Methodology

Impact of the Recession

Prepared by Princeton Survey Research Associates International  
for the Pew Social Trends & Demographics Project

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**SUMMARY**

The Impact of the Recession Survey, sponsored by the Pew Social & Demographic Trends Project, obtained telephone interviews with a nationally representative sample of 2,967 adults living in the continental United States. The survey was conducted by Princeton Survey Research Associates International. Interviews were done in English and Spanish by Princeton Data Source from May 11-31, 2010. Statistical results are weighted to correct known demographic discrepancies. The margin of sampling error for the complete set of weighted data is ±2.2 percentage points.

Details on the design, execution and analysis of the survey are discussed below.

# Design AND Data Collection Procedures

#### Sample Design

Seven separate sample segments were used for data collection in order to obtain a representative sample that also oversampled two key demographic groups – those who are unemployed but are able to work and those who are working part-time for economic reasons.

The unemployed but able to work group (UEA) is defined as those who are NOT currently employed full- or part-time BUT would like a job and could start one now if it were offered to them. The working part-time for economic reasons group (PTE) is defined as people who are currently working part-time but are doing so only because their hours were cut back or they could not find full-time work and have to settle for part-time. Table 1 shows the sample segment definitions along with the number of interviews in each.

|  |  |  |  |
| --- | --- | --- | --- |
| **Table 1: Sample Design Segments** | | | |
| Segment | Sample Type | Population | n= |
| 1 | Landline RDD | All adults | 1,001 |
| 2 | Landline RDD screened | Adults 18-64 | 600 |
| 3 | Landline RDD screened | UEA or PTE | 96 |
| 4 | Landline callback screened | UEA or PTE | 196 |
| 5 | Cell RDD | All adults | 805 |
| 6 | Cell RDD screened | UEA or PTE | 119 |
| 7 | Cell callback screened | UEA or PTE | 150 |

Sample segments 1-3 were all landline random-digit dialing (RDD) samples drawn using standard list-assisted methods, where telephone numbers were drawn with equal probabilities from all active blocks in the continental US. Cell sample segments 5 and 6 were not list-assisted, but were drawn through a systematic sampling from dedicated wireless 100-blocks and shared service 100-blocks with no directory-listed landline numbers. The landline and cell callback samples (segments 4 and 7) were drawn from recent PSRAI surveys. Callback sample was identified as those who were under age 65 and had completed less than four years of college.

#### Questionnaire Development and Testing

The questionnaire was developed by the Pew Social Trends & Demographics Project. In order to improve the quality of the data, the questionnaire was pretested twice with a small number of respondents using RDD telephone numbers. The monitored pretest interviews were conducted using experienced interviewers who could best judge the quality of the answers given and the degree to which respondents understood the questions. Some final changes were made to the questionnaire based on the monitored pretest interviews.

#### Contact Procedures

Interviews were conducted from May 11-31, 2010. As many as 7 attempts were made to contact every sampled telephone number. Sample was released for interviewing in replicates, which are representative subsamples of the larger sample. Using replicates to control the release of sample ensures that complete call procedures are followed for the entire sample. Calls were staggered over times of day and days of the week to maximize the chance of making contact with potential respondents. Each phone number received at least one daytime call.

The introduction and screening procedures differed depending on the sample. For each contacted household in sample segments 1-3, interviewers asked to speak with either the youngest male or youngest female currently at home based on a random rotation. If no male/female was available at the time of the call, interviewers asked to speak with the youngest adult of the opposite sex. This systematic respondent selection technique has been shown to produce samples that closely mirror the population in terms of age and gender when combined with cell sample.

In sample segment 2, interviewers then asked if the person was age 18 to 64. If they were, they proceeded with the main interview. If not, the interviewers asked if any other household members were age 18 to 64 and, if there was an age-eligible household member, an interview was conducted with that person. If the household had no age-eligible people, that piece of sample was screened-out as ineligible.

Sample assigned to segment 3 was administered the employment status screener which determined whether the person who answered the phone qualified as either unemployed and able to work (UEA) or employed part-time for economic reasons (PTE). Respondents who qualified for either of these groups completed the interviews. Those who did not qualify were screened-out as ineligible.

For sample segment 4, interviewers started by asking to talk with the person in the household who had previously completed a telephone interview. The person was identified by age and gender. After the target respondent was on the phone, they were administered the employment status screener.

