Weighting BRFSS Dual Frame Data

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Outline

- Review current BRFSS weighting.
- BRFSS Raking Methodology.
- BRFSS dual frame weighting (landline and cell phone).

Weighting

- A technique used to assure representation of certain groups in the sample.
- Data for underrepresented groups are adjusted to compensate for their small numbers.
- Accounts for the probability of being selected into the sample (reducing selection bias).

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Weighting

- Accounts for unequal probability of selection within sampled households.
- Accounts for non-response among those who are sampled reducing non-response bias.
- Accounts for telephone non-coverage of households without phones and cell phone only households.

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Current BRFSS Weighting Methodology

- The Current BRFSS weighting methodology can be divided into two sections:
  - Design Weights
  - Post-stratification

Design Weights

- Factors that are built into the design of a survey and can be calculated such as
  - Survey Stratification weights
  - Number of residential phones in household
  - Number of adults in household

Post-stratification

- A computational procedure that forces categories of selected variables in the sample to equal pre-determined proportions.

- It is a form of standardization, no different from age standardization to a standard population.

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Post-stratification

- Post-stratification for non-coverage and non-response assumes:

Eligible respondents not interviewed and people in the population of interest with zero probability of being included in the sample are, on average, similar to eligible respondents who were interviewed.

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BRFSS Weighting

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Landline Weighting Formula

FINALWT = STRWT * 1 OVER NPH * NAD * POSTSTR

- STRWT accounts for differences in the basic probability of selection among strata (subset of area code/prefix combinations).
- It is the inverse of the sampling fraction of each stratum.

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Stratum Weight

- The stratum weight is calculated using:
  - Number of available records (NRECSTR) and the number of records selected (NRECSEL) within each geographic strata (_GEOSTR) and density strata (_DENSTR)
  - Geographic strata (entire state, counties, census tracts, etc.)
  - Density strata (1=listed numbers, 2=not listed numbers)

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Stratum Weight

- Within each _GEOSTR*_DENSTR combination:

  The stratum weight (_STRWT) is calculated from the average of the NRECSTR and the sum of all sample records used to produce the NRECSEL.

- _STRWT = NRECSTR / NRECSEL

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Landline BRFSS Weighting Formula

FINALWT = STRWT * 1 OVER NPH * NAD * POSTSTR

- 1/NPH is the inverse of the number of residential telephone numbers in the respondent's household.
- Dedicated business, fax, and computer phones are excluded, as well as cell phones.
- NAD is the number of adults in the respondent's household.

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Number of Adults in the Household

- **Adults are defined as persons 18 years of age and older in the household (NUMADULT).**
- **Each phone number within a stratum has an equal probability of selection.**
- **The probability that a person within a household will be selected as a respondent is inversely proportional to the number of adults 18 and over in the household.**

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Design Weight

- The relative number of people represented by a respondent taking into account stratification weight, number of phone numbers in a household, and the number of adults.

- The Design weight (_WT2) is the weight that you start with if you want to re-weight the BRFSS data.

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Calculating the Design Weight

- For each complete, the design weight is:

Design Weight = STRWT * 1 OVER NUMPHON2 * NUMADULT

- On the BRFSS data record, this weight is named _WT2.

Landline Weighting Formula

FINALWT = STRWT * 1 OVER NPH * NAD * POSTSTR

- POSTSTR adjusts for non-coverage and non-response, and forces the sum of the weighted frequencies to equal the population estimates for the region or state.

Poststratification

- The design weights therefore do not adjust for non-coverage and non-response.
- Post-stratification is an attempt to adjust for non-coverage and non-response.
- Our target population is non-institutionalized civilians 18 years old and older by geographic stratification.

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Poststratification

- Post-stratification forces categories of selected variables in the sample to equal pre-determined proportions.

- These proportions are obtained from knowledge about the target population such as population estimates from the Census or data bases that have post-censal estimates (Claritas).

Post-stratification Categories

- Region – combination of counties defined by the state such as health districts, MSAs/CBSAs, etc.

- Race (_RACEG3_) – 2 categories,
  - White, non-Hispanic
  - Others

Post-stratification Categories

- Sex (_SEX_) - Males and Females
- Age (_AGEG_) - Seven Categories:

  Ages 18-24
  Ages 25-34
  Ages 35-44
  Ages 45-54
  Ages 55-64
  Ages 65-74
  Ages 75+

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Minimum Cell Size

- The BRFSS weighting minimum class cell size for Post-stratification is 10.
- If cell size is less than 10, we collapse the age groups.
- If the data is weighted by region, race/ethnicity, we collapse age groups, then collapse race/ethnicity if the age groups collapse into 2 or less groups.

