

Documentation of Post-stratification Weights
Created at MIDUS 2

This document describes how the MIDUS 2 (M2) post-stratification weights were created. Weights were only calculated for cases from Main RDD sample that completed the M2 telephone interview.

The purposes of weighting survey data are to compensate for unequal probabilities of selection, to adjust for non-response and telephone non-coverage, to ensure that results are consistent with population data and to make population estimates.

The M1 weights were created using both sample-based and population-based methods. Because no sampling was conducted for the 2nd wave follow-up study, only population-based adjustments were created for M2.

One of the most popular population-based adjustments is called a post-stratification weight. It is called a *post*-stratification weight because it is computed *after* data are collected. The *stratification* part comes from use of various known *strata* (such as age group or sex distribution) of the population to which the new data are adjusted to better conform to the population's parameters.

In order to calculate a post-stratification weight, an auxiliary dataset is needed to which the new data are compared. M2 used Current Population Survey (CPS) data derived from the Census Bureau that show the demographic characteristics of the population.

All of these demographics (and many more) are present in the Current Population Survey, which is a monthly survey conducted by the Census bureau. (See www.census.gov/cps/)

M2 used the October 2005 CPS as the auxiliary dataset and compared the distributions of key demographic variables in the M2 data and the CPS.

The first step in creating post-stratification weights was to decide which demographics the researcher wants to “correct” for. When comparing the M2 and CPS proportions on a variety of demographic variables, the largest differences between the two appeared within Region, Education, and Age strata. We thus offer a range of weights based on these three strata as well as include additional weights based on Sex, Race, and Marital status.

Table 1. Comparison of MIDUS 2 and the Current Population Survey (October 2005)

| MIDUS 2 | CPS | Unweighted |
|-----------------------|------------|------------|
| | (N=71,607) | M2 data |
| | % | (n=2257) |
| | % | % |
| REGION | | |
| Northeast | 21.7 | 17.3 |
| Midwest | 23.3 | 28.4 |
| South | 31.0 | 34.4 |
| West | 24.0 | 19.8 |
| SEX | | |
| Male | 47.3 | 47.6 |
| Female | 52.7 | 52.4 |
| RACE | | |
| White | 84.9 | 86.0 |
| Black | 8.6 | 5.4 |
| Others | 6.5 | 8.6 |
| AGE | | |
| 35-44 | 28.3 | 22.7 |
| 45-54 | 28.7 | 25.3 |
| 55-64 | 21.2 | 24.2 |
| 65-74 | 13.1 | 18.6 |
| 75-84 | 8.7 | 9.1 |
| EDUCATION | | |
| 12 years or less | 46.1 | 34.1 |
| 13 – 15 years | 26.1 | 29.8 |
| 16 years or more | 27.8 | 36.1 |
| MARITAL STATUS | | |
| Married | 67.0 | 67.6 |
| Not married | 33.0 | 32.4 |

Once the population and sample proportions are known, the mathematical operation that creates the weights is quite simple; divide the population proportion by the sample proportion. We created ten sets of weights; four sets are multivariate, and six are univariate.

B1PWGHT1 - Region x Age x Education

B1PWGHT2 - Sex x Age x Education

B1PWGHT3 - Race x Age x Education

B1PWGHT4 - Region

B1PWGHT5 - Sex

B1PWGHT6 - Race

B1PWGHT7 - Age

B1PWGHT8 - Education

B1PWGHT9 - Marital status

B1PWGHT10 - Race x Age x Education x Sex

Tables 2 and 3 below show the post-stratification weights for that were created based on various strata. Notice that in both table the larger weights tend to be associated with the younger and less-educated groups. These are groups which were under-represented in MIDUS 2. Because the 4-strata weights presented in Table 3 contain 90 cells, some cell counts amounted to zero. These tended to be among the oldest minorities, groups which we know are under-represented in MIDUS. These cells are indicated by **bolded ‘n/a’** in Table 3.

Some cases may not have complete demographic information from which to create a post-stratification weight. We have chosen to assign a weight of “1” to these cases. Because the post-stratification weights are centered around unity (1) so that the N of the weighted dataset equals the unweighted sample size, then assigning such “missing” cases a weight of 1 essentially imputes the average weight to that case. We believe this is a relatively conservative policy; applying the average of the weight variable’s distribution ensures the case can be included in analysis, maximizing the analytic N while reducing the standard error and not unduly influencing the over- or under-representativeness of the sample.

Table 2. Post-stratification weights created using Region, Education, and Age strata (B1PWGHT1).

| Region | Education | Age | | | | |
|-----------|------------------|-------|-------|-------|-------|-------|
| | | 35-44 | 45-54 | 55-64 | 65-74 | 75-84 |
| Northeast | 12 years or less | 2.33 | 1.61 | 1.42 | 1.20 | 2.19 |
| | 13 – 15 years | 1.03 | 1.53 | 0.92 | 0.68 | 0.73 |
| | 16 years or more | 1.42 | 1.19 | 0.77 | 0.72 | 0.78 |
| Midwest | 12 years or less | 1.28 | 0.86 | 1.04 | 0.76 | 0.94 |
| | 13 – 15 years | 1.02 | 0.99 | 0.75 | 0.55 | 0.44 |
| | 16 years or more | 0.86 | 0.75 | 0.54 | 0.40 | 0.48 |
| South | 12 years or less | 1.78 | 1.49 | 1.13 | 0.82 | 1.31 |
| | 13 – 15 years | 0.83 | 0.95 | 0.72 | 0.45 | 0.74 |
| | 16 years or more | 0.77 | 0.70 | 0.57 | 0.55 | 0.53 |
| West | 12 years or less | 3.68 | 2.69 | 1.84 | 1.27 | 1.76 |
| | 13 – 15 years | 1.49 | 1.27 | 0.86 | 0.54 | 0.66 |
| | 16 years or more | 1.03 | 1.20 | 0.73 | 0.55 | 0.81 |