Sample segment 5 included interviews with all adults on cell phones. This sample was administered a standard cell phone screener which simply confirmed that the person was an adult and in a safe place to talk before continuing with the main interview. Sample segment 6 was administered the employment status screener after the standard cell phone screener. Sample segment 7 included callback interviews with cell respondents. All qualified cell phone respondents were offered $5 to complete an interview.

# Weighting and analysis

Weighting is generally used in survey analysis to adjust for effects of the sample design and to compensate for patterns of nonresponse that might bias results. The weighting was accomplished in multiple stages to account for the different sample segments as well as the oversampling of certain groups. Weighting also balanced sample demographic distributions to match known population parameters.

The first stage of weighting corrected for the oversampling in segments 2, 3, 4, 6 and 7. This adjustment was computed separately for landline sample segments (2, 3 and 4) and cell sample segments (6 and 7). This adjustment is called SAMPWT in the dataset.

We also made two more adjustments before raking the data to population parameters. The Probability of Selection Adjustment (PSA) corrects for the fact that respondents in the landline sample have different probabilities of being sampled depending on how many adults live in the household. Since we only sample one person per household, adults who live with no other adults have a greater chance of being sampled than adults who live in multiple-adult households.

The PSA was applied to all respondents in sample segments 1-3 where we were calling a household by landline and selecting one adult from within the household to complete the interview. To compute the PSA, first define n1 as the number of respondents in the landline sample who live in single-adults households and n2 as the number of respondents in the landline sample that live in multi-adult households. The PSA equals:

The final adjustment we made prior to raking the data is the Phone Use Adjustment (PUA) which corrects for the overlapping landline and cellular sample frames. The PUA was applied to all cases in the dataset. To compute the PUA, first define p1 as the number of respondents with only one type of phone – landline or cell - and define p2 as the number of respondents with both types of phones. The PUA equals:

At this point, an interim weight was computed that was the product of the three sample adjustments - SAMPWT, PUA and PSA. This interim weight was used as an input weight for the final stage of weighting – the demographic raking. The data was raked, by form, to current population parameters for: sex by age; sex by education; age by education; race/ethnicity; number of adults in the household; employment status; census region; population density and household telephone usage.

The telephone usage parameter was derived from an analysis of recently available National Health Interview Survey data[[1]](#footnote-1). The population density parameter is county-based and was derived from Census 2000 data. All other weighting parameters were derived from the Census Bureau’s 2009 Annual Social and Economic Supplement (ASEC).

This stage of weighting, which incorporated each respondent's initial weighting adjustments, was accomplished using Sample Balancing, a special iterative sample weighting program that simultaneously balances the distributions of all variables using a statistical technique called the *Deming Algorithm*. The raking corrects for differential non-response that is related to particular demographic characteristics of the sample. This weight ensures that the demographic characteristics of the sample closely approximate the demographic characteristics of the population. Table 2 compares weighted and unweighted sample demographics to population parameters.

|  |  |  |  |
| --- | --- | --- | --- |
| **Table 2: Sample Demographics** | | | |
|  | Parameter | Unweighted | Weighted |
| Gender |  |  |  |
| Male | 48.5% | 44.7% | 48.3% |
| Female | 51.5% | 55.3% | 51.7% |
|  |  |  |  |
| Age |  |  |  |
| 18-24 | 12.6% | 12.3% | 12.2% |
| 25-34 | 17.8% | 13.5% | 16.9% |
| 35-44 | 18.2% | 14.4% | 17.0% |
| 45-54 | 19.6% | 21.6% | 19.5% |
| 55-64 | 15.1% | 21.8% | 15.5% |
| 65+ | 16.6% | 14.0% | 16.9% |
|  |  |  |  |
| Education |  |  |  |
| Less than HS Graduate | 14.1% | 9.7% | 12.4% |
| HS Graduate | 34.7% | 32.0% | 33.9% |
| Some College | 24.1% | 25.5% | 24.6% |
| College Graduate | 27.1% | 31.9% | 28.3% |
|  |  |  |  |
| Race/Ethnicity |  |  |  |
| White/not Hispanic | 68.8% | 70.7% | 68.8% |
| Black/not Hispanic | 11.5% | 11.0% | 11.3% |
| Hispanic | 13.7% | 10.2% | 12.5% |
| Other/not Hispanic | 6.0% | 6.7% | 6.1% |
|  |  |  |  |
| Region |  |  |  |
| Northeast | 18.5% | 17.7% | 18.2% |
| Midwest | 22.0% | 24.0% | 22.6% |
| South | 36.8% | 38.7% | 37.5% |
| West | 22.7% | 19.7% | 21.7% |
|  |  |  |  |
| County Pop. Density |  |  |  |
| 1 - Lowest | 20.1% | 23.3% | 20.9% |
| 2 | 20.0% | 21.5% | 20.2% |
| 3 | 20.1% | 21.3% | 20.5% |
| 4 | 20.2% | 18.9% | 20.0% |
| 5 - Highest | 19.6% | 15.0% | 18.3% |
|  |  |  |  |
| Phone Use |  |  |  |
| LLO | 11.7% | 10.3% | 11.6% |
| Dual - few, some cell | 47.3% | 54.4% | 47.2% |
| Dual - most cell | 17.4% | 18.3% | 17.3% |
| CPO | 23.6% | 15.9% | 22.9% |
|  |  |  | *Continued…* |