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Calculation of the Design Weight

RACEG3	_SEXG_	_AGEG_	Frequency	Percent
ANY RACE	MALE	18-24	21013.68	6.87
ANY RACE	MALE	25-34	29781.35	9.74
ANY RACE	MALE	35-44	27950.4	9.14
ANY RACE	MALE	45-54	28992.95	9.48
ANY RACE	MALE	55-64	19491.97	6.37
ANY RACE	MALE	65-74	9696.181	3.17
ANY RACE	MALE	75+	7806.875	2.55
ANY RACE	FEMALE	18-24	17385.03	5.69
ANY RACE	FEMALE	25-34	34003.61	11.12
ANY RACE	FEMALE	35-44	32794.2	10.73
ANY RACE	FEMALE	45-54	33736.98	11.03
ANY RACE	FEMALE	55-64	22271.97	7.28
ANY RACE	FEMALE	65-74	12533.28	4.10
ANY RACE	FEMALE	75+	8313.205	2.72

Population and _WT2

RACEG3	_SEXG_	_AGEG_	Population	_WT2
ANY RACE	MALE	18-24	58350	21013.68
ANY RACE	MALE	25-34	81296	29781.35
ANY RACE	MALE	35-44	65640	27950.4
ANY RACE	MALE	45-54	58096	28992.95
ANY RACE	MALE	55-64	34571	19491.97
ANY RACE	MALE	65-74	18451	9696.181
ANY RACE	MALE	75+	14718	7806.875
ANY RACE	FEMALE	18-24	56457	17385.03
ANY RACE	FEMALE	25-34	73166	34003.61
ANY RACE	FEMALE	35-44	62281	32794.2
ANY RACE	FEMALE	45-54	57763	33736.98
ANY RACE	FEMALE	55-64	35998	22271.97
ANY RACE	FEMALE	65-74	21493	12533.28
ANY RACE	FEMALE	75+	23131	8313.205

Poststratification

- Post-stratification Adjustment Factor is calculated for each race/ethnicity, gender, and age group combination.

- _POSTSTR = Population/_WT2 within the weighting class cell.

  = 58350/21013.68

  = 2.77676

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Post-stratification Adjustment Factors

RACEG3	_SEXG_	_AGEG_	_POSTSTR
ANY RACE	MALE	18-24	2.77676
ANY RACE	MALE	25-34	2.72976
ANY RACE	MALE	35-44	2.34845
ANY RACE	MALE	45-54	2.00380
ANY RACE	MALE	55-64	1.77360
ANY RACE	MALE	65-74	1.90291
ANY RACE	MALE	75+	1.88526
ANY RACE	FEMALE	18-24	3.24745
ANY RACE	FEMALE	25-34	2.15171
ANY RACE	FEMALE	35-44	1.89915
ANY RACE	FEMALE	45-54	1.71216
ANY RACE	FEMALE	55-64	1.61629
ANY RACE	FEMALE	65-74	1.71487
ANY RACE	FEMALE	75+	2.78244

Raking Weighting

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New BRFSS Weighting Methodology

- The New BRFSS weighting methodology can be divided into two sections:
  - Design Weights
  - Raking Ratio Estimation (Raking)

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New BRFSS Weighting Methodology

- The New BRFSS Weighting Methodology uses iterative proportional fitting (raking).
- Design weights are controlled to marginal population (controls) totals.
- The design weights are proportionately adjusted to first set of control totals, then those adjusted weights are proportionately adjusted to the second set of control totals.

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Raking Procedure

- Determine Marginal categories.
- Get the Census population data and the Current Population Survey (CPS) or Public-Use Microdata Samples (PUMS) data
- Impute missing data needed for raking
- Create calculated variables (margins) needed for raking
- Weight the data using the raking methodology

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Raking

- Raking methodology allows the distribution of sample to correctly represent the state distributions with respect to:
  - Age group by gender
  - Detailed race/ethnicity
  - Education
  - Marital status
  - Gender by race/ethnicity
  - Age group by race/ethnicity

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Raking

- The raking procedure continues until all controls are adjusted.

- The procedure is iterated until all of the controls are within specified tolerance.

		POPULATION				
	18-24	25-34	35-44	45-54	55+	Total
Region 1						
Female	4000	4000	4000	4000	4000	20000
Male	4000	4000	4000	4000	4000	20000
Total	8000	8000	8000	8000	8000	40000
Region 2						
Female	800	800	800	800	800	4000
Male	800	800	800	800	800	4000
Total	1600	1600	1600	1600	1600	8000
Total	9600	9600	9600	9600	9600	48000

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	SAMPLE					
	18-24	25-34	35-44	45-54	55+	Total
Region 1						
Female	10	16	17	18	17	78
Male	11	14	13	15	16	69
Total	21	30	30	33	33	147
Region 2						
Female	5	11	11	13	12	52
Male	6	11	5	11	13	46
Total	11	22	16	24	25	98
Total	32	52	46	57	58	245

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CELL WEIGHTING - COLLAPSE AGE						
	18-24	25-34	35-44	45-54	55+	Total
Region 1						
Female	4000	4000	4000	4000	4000	20000
Male	4000	4000	4000	4000	4000	20000
Total	8000	8000	8000	8000	8000	40000
Region 2						
Female	0	1600	0	1600	800	4000
Male	0	1600	0	1600	800	4000
Total	0	3200	0	2400	1600	8000
Total	8000	11200	8000	11200	9600	48000

