

Appendix B – State Sample Sizes

State Sample Sizes	Oversample Ratio 'k'	Proportion of Households with Children from 2014 ACS 'P'	Total Sample	Stratum 1 Sample (Admin Flag for HHLD w/Children)	Stratum 2 Sample (Admin Flag for HHLD w/o Children)
Alabama	5.4	23.0%	7,827	4,636	3,191
Alaska	3.8	26.8%	8,468	4,099	4,369
Arizona	5.4	23.7%	7,553	4,486	3,067
Arkansas	4.9	24.1%	7,965	4,576	3,389
California	5.3	29.8%	6,407	4,264	2,142
Colorado	5.8	26.5%	6,549	4,122	2,427
Connecticut	6.7	24.8%	6,526	4,361	2,164
Delaware	6.8	23.1%	6,890	4,552	2,338
District of Columbia	7.2	17.1%	8,439	4,970	3,468
Florida	6.5	19.9%	8,035	4,938	3,097
Georgia	4.7	27.7%	7,238	4,469	2,769
Hawaii	3.4	26.4%	9,490	3,524	5,966
Idaho	5.4	26.6%	6,812	4,205	2,607
Illinois	6.3	25.8%	6,573	4,428	2,146
Indiana	6.4	25.6%	6,542	4,425	2,117
Iowa	7.9	25.2%	5,938	4,238	1,700
Kansas	6.7	26.5%	6,318	4,401	1,918
Kentucky	5.2	25.1%	7,380	4,410	2,969
Louisiana	4.7	24.9%	8,057	4,841	3,216
Maine	8.3	17.4%	7,385	4,484	2,901
Maryland	6.1	26.6%	6,511	4,363	2,148
Massachusetts	7.3	24.5%	6,237	4,253	1,984
Michigan	8.6	22.7%	6,205	4,423	1,782
Minnesota	8.3	24.8%	5,871	4,217	1,654
Mississippi	4.6	25.9%	7,856	4,663	3,193
Missouri	6.4	23.6%	6,940	4,512	2,427
Montana	6.4	20.4%	7,605	4,352	3,253
Nebraska	6.8	26.6%	6,071	4,147	1,925
Nevada	4.8	24.1%	8,031	4,466	3,565
New Hampshire	7.9	21.6%	6,460	4,243	2,217
New Jersey	6.0	26.9%	6,447	4,247	2,200
New Mexico	4.4	23.8%	8,582	4,345	4,237
New York	4.8	24.2%	7,918	4,307	3,612
North Carolina	5.6	24.4%	7,215	4,448	2,766
North Dakota	5.8	24.1%	7,038	4,151	2,887
Ohio	7.5	24.2%	6,402	4,497	1,905
Oklahoma	4.5	25.8%	7,908	4,490	3,418
Oregon	7.0	24.0%	6,414	4,224	2,190
Pennsylvania	7.7	22.7%	6,461	4,391	2,070
Rhode Island	6.8	23.3%	6,713	4,359	2,354
South Carolina	6.0	22.5%	7,543	4,694	2,849
South Dakota	5.5	23.7%	7,441	4,381	3,059
Tennessee	5.4	25.1%	7,241	4,500	2,741
Texas	4.1	30.7%	7,132	4,254	2,878
Utah	4.4	35.2%	6,126	4,081	2,045
Vermont	7.1	19.8%	7,151	4,105	3,045
Virginia	6.0	26.8%	6,513	4,314	2,199
Washington	6.2	25.4%	6,583	4,269	2,314
West Virginia	5.0	20.3%	9,116	4,165	4,952
Wisconsin	8.0	23.7%	6,136	4,267	1,869
Wyoming	4.8	24.1%	7,894	4,193	3,701
Total			364,153	222,750	141,402
Proportion by Strata				61.2%	38.8%

Calculations for State Sample Sizes

The oversampling factor (k) was calculated so that the sampling variance 'R' = 1.06, this gives the maximum k (and largest sample from stratum 1) without increasing the variance too much beyond that of a proportional stratified design of a similar cost.

(P) is the proportion of households with children based on the 2014 ACS estimates.

The portion of the sample coming from each stratum was calculated using the oversample rate (k) and the portion of all households in each stratum (W1 and W2). These estimates were then used with the prevalence of households with children in each stratum (P1 and P2) to get the percent of the sample expected to have children.

We then assumed the following:

- 89% of the addresses would be valid
 - 45% of the valid addresses would respond and be screened with the web instrument
 - 95% of those screened and with children would complete a web topical interview
 - 55% of the valid addresses would fail to respond to the web instrument and be screened by mail
 - 25% of those would complete a mail screener
 - 25% of those with children would complete a mail topical interview

Using this response information, along with the percent of the sample expected to have children in each state, we calculated the sample size needed to get 1500 topical interviews in each state.

For example, in Alabama:

The oversampling rate (k) was recalculated to be 5.4, for an R = 1.06.

Using the ACS x NSCH Flag tabulations:

	NSCH Administrative Flag for Household with Children	NSCH Administrative Flag for Household without Children	Proportion of All Households with children from 2014 ACS
2014 ACS Household with Children	71.9% (P1)	9.9% (P2)	21.2% (W1)
2014 ACS Household without Children	28.1%	90.1%	78.8% (W2)

The portion of the sample coming from stratum 1 was estimated to be $(k*W1)/(W2 + k*W1) = 59.2\%$ and the portion of the sample from stratum 2 was 40.8%.

Within our sample we expect $71.9\%*59.2\% + 9.9\%*40.8\% = 46.6\%$ to have children.

For the web topicals, we expect to get an interview from $89\%*45\%*95\% = 38\%$.

For the mail topicals, we expect to get an interview from $89\%*55\%*25\%*25\% = 3.06\%$.

So from the total we can expect a response of $38\%+3.06\% = 41.06\%$.

Now we take the target of 1500 interviews and adjust for the expected response and the percent of the sample with children to get the state sample size: $1500*(41.06\%)^{-1}*(46.6\%)^{-1} = 7839$.

Now $n1 = 59.2\%*7839=4641$ and $n2 = 40.8\%*7839 = 3198$.

(Numbers here are slightly different from the spreadsheet due to rounding.)