|  |  |  |  |
| --- | --- | --- | --- |
| **Table 2: Sample Demographics *(continued…)*** | | | |
|  | Parameter | Unweighted | Weighted |
| # of adults in HH |  |  |  |
| One | 17.4% | 24.1% | 18.1% |
| Two | 54.8% | 52.8% | 55.6% |
| Three+ | 27.8% | 23.2% | 26.3% |
|  |  |  |  |
| Employment Status |  |  |  |
| Employed-FT | 45.2% | 38.3% | 44.5% |
| Employed-PT | 15.6% | 15.7% | 15.5% |
| Employed-Undes. | missing | 3.5% | 3.2% |
| Not employed | 6.0% | 18.4% | 6.6% |
| Not in labor force | 33.2% | 23.6% | 29.7% |

# Effects of Sample Design on Statistical Inference

Post-data collection statistical adjustments require analysis procedures that reflect departures from simple random sampling. PSRAI calculates the effects of these design features so that an appropriate adjustment can be incorporated into tests of statistical significance when using these data. The so-called "design effect" or *deff* represents the loss in statistical efficiency that results from a disproportionate sample design and systematic non-response. The total sample design effect for this survey is 1.46.

PSRAI calculates the composite design effect for a sample of size *n*, with each case having a weight, *wi* as:



*formula 1*

In a wide range of situations, the adjusted *standard error* of a statistic should be calculated by multiplying the usual formula by the square root of the design effect (√*deff* ). Thus, the formula for computing the 95% confidence interval around a percentage is:



*formula 2*

where  is the sample estimate and *n* is the unweighted number of sample cases in the group being considered.

The survey’s *margin of error* is the largest 95% confidence interval for any estimated proportion based on the total sample— the one around 50%. For example, the margin of error for the entire sample is ±2.2 percentage points. This means that in 95 out of every 100 samples drawn using the same methodology, estimated proportions based on the entire sample will be no more than 2.2 percentage points away from their true values in the population. It is important to remember that sampling fluctuations are only one possible source of error in a survey estimate. Other sources, such as respondent selection bias, question wording and reporting inaccuracy may contribute additional error of greater or lesser magnitude. Table 3 shows design effects and margins of error for key subgroups.

|  |  |  |  |
| --- | --- | --- | --- |
| **Table 3: Design Effects and Margins of Sampling Error** | | | |
|  | Sample Size | Design Effect | Margin of Error |
| Total Sample | 2,967 | 1.46 | 2.2 percentage points |
|  |  |  |  |
| Form 1 | 1,484 | 1.43 | 3.0 percentage points |
| Form 2 | 1,483 | 1.49 | 3.1 percentage points |
|  |  |  |  |
| UEA | 753 | 1.51 | 4.4 percentage points |
| PTE | 180 | 1.25 | 8.2 percentage points |
| CWU1 | 264 | 1.24 | 6.7 percentage points |
| 1 Currently Working but Unemployed at some point since the recession started. | | | |

# Response Rate

Table 4 reports the disposition of all sampled telephone numbers ever dialed from the original telephone number samples. The response rate estimates the fraction of all eligible sample that was ultimately interviewed. At PSRAI it is calculated by taking the product of three component rates:[[2]](#footnote-2)

* Contact rate – the proportion of working numbers where a request for interview was made[[3]](#footnote-3)
* Cooperation rate – the proportion of contacted numbers where a consent for interview was at least initially obtained, versus those refused
* Completion rate – the proportion of initially cooperating and eligible interviews that were completed

