



2000 Washington State Population Survey Technical Report 1: Sample Disposition and Response Rates

THIS REPORT is one of several technical appendices prepared by the Office of Financial Management to supplement the 2000 Washington State Population Survey (SPS). The survey was funded by the Legislature to provide social, demographic, and economic information about Washington residents biennially. A background report on the SPS titled, *2000 Washington State Population Survey Data Report*, is available electronically at <http://www.ofm.wa.gov/>, or by calling OFM at (360) 902-0599.

Responses to the survey were obtained from telephone interviews with 6,726 households that represent the state population as a whole. The survey was designed by OFM and conducted by the Washington State University Social and Economic Sciences Research Center (SESRC) in the Spring 2000.

Sample Disposition and Response Rates

There are two base samples for this survey – a general population sample and an expanded sample of racial minorities. The response rates are calculated separately for the two samples.

The general population sample was drawn using the random digit dialing (RDD) technique. With RDD methodology, all households in the state of Washington with an activated telephone line, either listed or unlisted, have an equal probability of being selected. A target of 6,000 households was planned for the general population sample, the main sample of the SPS.

The expanded sample was drawn from census tracts that contained the highest concentration (40 percent or more) of minority groups. This additional sample allowed researchers to obtain sufficient information on racial minority groups for statistical analyses – information that would have been missed using only the RDD method. The expanded population groups include: African Americans, Native Americans, Asian/Pacific Islanders, and Hispanics. The completion target for each of these four groups was a total of 400 households from the general population and the expanded samples combined. For instance, if 250 households of the Hispanic group completed interviews in the general population sample, then only 150 completed interviews of this group would be needed from the expanded sample. A household is defined as a minority household if the respondent is a minority member. The respondent is the household head or the person most knowledgeable about the household's financial situation.

TABLE 1
Complete Sample Disposition for the General Population Sample
and Expanded Sample Cases

| Sample disposition | OF00 (General Population Sample) | EF00 (Expanded Sample <i>Before</i> Adjustment) | EF00Adj (Expanded Sample <i>After</i> Adjustment) |
|--|--|---|---|
| CM: Completed Interview | 6,025 | 701 | 701 |
| PC: Partial complete | 517 | 125 | 125 |
| PB: Partial complete | 8 | 5 | 5 |
| CP: Pretest completion | 26 | 0 | 0 |
| R1: Refusal, hang up | 699 | 874 | 318 |
| R2: Soft refusal | 72 | 3 | 1 |
| R3: Hostile refusal | 755 | 223 | 81 |
| R5: Refusal on conversion attempt | 3,771 | 1,105 | 402 |
| RN: Refusal for respondent not available | 144 | 55 | 20 |
| RP: Refusal by other person | 3 | 3 | 1 |
| CB: Specific callback | 107 | 77 | 28 |
| GB: General callback | 54 | 43 | 16 |
| BZ: Busy signal | 177 | 118 | 43 |
| NA: No answer | 1,504 | 795 | 290 |
| AM: Answering machine | 503 | 1,001 | 365 |
| LM: Answering machine, left message | 190 | 0 | 0 |
| DF: Deaf respondent | 81 | 36 | 13 |
| HC: Handicapped respondent | 61 | 33 | 12 |
| LG: Language problem | 201 | 502 | 183 |
| DD: Respondent deceased | 6 | 4 | 4 |
| IE: Ineligible, respondent too young | 83 | 35 | 35 |
| I2: Ineligible, respondent not minority | 0 | 1,451 | 1,451 |
| IEE: Ineligible estimate respondent not minority | 0 | 0 | 3,097 |
| BG: Business or government | 2,124 | 616 | 616 |
| DS: Disconnected | 4,601 | 2,946 | 2,946 |
| ED: Electronic device | 1,034 | 396 | 396 |
| BC: Blocked call | 272 | 243 | 243 |
| NL: No listing | 1 | 0 | 0 |
| OT: Other misc. | 100 | 63 | 63 |
| TR: Terminated by Interviewer | 5 | 3 | 1 |
| UP: Unpublished number | 0 | 0 | 0 |
| SA: Spanish no answer | 4 | 1 | 1 |
| SB: Spanish answering machine | 6 | 1 | 1 |
| SG: Spanish general callback | 4 | 1 | 1 |
| SM: Spanish answering machine, left message | 1 | 7 | 7 |
| SZ: Spanish busy signal | 5 | 0 | 0 |
| PN: Purged nonworking numbers | 2,992 | 1,405 | 1,405 |
| Total Sample | 26,136 | 12,871 | 12,871 |

