646	970	3,431	24,735	2.62	31	646	970	3,431	24,735	2.62	7	694	1,059	3,312	25,375	2.60
Kentucky	912	81	961	1,310	4,631	23,312	2.10	143	1,020	1,514	5,658	28,526	2.35	143	1,020	1,514	5,658	28,526	2.35	34	1,077	1,554	5,675	32,729	2.45
Louisiana	923	122	1,003	1,577	3,883	32,949	2.16	345	1,174	1,877	4,893	34,503	2.33	345	1,174	1,877	4,893	34,503	2.33	115	1,197	1,881	5,029	33,860	2.33
Massachusetts	969	140	1,171	1,784	5,875	30,548	2.27	140	1,430	2,243	7,797	44,140	2.52	140	1,430	2,243	7,797	44,140	2.52	46	1,512	2,312	7,994	59,290	2.54
Maryland	887	72	1,191	1,819	5,213	51,224	2.84	278	1,361	2,108	6,255	63,519	3.01	278	1,361	2,108	6,255	63,519	3.01	150	1,265	1,988	6,442	112,978	3.35
Maine	964	11	237	315	1,476	10,351	2.82	11	272	372	1,704	9,825	2.76	11	272	372	1,704	9,825	2.76	3	268	368	1,746	10,146	2.92
Michigan	3,639	35	562	757	2,607	14,531	2.23	54	662	927	3,365	23,020	2.39	54	662	927	3,365	23,020	2.39	11	668	942	3,384	20,733	2.43
Minnesota	925	165	1,110	1,490	5,787	27,648	2.32	248	1,254	1,817	7,032	32,392	2.53	248	1,254	1,817	7,032	32,392	2.53	105	1,275	1,892	7,069	31,951	2.54
Missouri	889	43	1,215	1,831	5,530	38,369	2.44	61	1,402	2,260	6,614	59,781	2.73	61	1,402	2,260	6,614	59,781	2.73	28	1,397	2,311	6,509	58,860	2.72

(continued)