The final response rate for all sample segments combined was 16.5 percent.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 4: Sample Disposition** | | |  |  |  |  |  |  |
| Combined | Landline fresh | Landline screen for 18-64 | Landline screen for UEA/PTE | LL CB screen for UEA/PTE | Cell Fresh | Cell screen for UEA/PTE | Cell CB screen for UEA/PTE |  |
| 80864 | 25251 | 18093 | 6951 | 4541 | 15695 | 7338 | 2995 | **T** Total Numbers Dialed |
|  |  |  |  |  |  |  |  |  |
| 3754 | 1559 | 1126 | 442 | 108 | 320 | 163 | 36 | **OF** Non-residential |
| 2026 | 998 | 707 | 265 | 27 | 14 | 15 | 0 | **OF** Computer/Fax |
| 21 | 15 | 2 | 4 | 0 | 0 | 0 | 0 | **OF** Cell phone |
| 33635 | 12280 | 8699 | 3318 | 402 | 5744 | 2788 | 404 | **OF** Other not working |
| 1013 | 131 | 302 | 137 | 101 | 227 | 95 | 22 | **UH** Additional projected not working |
| 40416 | 10269 | 7257 | 2786 | 3904 | 9391 | 4278 | 2533 | Working numbers |
| 50.0% | 40.7% | 40.1% | 40.1% | 86.0% | 59.8% | 58.3% | 84.6% | Working Rate |
|  |  |  |  |  |  |  |  |  |
| 338 | 44 | 101 | 46 | 34 | 76 | 32 | 7 | **UH** No Answer / Busy |
| 6233 | 487 | 577 | 324 | 825 | 2349 | 985 | 686 | **UONC** Voice Mail |
| 1466 | 40 | 47 | 11 | 297 | 666 | 293 | 112 | **UONC** Other Non-Contact |
| 32379 | 9698 | 6532 | 2405 | 2748 | 6300 | 2968 | 1728 | Contacted numbers |
| 80.1% | 94.4% | 90.0% | 86.3% | 70.4% | 67.1% | 69.4% | 68.2% | Contact Rate |
|  |  |  |  |  |  |  |  |  |
| 10810 | 5351 | 3054 | 1144 | 418 | 554 | 128 | 161 | **UOR** Callback |
| 14781 | 3241 | 2485 | 848 | 1189 | 4341 | 1965 | 712 | **UOR** Refusal |
| 6788 | 1106 | 993 | 413 | 1141 | 1405 | 875 | 855 | Cooperating numbers |
| 21.0% | 11.4% | 15.2% | 17.2% | 41.5% | 22.3% | 29.5% | 49.5% | Cooperation Rate |
|  |  |  |  |  |  |  |  |  |
| 208 | 72 | 47 | 25 | 3 | 40 | 16 | 5 | **IN1** Language Barrier |
| 3558 | 0 | 342 | 291 | 941 | 547 | 738 | 699 | **IN2** Child's phone/Screen out for age/UEA/PTE |
| 3022 | 1034 | 604 | 97 | 197 | 818 | 121 | 151 | Eligible numbers |
| 44.5% | 93.5% | 60.8% | 23.5% | 17.3% | 58.2% | 13.8% | 17.7% | Eligibility Rate |
|  |  |  |  |  |  |  |  |  |
| 55 | 33 | 4 | 1 | 1 | 13 | 2 | 1 | **R** Break-off |
| 2967 | 1001 | 600 | 96 | 196 | 805 | 119 | 150 | **I** Completes |
| 98.2% | 96.8% | 99.3% | 99.0% | 99.5% | 98.4% | 98.3% | 99.3% | Completion Rate |
|  |  |  |  |  |  |  |  |  |
| 16.5% | 10.4% | 13.6% | 14.7% | 29.1% | 14.7% | 20.1% | 33.5% | Response Rate |

1. Blumberg SJ, Luke JV. Wireless substitution: Early release of estimates from the National Health Interview Survey, July-December, 2008. National Center for Health Statistics. May 2009. [↑](#footnote-ref-1)
2. PSRAI’s disposition codes and reporting are consistent with the American Association for Public Opinion Research standards. [↑](#footnote-ref-2)
3. PSRAI assumes that 75 percent of cases that result in a constant disposition of “No answer” or “Busy” are actually not working numbers. [↑](#footnote-ref-3)