Calculating response rates for a survey requires first a complete account of the disposition of all sample cases regarding the outcome of the interview attempt. Table 1 presents the complete sample disposition of the two samples in this survey. The first column is a description of the dispositions. The second column (OF00) contains the disposition figures for the general population sample. The third column (EF00) contains the disposition figures for the expanded sample *before* adjusting for the

non-minority status of the non-completes. The last column (EF00Adj) lists the dispositions for the expanded sample *after* adjusting for the non-minority status of non-completes. The adjustment for non-minority status of the non-completes for the expanded sample is discussed below.

Adjusting Non-completes for Non-Minority Status

The calculation of response rates requires that sample units that are not eligible be excluded. For example, because the SPS is a household telephone survey, if a business phone number is encountered, the interview is terminated. The case is declared ineligible and removed from the sample. Determining eligibility can be difficult when attempts to contact fail, as in attempts that result in busy signals, hang-ups, or answering machine pick ups. The Council of American Survey Research Organizations (CASRO) has proposed adjusting response rates to reflect the obtained proportion of ineligible households of all contacted and identified households. In such cases, an estimate is obtained for the proportion of those households that would have been ineligible if the contacts had been successful.

In the expanded sample of the current survey, such estimation is more significant, because of the high proportion of households that are ineligible due to the selection criterion of race/ethnicity. For this sample, if the respondent was not a Hispanic, African American, Asian, or American Indian, the household was considered ineligible. Because of the large proportion of non-minority households and a large number of refusal cases in this sample, the estimation of ineligibles is important to determine the response rate. The last column of Table 1 reflects the adjustment of the disposition of the expanded sample for non-minority households among those that refused or that were not successfully contacted (R1 through LG plus TR).

An estimated proportion of non-minority household was derived for the non-completes in the expanded sample. This proportion was calculated by dividing the identified non-minority households (I2) by all identified households (CM through PB plus I2). The proportion was 0.64. In other words, about 64 percent of the identified cases in the expanded sample were non-minority households. Therefore, only about 36 percent of the identified cases were considered eligible. This latter rate was applied to rows R1 through LG and TR in the third column to obtain an estimated number of eligible cases among the no-contact cases, resulting in the reduced numbers in the corresponding cells in the last column. The rows that were affected by this adjustment are R1 through LG plus TR.

Sample Disposition Summary

Table 2 contains a summary of the sample disposition details. It shows a total of 26,136 cases were released for the general population sample (OF00). For the expanded sample, the total was 12,871 (EF00Adj).

Of the 26,136 cases released for the general population sample, 6,025 resulted in completion (CM), 5,995 in refusal (RF1 and RF2), 2,903 in no contact (NA1, NA2, and SNA), and 11,213 in ineligible (IEH, IEE, and IEO). The 12,871 expanded sample cases were disposed, after adjustment for non-minority status among the non-completes, into the following: 701 completes, 954 refusals, 960 no contacts, and 10,256 ineligibles.

TABLE 2
Sample Disposition Summary

| Sample disposition Summary | OF00 (General Population Sample) | EF00 (Expanded Sample Before Adjustment) | EF00Adj (Expanded Sample After Adjustment) |
|------------------------------------|-------------------------------------|--|--|
| CM = (CM,CI,BI) | 6,025 | 701 | 701 |
| RF1 = (PC,PB,CP) | 551 | 130 | 130 |
| RF2 = (R1,R2,R3,R5,RN,RP) | 5,444 | 2,263 | 824 |
| NA1 = (CB,GB,BZ,AM,LM,DF,HC,LG,TR) | 1,379 | 1,813 | 660 |
| NA2 = (NA) | 1,504 | 795 | 290 |
| SNA = (SA,SB,SG,SM,SZ) | 20 | 10 | 10 |
| IEH = (DD,IE) | 89 | 39 | 39 |
| IEE = Nonminority HH (I2,IEE) | 0 | 1,451 | 4,548 |
| IEO = (BG,DS,ED,FX,NL,OT,UP,PN) | 11,124 | 5,669 | 5,669 |
| Total | 26,136 | 12,871 | 12,871 |

Note 1: Disposition codes in parentheses refer to those in Table 1.