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WEIGHTING RESULTS				
	Population Estimates	**Sample**	**Cell-Collapse**	
Gender				
Female	**50.0%**	**53.0%**	**50.0%**	
Male	**50.0%**	**47.0%**	**50.0%**	
Age				
18-24	**20.0%**	**13.0%**	**16.7%**	
25-34	**20.0%**	**21.0%**	**23.3%**	
35-44	**20.0%**	**19.0%**	**16.7%**	
45-54	**20.0%**	**23.0%**	**23.3%**	
55+	**20.0%**	**24.0%**	**20.0%**	
Region				
1	**63.3%**	**60.0%**	**63.3%**	
2	**36.7%**	**40.0%**	**36.7%**	

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WEIGHTING RESULTS

	Census	Sample	Cell-Collapse	Raking
Gender				
Female	50.0%	53.0%	50.0%	50.0%
Male	50.0%	47.0%	50.0%	50.0%
Age				
18-24	20.0%	13.0%	16.7%	20.0%
25-34	20.0%	21.0%	23.3%	20.0%
35-44	20.0%	19.0%	16.7%	20.0%
45-54	20.0%	23.0%	23.3%	20.0%
55+	20.0%	24.0%	20.0%	20.0%
Region				
1	63.3%	60.0%	63.3%	63.3%
2	36.7%	40.0%	36.7%	36.7%

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BRFSS Raking Margins

- The BRFSS uses 7 Margins:
  - Age group by gender
  - Detailed race/ethnicity
  - Education
  - Marital status
  - Nontelephone adjustment based on interruption in telephone service
  - Gender by race/ethnicity
  - Age group by race/ethnicity

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BRFSS Raking Margins

- For those states that use regional weighting, the raking procedure uses 11 raking margins.
  - Age group by gender
  - Detailed race/ethnicity
  - Education
  - Marital status
  - Non-telephone adjustment based on interruption in telephone service

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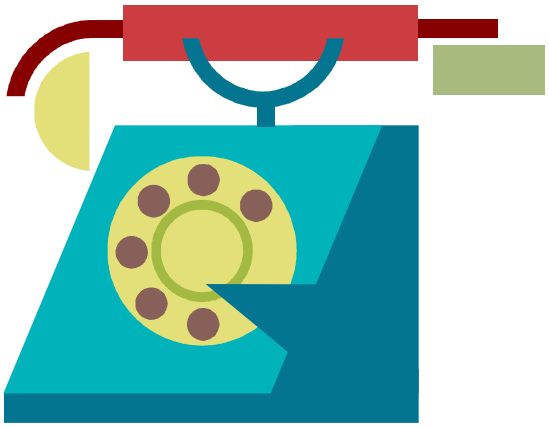
BRFSS Raking Margins

- 11 raking marginal variables (continued)
  - Gender by race/ethnicity
  - Age group by race/ethnicity
  - Region
  - Region by age group
  - Region by gender
  - Region by race/ethnicity

Weighting Cell Phone Study



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Dual Frame Weighting

- Cell Phone Study – 18 states
- Raking with 2 marginal controls
- Raking with 8 marginal controls

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Weighting Cell Phone Study

- Combine the RDD landline interviews with the cell phone-only interviews

- Compute Design weight for landline, cell phone sample, and cell phones identified by Genesys as cell phones.

Design Weight for Landline

- The reciprocal of the selection probability of the telephone number,
- The number of adults in the household,
- The reciprocal of the number of voice-use landline telephone numbers in the household.

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Design Wt for Cell Phone Data

- The reciprocal of the probability of selection of the cell telephone number

- Population count of telephone numbers in the cellular sampling frame / total sample size of cellular numbers in the released sample replicates.

Design Wt for Cell Phone Data

- For telephone numbers in the RDD sample that GENESYS-CSS flagged as cellular telephone numbers (RDD-Cell numbers)

- The design weight equals the reciprocal of the selection probability of the telephone number in the RDD sample.

Weighting Cell Phone Study

BRFSS Telephone Usage Groups:

- Landline service only (LL),
- Landline and cell telephone service (LLCP)
- Cell phone service only (CP)
- The RDD landline sample provides the two usage groups – landline only, and landline and cell.

Raking with 2 Margins

- The combined sample weight involved raking the respondents in each state to control totals for two margins:
- Margin 1:
  - Age by gender, age by gender by race/ethnicity, region by age by gender, or region by age by gender by race/ethnicity poststratification variable

Raking with 2 Margins

- Margin 2

  The three telephone usage groups – landline only (LL), landline and cell phone (LLCP), and cell phone only (CP)

  The control total estimates were developed by Abt from the 2005-2007 ACS

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Raking with 2 Margins

- Margin 2

  For states with missing “Type of telephone service” variable, we used only two telephone usage groups – landline and and cell phone only

Raking with 2 Margins

- Margin 1 - Control totals are from Claritas
- Margin 2 Control totals are telephone usage percentages by state estimated using NHIS data and American Community Survey data.
- The estimates are converted to sum to the state Claritas estimates by multiplying each proportion by the 2008 total Claritas population estimate for the state.

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Raking with 2 Margins

- Raking continues until the convergence criteria is met
- or the maximum number of iterations are reached.