**Table I.3 2009 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) <sup>1</sup>						After res.per.nr (Weight1*...*Weight13) <sup>1</sup>						Before res.per.ps (Weight1*...*Weight13) <sup>2</sup>						Final Weight After res.per.ps (Weight1*...*Weight14) <sup>2</sup>					
		Min	Q1 <sup>3</sup>	Med	Q3 <sup>3</sup>	Max	UWE <sup>4</sup>	Min	Q1 <sup>3</sup>	Med	Q3 <sup>3</sup>	Max	UWE <sup>4</sup>	Min	Q1 <sup>3</sup>	Med	Q3 <sup>3</sup>	Max	UWE <sup>4</sup>	Min	Q1 <sup>3</sup>	Med	Q3 <sup>3</sup>	Max	UWE <sup>4</sup>
Mississippi	891	71	729	1,044	2,672	14,083	2.11	72	861	1,257	3,516	25,039	2.32	72	861	1,257	3,516	25,039	2.32	197	862	1,262	3,542	21,318	2.33
Montana	909	10	191	286	872	5,098	2.68	10	234	331	1,106	8,672	3.01	10	234	331	1,106	8,672	3.01	2	234	346	1,085	8,662	3.00
North Carolina	929	259	1,895	2,742	9,966	40,986	2.31	352	2,178	3,109	12,307	61,499	2.47	352	2,178	3,109	12,307	61,499	2.47	160	2,199	3,193	11,882	108,324	2.75
North Dakota	929	29	141	249	606	2,600	1.99	29	150	295	793	4,541	2.16	29	150	295	793	4,541	2.16	13	147	283	825	8,184	2.38
Nebraska	911	52	414	584	1,671	12,532	2.30	52	477	704	2,089	12,165	2.37	52	477	704	2,089	12,165	2.37	34	481	699	2,148	29,741	2.69
New Hampshire	944	28	274	360	1,207	8,986	2.52	61	319	450	1,549	13,859	2.78	61	319	450	1,549	13,859	2.78	16	329	462	1,527	11,258	2.78
New Jersey	906	308	1,535	2,543	8,516	54,018	2.34	310	1,925	3,195	10,906	84,403	2.73	310	1,925	3,195	10,906	84,403	2.73	33	1,900	3,205	10,274	92,307	2.88
New Mexico	918	34	413	649	1,655	19,887	2.51	34	471	780	2,085	24,098	2.93	34	471	780	2,085	24,098	2.93	7	490	774	2,065	23,618	3.07
Nevada	930	143	467	726	2,151	22,757	2.70	162	504	818	2,503	31,992	3.48	162	504	818	2,503	31,992	3.48	63	541	857	2,654	49,268	3.54
New York	3,707	90	936	1,389	3,840	42,657	2.56	91	1,163	1,916	5,326	54,078	2.65	91	1,163	1,916	5,326	54,078	2.65	26	1,139	1,902	5,338	80,683	2.92
Ohio	3,585	85	658	884	3,177	12,508	2.12	87	775	1,021	3,890	19,181	2.46	87	775	1,021	3,890	19,181	2.46	49	778	1,038	3,884	40,517	2.62
Oklahoma	908	30	720	1,236	3,109	31,585	2.49	30	852	1,501	3,773	50,347	3.26	30	852	1,501	3,773	50,347	3.26	6	744	1,433	3,777	62,097	3.58
Oregon	947	123	701	1,252	3,980	21,803	2.15	158	912	1,469	4,541	24,715	2.40	158	912	1,469	4,541	24,715	2.40	63	868	1,501	4,673	34,695	2.43
Pennsylvania	3,557	36	674	892	3,188	17,825	2.43	60	787	1,076	4,032	32,217	2.69	60	787	1,076	4,032	32,217	2.69	36	798	1,100	4,036	31,611	2.74
Rhode Island	913	12	182	342	972	16,965	2.88	12	202	417	1,187	15,222	2.98	12	202	417	1,187	15,222	2.98	7	204	413	1,174	14,249	3.11
South Carolina	954	42	729	1,194	3,681	33,319	2.85	42	843	1,441	4,173	38,899	3.13	42	843	1,441	4,173	38,899	3.13	16	827	1,440	4,032	53,166	3.41
South Dakota	920	20	177	260	789	5,634	2.24	20	193	304	903	8,142	2.56	20	193	304	903	8,142	2.56	4	194	303	964	6,450	2.53
Tennessee	949	133	1,227	1,732	5,474	30,872	2.42	141	1,404	2,017	7,199	78,247	3.25	141	1,404	2,017	7,199	78,247	3.25	46	1,418	2,069	6,948	61,713	3.20
Texas	3,596	68	1,440	2,048	5,864	39,814	2.11	90	1,670	2,422	7,271	43,752	2.34	90	1,670	2,422	7,271	43,752	2.34	18	1,734	2,541	7,322	78,870	2.50
Utah	918	25	670	988	3,189	11,821	1.83	25	745	1,185	3,907	23,506	1.99	25	745	1,185	3,907	23,506	1.99	19	782	1,168	3,759	13,034	1.90
Virginia	918	63	1,624	2,351	8,312	58,520	2.30	63	1,864	2,745	10,276	71,759	2.49	63	1,864	2,745	10,276	71,759	2.49	16	1,845	2,769	10,488	65,268	2.66
Vermont	897	6	142	195	679	3,297	2.40	6	159	229	812	4,615	2.59	6	159	229	812	4,615	2.59	1	159	232	804	4,899	2.65
Washington	936	168	1,309	1,825	6,850	42,765	2.33	169	1,516	2,195	8,955	71,504	2.54	169	1,516	2,195	8,955	71,504	2.54	82	1,512	2,278	8,533	71,338	2.61
Wisconsin	943	60	1,045	1,684	5,592	23,784	2.36	60	1,234	2,089	7,400	40,671	2.54	60	1,234	2,089	7,400	40,671	2.54	51	1,279	2,122	7,270	54,952	2.62
West Virginia	890	22	358	497	1,870	10,268	2.48	22	437	623	2,258	14,809	2.78	22	437	623	2,258	14,809	2.78	5	425	628	2,289	18,692	2.91
Wyoming	923	10	120	166	514	2,830	2.38	10	142	191	676	4,195	2.43	10	142	191	676	4,195	2.43	3	144	200	667	6,910	2.60

<sup>1</sup> Weight1\*...\*Weight12 and Weight1\*...\*Weight13 used demographic variables from screener data; nr = nonresponse adjustment.

<sup>2</sup> Weight1\*...\*Weight13 and Weight1\*...\*Weight14 used demographic variables from questionnaire data; ps = poststratification adjustment.

<sup>3</sup> Q1 and Q3 refer to the first and third quartile of the weight distribution.

<sup>4</sup> Unequal weighting effect (UWE) is defined as  $1 + [(n - 1)/n] * CV^2$ , where CV = coefficient of variation of weights.

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health, 2009.