Response Rates

Table 3 contains four different response rates. The reason for inclusion of different response rates is that different organizations may have varying needs for presenting information and some response rates are more appropriate than others. A total of four response rates are calculated. These rates are based on definitions of response rates set by the CASRO.

The first two rows of Table 3 are two adjustment factors. The first adjustment factor (ADJ1) represents the percent of contacted households that are ineligible for the survey because of death, age, or minority status (for the expanded sample). This is 1.3 percent for the general population sample (OF00) and 64 percent for the expanded sample (EF00). Note that this is only 4.5 percent for the adjusted column (EF00(Adj)). Since the minority adjustment has already been factored in to the sample disposition numbers, the only remaining ineligible households are those excluded due to age or death. The second adjustment factor (ADJ2) represents the percent of telephone numbers that are excluded from the sample because they are not residential households.

Table 3
Response Rate Calculations

| Response Rate Calculations | OF00 (General Population Sample) | EF00 (Expanded Sample Before Adjustment) | EF00Adj (Expanded Sample After Adjustment) |
|---|---|---|---|
| ADJ1 = %INELIGIBLE= (IEH+IEE)/(CM +RF1+IEH+IEE) | 1.3% | 64.2% | 4.5%* |
| ADJ2 = %OUT OF SAMPLE = IEO/TOTAL | 42.6% | 44.0% | 44.0% |
| RR1 = CM/CM+RF1+RF2 | 50.1% | 22.7% | 42.4% |
| RR2 = CM/CM+RF1+(1-ADJ1)*RF2 | 50.4% | 42.7% | 43.3% |
| RR3 = CM/CM+RF1+RF2+NA1+SNA+NA2 | 40.4% | 12.3% | 26.8% |
| RR4 = CM/(CM+RF1+ (1-ADJ1)*(RF2+NA1+SNA)+ (1-ADJ2)*NA2) | 42.5% | 25.6% | 29.0% |

* IEE removed from both the numerator and the denominator.

Note 1: Disposition codes on right-hand side of the equation refer to those in Table 2.

The four response rates displayed in the next four rows differ only in what is included in the denominator. To avoid confusion, the following discussion will not involve the EF00 column. The rates under this column are considered to be a less accurate representation of the expanded sample, because they do not exclude the ineligible from refusal and no-contact cases.

The first rate (RR1) is a crude rate. It is the ratio of completes over the sum of completes (CM) and refusals (RF1 and RF2). RF1 in the denominator refers to refusals after the identifying information is collected. RF2 refers to refusals before the identifying information is collected. This rate can be considered as a crude cooperation rate, i.e. the proportion of all successfully contacted cases that completed the interview. For the general population sample, this rate is 50.1 percent and for the expanded sample (EF00(ADJ)) is 42.4 percent.

The second rate (RR2) is very similar to RR1 except that in RR2, RF2 is adjusted for death and young age of the intended respondents (ADJ1). This rate is a refined cooperation rate. For the general population sample, it increases slightly from 50.1 to 50.4 percent. For the expanded sample, it increases by about one percentage point from 42.4 to 43.3 percent.

The third rate (RR3) takes into account those households that are never successfully contacted during the survey period. They are included in the denominator of the ratio. The denominator for this ratio includes: completed and partially completed interviews (CM), refusals (RF1 and RF2), call-backs (NA1), no-answers (NA2), and Spanish call-backs (SNA). By including the no-contact households without adjusting for ineligible, this rate is the most conservative of the four rates presented in Table 3. For the general population sample, this rate is about 40.4 percent. For the expanded sample, the estimated rate is about 26.8 percent.

The fourth rate (RR4) is similar to the RR3, but it takes into account adjustment for death and young age among the Spanish call-back cases (SNA), other call-back cases (NA1), and contacted cases from which no identifying information was collected (RF2). In addition, this rate is adjusted for ineligible (ADJ2) among the no-answer cases (NA2). For the general population sample this leads to an adjusted rate of 42.5 percent. For the expanded sample, the estimated rate is 29.0 percent.

RR2 and RR4 are the two most often quoted rates with the former being generally referred to as the cooperation rate and latter referred to as the response rate.