Raking with 8 Margins

- Age group by gender
- Detailed race/ethnicity
- Education
- Marital status
- Nontelephone adjustment based on interruption in telephone service
- Gender by race/ethnicity
- Age group by race/ethnicity
- Telephone usage groups

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BRFSS Raking Control Totals

- For those states that use regional weighting, the ASWS uses 12 raking control variables.
  - Age group by gender
  - Detailed race/ethnicity
  - Education
  - Marital status
  - Non-telephone adjustment based on interruption in telephone service

BRFSS Raking Margins

- 12 raking marginal variables (continued)
  - Gender by race/ethnicity
  - Age group by race/ethnicity
  - Telephone usage groups
  - Region
  - Region by age group
  - Region by gender
  - Region by race/ethnicity

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Raking Dual Frame data

- We used the current Census population estimates from Claritas.

- We obtain the most recent three years of the Current Population Survey (CPS) data for the states and the Public-Use Microdata Samples (PUMS) for the territories.

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Raking Dual Frame data

- We created an adjustment factor to correct the state CPS or PUMS total population to match the Census state total population.

- We used the education level, the marital status and the interruption in telephone service data from the CPS or PUMS data in the raking process.

ASWS – CPS Adjustment

Adjustment Factor					
AGE	SEX	RACE2CAT	CENSUS_TOTAL	CPS_TOTAL	ADJ_FACTOR
18 - 24	Male	White, NH	251,563	81,785	3.075895
18 - 24	Male	Other	242,491	58,511	4.144391
18 - 24	Female	White, NH	242,703	90,924	2.669284
18 - 24	Female	Other	208,292	57,726	3.608286
25 - 34	Male	White, NH	378,632	108,019	3.505225
25 - 34	Male	Other	340,423	128,391	2.651459
25 - 34	Female	White, NH	370,572	106,441	3.481471
25 - 34	Female	Other	313,208	111,255	2.815217
35 - 44	Male	White, NH	417,325	137,051	3.045027
35 - 44	Male	Other	301,685	112,058	2.692227
35 - 44	Female	White, NH	420,391	138,920	3.02613
35 - 44	Female	Other	299,151	112,460	2.660055

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Raking Dual Frame Data

- The following three variables were imputed if they have a don't know, refused or missing value:
  - education status (EDUCA)
  - marital status (MARITAL)
  - interruption in telephone service (TELSERV2).

- TELSERV2 were imputed to 'no interruption' (2) for all don't know, refused or missing values.

Raking Dual Frame Data

- EDUCA and MARITAL were imputed using a hot-deck imputation method.

- Hot-deck refers to using BRFSS data rather than some outside data set (cold-deck) to impute the data.

Raking Dual Frame Data

- Hot Deck Steps
  - When the program finds a missing value, it moves up or down until it finds a legitimate response value.
  - That value is used as the imputed value for that first record.
  - Once a value is used to impute another value, it can no longer be used to impute any other values.

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Raking Dual Frame Data

- A minimum of eight or a maximum of twelve variables (margins) were created for each state.

- **<u>All states have the first eight margins:</u>**

Raking Dual Frame Data

- Margin 01:
  - Age x Gender (7 x 2 = 14 cells: 18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75+; male, female)

- Margin 02:
  - Race/Ethnicity (4 categories: White non-Hispanic, Black non-Hispanic, Hispanic, other)

Raking Dual Frame Data

- Margin 03:
  - Education (4 categories)
    - less than high school
    - high school graduate
    - some college
    - college graduate)
  - Control totals created from adjusted CPS

Raking Dual Frame Data

- Margin 04:
  - Marital Status (3 categories:)
    - Married
    - never married or part of an unmarried couple
    - divorced or widowed or separated
  - Control totals created from adjusted CPS
- Margin 05:
  - Interruption in telephone service (2 categories: yes, no)
  - Control totals based on the methodology developed by Frankel et al. (2003).

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Raking Dual Frame Data

- Margin 06:
  - Gender x Race/Ethnicity (2 x 4 = 8 cells)
- Margin 07:
  - Age (3 categories, 18-34, 35-54, 55+) x race/ethnicity
- Margin 8
  - Telephone usage groups – landline only (LL), landline and cell phone (LLCP), and cell phone only (CP)

Raking Dual Frame Data

- **States that use regions to weight the data also had:**

- Margin 09:
  - Region (as defined by the state). If a county code was missing from the cell data, the response was added to the most populated region

- Margin 10:
  - Age categories x Region

Raking Dual Frame Data

- Margin 11:
  - Gender x Region

- Margin 12:
  - Race/ethnicity (based on 2 race categories: non-Hispanic White versus all other) x Region

Raking Dual Frame Data

- **<u>Collapsing Criteria:</u>**
- Margin 02: 4 race/ethnicity categories, collapse on race/ethnicity using minimum sample size of 250 or minimum sample percentage of 2.5%.

- Margin 06: gender by 4 race/ethnicity categories, collapse 4 race/ethnicity categories using minimum sample size of 300 or minimum sample percentage of 5.0%.

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Raking Dual Frame Data

- **<u>Collapsing Criteria (continued):</u>**
- Margin 07: 3 age categories by 4 race/ethnicity categories, collapse on race/ethnicity using minimum sample size of 300 or minimum sample percentage of 5.0%.