Table 3. Post-stratification weights created using Sex, Race, Education, and Age strata (B1PWGHT10).

| Sex | Race | Education | Age | | | | |
|--------|-------|------------------|-------|-------|-------|-------|-------|
| | | | 35-44 | 45-54 | 55-64 | 65-74 | 75-84 |
| Male | White | 12 years or less | 2.55 | 1.44 | 1.27 | 0.96 | 1.19 |
| | | 13 – 15 years | 1.23 | 1.11 | 0.79 | 0.72 | 0.71 |
| | | 16 years or more | 0.74 | 0.83 | 0.55 | 0.55 | 0.45 |
| | | | | | | | |
| | Black | 12 years or less | 14.52 | 3.37 | 1.78 | 1.42 | n/a |
| | | 13 – 15 years | 1.72 | 3.46 | 1.87 | 0.74 | n/a |
| | | 16 years or more | 1.20 | 2.36 | 1.08 | 0.33 | n/a |
| | | | | | | | |
| | Other | 12 years or less | 1.05 | 1.02 | 1.16 | 0.45 | 0.62 |
| | | 13 – 15 years | 0.37 | 0.75 | 0.40 | n/a | 0.22 |
| | | 16 years or more | 1.33 | 0.63 | 1.01 | 0.69 | 0.43 |
| | | | | | | | |
| Female | White | 12 years or less | 1.60 | 1.35 | 1.20 | 0.94 | 1.55 |
| | | 13 – 15 years | 1.05 | 1.15 | 0.91 | 0.41 | 0.60 |
| | | 16 years or more | 1.07 | 0.99 | 0.72 | 0.53 | 1.01 |
| | | | | | | | |
| | Black | 12 years or less | 1.60 | 1.44 | 4.08 | 0.96 | 1.57 |
| | | 13 – 15 years | 1.00 | 1.14 | 1.11 | 20.2 | 0.37 |
| | | 16 years or more | 2.66 | 0.77 | n/a | 0.85 | 0.88 |
| | | | | | | | |
| | Other | 12 years or less | 1.24 | 1.08 | 0.68 | 0.65 | 0.78 |
| | | 13 – 15 years | 0.60 | 0.79 | 0.60 | 0.31 | 0.60 |
| | | 16 years or more | 1.14 | 0.78 | 0.40 | 0.66 | n/a |

Table 4 below shows the results of applying both adjustments to the Main RDD sample. Notice that the weighted frequencies are comparable to the CPS proportions, especially for the three variables used in the adjustment: Region, Age, and Education.

Table 4. Comparison of MIDUS 2 Marginals and the Current Population Survey

| MIDUS 2 | CPS (October 2005) | Unweighted M2 data | Weighted M2 data (B1PWGHT1) | Weighted M2 data (B1PWGHT10) |
|-----------------------|--------------------------|-----------------------|-----------------------------------|------------------------------------|
| | (N=71,607) | (n=2257) | (n=2257) | (n=2257) |
| | % | % | % | % |
| REGION | | | | |
| Northeast | 21.7 | 17.3 | 21.7 | 17.2 |
| Midwest | 23.3 | 28.4 | 23.3 | 29.8 |
| South | 31.0 | 34.4 | 31.0 | 35.4 |
| West | 24.0 | 19.8 | 24.0 | 17.6 |
| SEX | | | | |
| Male | 47.3 | 47.6 | 46.6 | 47.2 |
| Female | 52.7 | 52.4 | 53.4 | 52.8 |
| RACE | | | | |
| White | 84.9 | 86.0 | 84.6 | 85.3 |
| Black | 8.6 | 5.4 | 5.8 | 8.3 |
| Others | 6.5 | 8.6 | 9.6 | 6.5 |
| AGE | | | | |
| 35-44 | 28.3 | 22.7 | 28.2 | 28.4 |
| 45-54 | 28.7 | 25.3 | 28.7 | 28.8 |
| 55-64 | 21.2 | 24.2 | 21.2 | 21.1 |
| 65-74 | 13.1 | 18.6 | 13.2 | 13.2 |
| 75-84 | 8.7 | 9.1 | 8.7 | 8.5 |
| EDUCATION | | | | |
| 12 years or less | 46.1 | 34.1 | 46.0 | 46.2 |
| 13 – 15 years | 26.1 | 29.8 | 26.0 | 26.1 |
| 16 years or more | 27.8 | 36.1 | 27.9 | 27.7 |
| MARITAL STATUS | | | | |
| Married | 67.0 | 67.6 | 66.9 | 68.1 |
| Not married | 33.0 | 32.4 | 33.1 | 31.9 |