- Margin 10: region by 7 age categories; collapse on age within region minimum sample size of 250 or minimum sample percentage of 5.0%

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Raking Dual Frame Data

- **<u>Collapsing Criteria: (continued)</u>**
- Margin 11: region by gender, collapse on gender within region using minimum sample size of 250 or minimum sample percentage of 5.0%

- Margin 12: region by race categories; collapse on race within region using minimum sample size of 250 or minimum percentage of 5.0%.

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Raking Dual Frame Data

- The raking input weight (*_INPWGT*) is calculated using three modifications to the BRFSS design weight:
  - number of landline telephone numbers in the household is capped at a maximum of 3,
  - number of adults in the household is capped at a maximum value of 5, and
  - the weights are ratio-adjusted to add to the Claritas population total for the state.

Raking Dual Frame Data

- The raking macro uses the tolerance of 0.025 percentage points, and 75 as a maximum number of iterations.

- After convergence the output data sets were created with the final weight variable after raking called *RAKED_WGT or* _LLCPWT.

Convergence

Some factors that can affect convergence:

- Number of categories of raking variables.

  - Typically 10 variables with 5 categories each will require more iterations than 10 variables with 2 categories each

Convergence

Some factors that can affect convergence (conti.):

- Number of sample cases in each category; fewer than 2% may slow convergence.
- Size of difference between each control total and weighted sample margin prior to raking; larger differences – larger number of iterations often required.

Raking Dual Frame Data

- For Each Dimension **adjust weights** of all cases within a category by the factor.

- FACTOR = TARGET % / CURRENT %
- FACTOR = CENSUS% / SAMPLE %

- When existing Factor not 1.0

  CURRENT FACTOR = PREVIOUS FACTOR X FACTOR

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ITERATION 1, DIMENSION 1

	Target	Sample	I1-1	Factor
Female	50.0%	56.0%	50.0%	0.8929
Male	50.0%	44.0%	50.0%	1.1364
18-24	20.0%	8.0%	7.6%	1.0000
25-34	20.0%	22.0%	22.1%	1.0000
35-44	20.0%	16.0%	15.8%	1.0000
45-54	20.0%	24.0%	24.4%	1.0000
55+	20.0%	30.0%	30.2%	1.0000
Reg 1	83.3%	86.0%	86.0%	1.0000
Reg 2	16.7%	14.0%	14.0%	1.0000

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ITERATION 1, DIMENSION 2

	Target	Sample	I1-1	I1-2	Factor
Female	50.0%	56.0%	50.0%	53.4%	0.8929
Male	50.0%	44.0%	50.0%	46.7%	1.1364
18-24	20.0%	8.0%	7.6%	20.0%	2.6213
25-34	20.0%	22.0%	22.1%	20.0%	0.9059
35-44	20.0%	16.0%	15.8%	20.0%	1.2701
45-54	20.0%	24.0%	24.4%	20.0%	0.8213
55+	20.0%	30.0%	30.2%	20.0%	0.6624
Reg 1	83.3%	86.0%	86.0%	88.0%	1.0000
Reg 2	16.7%	14.0%	14.0%	12.0%	1.0000

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ITERATION 1, DIMENSION 3

	Target	Sample	I1-1	I1-2	I1-3	Factor
Female	50.0%	56.0%	50.0%	53.4%	53.4%	0.8929
Male	50.0%	44.0%	50.0%	46.7%	46.6%	1.1364
18-24	20.0%	8.0%	7.6%	20.0%	18.9%	2.6213
25-34	20.0%	22.0%	22.1%	20.0%	20.6%	0.9059
35-44	20.0%	16.0%	15.8%	20.0%	20.0%	1.2701
45-54	20.0%	24.0%	24.4%	20.0%	20.4%	0.8213
55+	20.0%	30.0%	30.2%	20.0%	20.1%	0.6624
Reg 1	83.3%	86.0%	86.0%	88.0%	83.3%	0.9466
Reg 2	16.7%	14.0%	14.0%	12.0%	16.7%	1.3928

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ITERATION 2, DIMENSION 1

	Target	Sample	I1-2	I1-3	I2-1	Factor
Female	50.0%	56.0%	53.4%	53.4%	50.0%	0.8357
Male	50.0%	44.0%	46.7%	46.6%	50.0%	1.2198
18-24	20.0%	8.0%	20.0%	18.9%	18.5%	2.6213
25-34	20.0%	22.0%	20.0%	20.6%	20.7%	0.9059
35-44	20.0%	16.0%	20.0%	20.0%	19.8%	1.2701
45-54	20.0%	24.0%	20.0%	20.4%	20.7%	0.8213
55+	20.0%	30.0%	20.0%	20.1%	20.3%	0.6624
Reg 1	83.3%	86.0%	88.0%	83.3%	83.4%	0.9466
Reg 2	16.7%	14.0%	12.0%	16.7%	16.6%	1.3928

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ITERATION 3

	Target	Sample	I3-1	I3-2	I3-3	Final Factor
Female	50.0%	56.0%	50.0%	50.0%	50.0%	0.8291
Male	50.0%	44.0%	50.0%	50.0%	50.0%	1.2296
18-24	20.0%	8.0%	19.9%	20.0%	20.0%	2.8555
25-34	20.0%	22.0%	20.1%	20.0%	20.0%	0.8714
35-44	20.0%	16.0%	20.0%	20.0%	20.0%	1.2849
45-54	20.0%	24.0%	20.1%	20.0%	20.0%	0.7915
55+	20.0%	30.0%	20.0%	20.0%	20.0%	0.6512
Reg 1	83.3%	86.0%	83.3%	83.4%	83.3%	0.9418
Reg 2	16.7%	14.0%	16.7%	16.6%	16.7%	1.4295

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Results

- The percent of cell phones completes for the of the total completes for the states ranged from 1.14% to 8.71

State 1 BRFSS comparison of _FINALWT and RAKED_WGT for HLTHPLAN (Health care)						
	Weighted with _FINALWT		Weighted with Margin2_RAKEWT		Weighted with Margin8_LLCPWT	
HLTHPLAN	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	4,762,604	95.56	4,725,761	94.80	4,716,334	94.62
2	221,351	4.44	259,317	5.20	268,319	5.38
State 2 BRFSS comparison of _FINALWT and RAKED_WGT for HLTHPLAN						
HLTHPLAN	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	4,304,811	86.72	4,268,420	85.93	4,182,824	84.28
2	659,130	13.28	698,830	14.07	780,279	15.72
State 3 BRFSS comparison of _FINALWT and RAKED_WGT for HLTHPLAN						
HLTHPLAN	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	3,629,812	91.85	3,589,532	90.76	3,523,290	89.16
2	322,234	8.15	365,352	9.24	428,248	10.84

State 1 BRFSS comparison of _FINALWT and RAKED_WGT for DIABETE2						
	Weighted with _FINALWT		Weighted with Margin2_RAKEWT		Weighted with Margin8_LLCPWT	
DIABETE2	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	357,892	7.17	373,400	7.48	401,190	8.04
2	36,196	0.73	34,234	0.69	36,178	0.73
3	4,549,969	91.20	4,539,013	90.95	4,508,586	90.38
4	45,063	0.90	44,248	0.89	42,624	0.85
State 2 BRFSS comparison of _FINALWT and RAKED_WGT for DIABETE2						
DIABETE2	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	344,463	6.91	363,375	7.29	391,153	7.85
2	44,287	0.89	42,300	0.85	43,102	0.87
3	4,540,354	91.10	4,518,678	90.68	4,486,109	90.04
4	54,891	1.10	58,820	1.18	62,098	1.25
State 3 BRFSS comparison of _FINALWT and RAKED_WGT for DIABETE2						
DIABETE2	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	233,358	5.91	244,224	6.19	253,891	6.43
2	48,353	1.23	54,094	1.37	50,827	1.29
3	3,618,245	91.70	3,602,351	91.24	3,591,447	90.93
4	45,926	1.16	47,491	1.20	53,377	1.35

State 1 BRFSS comparison of _FINALWT and RAKED_WGT for DRNKANY4						
	Weighted with _FINALWT		Weighted with Margin2_RAKEWT		Weighted with Margin8_LLCPWT	
DRNKANY4	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	3,070,197	63.61	3,049,009	62.92	2,975,863	61.42
2	1,756,493	36.39	1,796,826	37.08	1,869,236	38.58
State 2 BRFSS comparison of _FINALWT and RAKED_WGT for DRNKANY4						
DRNKANY4	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	2,887,810	58.64	2,888,547	58.56	2,799,383	56.77
2	2,036,946	41.36	2,044,310	41.44	2,131,699	43.23
State 3 BRFSS comparison of _FINALWT and RAKED_WGT for DRNKANY4						
DRNKANY4	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	2,491,781	63.30	2,503,783	63.59	2,409,944	61.22
2	1,444,759	36.70	1,433,707	36.41	1,526,870	38.78

State 1 BRFSS comparison of _FINALWT and RAKED_WGT for _RFHLTH (Good and Better Health)						
	Weighted with _FINALWT		Weighted with Margin2_RAKEWT		Weighted with Margin8_LLCPWT	
_RFHLTH	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	4,374,055	87.71	4,317,881	86.58	4,266,917	85.57
2	612,912	12.29	669,320	13.42	719,760	14.43
State 2 BRFSS comparison of _FINALWT and RAKED_WGT for _RFHLTH						
_RFHLTH	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	4,313,597	86.64	4,293,640	86.24	4,211,724	84.59
2	665,169	13.36	684,987	13.76	767,362	15.41
State 3 BRFSS comparison of _FINALWT and RAKED_WGT for _RFHLTH						
_RFHLTH	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	3,507,445	88.64	3,492,118	88.27	3,411,136	86.22
2	449,318	11.36	464,201	11.73	545,182	13.78

State 1 BRFSS comparison of _FINALWT and RAKED_WGT for _HCVU65 (Health Care Coverage)						
	Weighted with _FINALWT		Weighted with Margin2_RAKEWT		Weighted with Margin8_LLCPWT	
_HCVU65	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	3,868,597	95.03	3,827,931	94.13	3,825,443	93.94
2	202,360	4.97	238,523	5.87	246,879	6.06
State 2 BRFSS comparison of _FINALWT and RAKED_WGT for _HCVU65						
_HCVU65	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	3,517,373	84.46	3,420,181	83.31	3,392,047	81.60
2	647,020	15.54	685,142	16.69	764,967	18.40
State 3 BRFSS comparison of _FINALWT and RAKED_WGT for _HCVU65						
_HCVU65	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	2,990,823	90.48	2,911,505	89.03	2,886,801	87.34
2	314,689	9.52	358,590	10.97	418,297	12.66

State 1 BRFSS comparison of _FINALWT and RAKED_WGT for _TOTINDA(Exercise past 30 days)						
	Weighted with _FINALWT		Weighted with Margin2_RAKEWT		Weighted with Margin8_LLCPWT	
_TOTINDA	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	3,891,348	77.94	3,822,207	76.59	3,763,711	75.40
2	1,101,706	22.06	1,168,183	23.41	1,227,954	24.60
State 2 BRFSS comparison of _FINALWT and RAKED_WGT for _TOTINDA						
_TOTINDA	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	4,017,564	80.68	3,986,309	80.05	3,920,928	78.73
2	962,296	19.32	993,661	19.95	1,059,273	21.27
State 3 BRFSS comparison of _FINALWT and RAKED_WGT for _TOTINDA						
_TOTINDA	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	3,241,598	81.92	3,219,498	81.37	3,125,701	79.00
2	715,538	18.08	737,242	18.63	831,040	21.00

State 1 BRFSS comparison of _FINALWT and RAKED_WGT for _EXTETH2 (Permanent teeth extracted)						
	Weighted with _FINALWT		Weighted with Margin2_RAKEWT		Weighted with Margin8_LLCPWT	
_EXTETH2	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	2,828,474	57.55	2,795,609	56.93	2,702,535	55.02
2	2,086,401	42.45	2,114,823	43.07	2,209,174	44.98
State 2 BRFSS comparison of _FINALWT and RAKED_WGT for _EXTETH2						
_EXTETH2	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	3,098,034	63.02	3,027,290	61.59	2,912,403	59.30
2	1,817,892	36.98	1,887,635	38.41	1,998,927	40.70
State 3 BRFSS comparison of _FINALWT and RAKED_WGT for _EXTETH2						
_EXTETH2	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	2,564,266	64.99	2,487,995	63.05	2,376,805	60.23
2	1,381,441	35.01	1,458,295	36.95	1,569,640	39.77

State 1 BRFSS comparison of _FINALWT and RAKED_WGT for _DENVST1 (Dental Visits)						
	Weighted with _FINALWT		Weighted with Margin2_RAKEWT		Weighted with Margin8_LLCPWT	
_DENVST1	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	3,951,535	79.30	3,868,281	77.61	3,770,313	75.68
2	1,031,452	20.70	1,115,944	22.39	1,211,802	24.32
State 2 BRFSS comparison of _FINALWT and RAKED_WGT for _DENVST1						
_DENVST1	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	3,637,805	73.30	3,570,042	71.89	3,452,214	69.60
2	1,325,237	26.70	1,396,216	28.11	1,507,840	30.40
State 3 BRFSS comparison of _FINALWT and RAKED_WGT for _DENVST1						
_DENVST1	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	2,978,368	75.30	2,929,396	74.11	2,788,051	70.55
2	976,733	24.70	1,023,553	25.89	1,163,656	29.45

State 1 BRFSS comparison of _FINALWT and RAKED_WGT for _LTASTHM (Ever told Asthma)						
	Weighted with _FINALWT		Weighted with Margin2_RAKEWT		Weighted with Margin8_LLCPWT	
_LTASTHM	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	4,250,831	85.21	4,244,600	85.09	4,226,553	84.73
2	738,079	14.79	743,630	14.91	761,563	15.27
State 2 BRFSS comparison of _FINALWT and RAKED_WGT for _LTASTHM						
_LTASTHM	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	4,234,078	85.07	4,229,512	85.02	4,193,336	84.33
2	743,189	14.93	745,051	14.98	779,056	15.67
State 3 BRFSS comparison of _FINALWT and RAKED_WGT for _LTASTHM						
_LTASTHM	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	3,465,834	87.61	3,497,502	88.41	3,466,528	87.64
2	490,354	12.39	458,371	11.59	488,856	12.36

State 1 BRFSS comparison of _FINALWT and RAKED_WGT for _RFSMOK3 (Current Smokers)						
	Weighted with _FINALWT		Weighted with Margin2_RAKEWT		Weighted with Margin8_LLCPWT	
_RFSMOK3	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	4,168,300	83.91	4,093,829	82.39	4,009,498	80.67
2	799,072	16.09	874,846	17.61	960,517	19.33
State 2 BRFSS comparison of _FINALWT and RAKED_WGT for _RFSMOK3						
_RFSMOK3	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	4,180,854	84.30	4,162,732	83.99	4,041,271	81.57
2	778,781	15.70	793,421	16.01	913,155	18.43
State 3 BRFSS comparison of _FINALWT and RAKED_WGT for _RFSMOK3						
_RFSMOK3	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	3,259,220	82.45	3,228,787	81.69	3,092,449	78.28
2	693,760	17.55	723,546	18.31	858,145	21.72

State 1 BRFSS comparison of _FINALWT and RAKED_WGT for _BMI4CAT (Overweight/obesity)						
	Weighted with _FINALWT		Weighted with Margin2_RAKEWT		Weighted with Margin8_LLCPWT	
_BMI4CAT	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	1,988,973	41.91	2,013,007	42.32	2,018,761	42.44
2	1,737,672	36.62	1,746,755	36.72	1,704,237	35.83
3	1,018,889	21.47	997,301	20.96	1,033,677	21.73
State 2 BRFSS comparison of _FINALWT and RAKED_WGT for _BMI4CAT						
_BMI4CAT	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	1,823,721	38.17	1,824,377	38.19	1,830,020	38.33
2	1,711,050	35.81	1,712,807	35.86	1,687,810	35.35
3	1,243,378	26.02	1,239,650	25.95	1,256,713	26.32
State 3 BRFSS comparison of _FINALWT and RAKED_WGT for _BMI4CAT						
_BMI4CAT	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	1,444,598	37.20	1,421,525	36.70	1,375,445	35.37
2	1,462,110	37.65	1,461,002	37.72	1,478,563	38.03
3	976,883	25.15	991,199	25.59	1,034,240	26.60

State 1 BRFSS comparison of _FINALWT and RAKED_WGT for _RFBING4 (Binge Drinker)						
	Weighted with _FINALWT		Weighted with Margin2_RAKEWT		Weighted with Margin8_LLCPWT	
_RFBING4	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	3,920,713	82.32	3,870,401	80.94	3,878,256	81.09
2	841,905	17.68	911,625	19.06	904,125	18.91
State 2 BRFSS comparison of _FINALWT and RAKED_WGT for _RFBING4						
_RFBING4	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	4,116,464	84.86	4,108,910	84.60	4,066,625	83.84
2	734,313	15.14	748,086	15.40	783,864	16.16
State 3 BRFSS comparison of _FINALWT and RAKED_WGT for _RFBING4						
_RFBING4	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	3,145,972	80.21	3,155,208	80.42	3,093,010	78.81
2	776,105	19.79	768,275	19.58	831,608	21.19

State 1 BRFSS comparison of _FINALWT and RAKED_WGT for _FLSHOT3 (within last 12 months)						
	Weighted with _FINALWT		Weighted with Margin2_RAKEWT		Weighted with Margin8_LLCPWT	
_FLSHOT3	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	605,288	72.03	596,112	70.37	581,498	69.07
2	235,084	27.97	251,015	29.63	260,403	30.93
State 2 BRFSS comparison of _FINALWT and RAKED_WGT for _FLSHOT3						
_FLSHOT3	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	546,952	71.36	587,847	71.33	537,432	70.16
2	219,468	28.64	236,263	28.67	228,565	29.84
State 3 BRFSS comparison of _FINALWT and RAKED_WGT for _FLSHOT3						
_FLSHOT3	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	492,793	76.44	511,808	74.93	491,005	76.14
2	151,880	23.56	171,227	25.07	153,908	23.86

State 1 BRFSS comparison of _FINALWT and RAKED_WGT for _RFMAM2Y (40+ Mammogram 2years)						
	Weighted with _FINALWT		Weighted with Margin2_RAKEWT		Weighted with Margin8_LLCPWT	
_RFMAM2Y	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	1,325,909	84.85	1,328,106	84.22	1,294,411	82.92
2	236,720	15.15	248,789	15.78	266,539	17.08
State 2 BRFSS comparison of _FINALWT and RAKED_WGT for _RFMAM2Y						
_RFMAM2Y	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	1,157,454	76.28	1,224,432	75.99	1,126,672	74.36
2	359,939	23.72	386,925	24.01	388,549	25.64
State 3 BRFSS comparison of _FINALWT and RAKED_WGT for _RFMAM2Y						
_RFMAM2Y	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	981,046	79.12	1,044,259	78.39	936,840	75.57
2	258,830	20.88	287,939	21.61	302,888	24.43

State 1 BRFSS comparison of _FINALWT and RAKED_WGT for _RFSIGM2 (50+ Sigmoidoscopy/colonoscopy)						
	Weighted with _FINALWT		Weighted with Margin2_RAKEWT		Weighted with Margin8_LLCPWT	
_RFSIGM2	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	1,401,646	71.45	1,391,317	70.47	1,345,224	68.62
2	560,179	28.55	583,131	29.53	615,280	31.38
State 2 BRFSS comparison of _FINALWT and RAKED_WGT for _RFSIGM2						
_RFSIGM2	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	1,326,575	66.23	1,389,709	65.68	1,270,907	63.71
2	676,357	33.77	726,113	34.32	723,785	36.29
State 3 BRFSS comparison of _FINALWT and RAKED_WGT for _RFSIGM2						
_RFSIGM2	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	1,143,397	70.96	1,185,320	70.00	1,111,156	68.87
2	467,935	29.04	507,964	30.00	502,283	31.13

Contact Information

Thank you for your time.

- Machell Town
- mtown@cdc.gov

BRFSS
Behavioral Risk Factor Surveillance System

CDC
Centers for Disease Control and Prevention