C. Sample Weights

This appendix describes how the sample weights were generated for each of the two panels and the pooled dataset. The weighting reports for each panel can be found at the end of this appendix. As a general overview, weights are used to adjust for sampling designs in order to generalize results to a population of interest. For the two panels used in this study, the results are weighted such that generalizations to the U.S. household population can be made.

Although the details of each panel's weights can be found in the respective reports, the weighting procedures for these two panels can be broken out conceptually into two components:

1. *Base weights.* These weights correct for deviations from an equal probability of selection design. For example, some households have more landlines than others. A standard method to adjust for the resulting unequal probability of selection is to weight multiple-line households by the inverse of the number of landlines.

2. *Panel demographic post-stratification weights.* These weights are used to address nonresponse and non-coverage biases. Non-coverage and nonresponse can lead to the over-representation of certain subgroups, or demographics, in a sample. Panel demographic post-stratification weights are usually generated using a technique known as raking, which allows the analyst to adjust the proportion of panel demographics to match an outside source, usually the Census. Additionally, extreme weights (high or low) can be adjusted using a methodology known as trimming, which is often done to reduce the variance of the weights. Often, the weights are rescaled so that they sum to the original sample size.

The final weights incorporate adjustments made in each of the above two components. The second component is done contingent on the first. Thus, the weights are produced successively using these steps. When data from each of the two panels were pooled together to form a single sample, the weights were also pooled. The FFRISP panel weights were first rescaled so that the average weight equaled 1, as was the case in the ANES panel. This was done by dividing each of the FFRISP weights by the mean weight. Without this rescaling, FFRISP records would have carried disproportionately higher weights than records from the other two panels.

C.1 ANES Weighting Report

Field Report

Coral Reef Protection Survey

Conducted for Stratus Consulting

Submitted to:
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July 23. 2009

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Coral Reef Protection Survey

Introduction

Knowledge Networks conducted a study focusing on peoples' opinions about protecting coral reefs around the Hawaiian Islands, on behalf of Stratus Consulting. The survey was conducted using the American National Election Studies (ANES) panel sample. This sample is comprised of U.S. citizens in the general population aged 18 or older as of November 4, 2008. The survey was fielded between June 4 and July 9, 2009.

Information on the initial and resulting sample sizes and the study completion rate is provided below.

Sample Size and Completion Rate

Sampled	Completed Survey	Survey Completion Rate
3,630	2,335	64.0%

Data File Deliverables and Descriptions

Data are provided in STATA format, and a sampling weight for each case is included in the final file. In addition to the data from the survey, selected demographic variables from the existing ANES panel data for respondents completing the Coral Reef Survey are included. These profile variables are owned by the ANES and are provided for analysis and reporting. It should be noted that age data are provided as of November 4, 2008, because this is the format in which the ANES program will release these data to the public.

A unique linking identification number (CASEID_SO) is included with the data. This identification number will allow linking of cases in the file with released ANES public use files. More information and released data can be found at the following website:

http://www.electionstudies.org/studypages/2008_2009panel/anes2008_2009panel.htm.

The table on the next page shows the name and description of supplemental and profile variables included with the survey data. In addition to the listed items, a series of variables collected on other ANES waves that did not gather data specifically for ANES purposes are provided. It is important to note that the final version of these data for the ANES as a whole is still in the development and processing stage. Therefore, the variables ultimately released by the ANES may differ somewhat from those provided with the current file.

Supplemental and Profile Variables

Variable Name	Variable Description
CaseID	Unique case identification number
CASEID_SO	ANES Case Linking ID Number
weight	Cross-Sectional Weights
tm_start	Interview start date and time
tm_finish	Interview finish date and time
PPGENDER	Gender
PPAGE	Age as of November 4, 2008
PPETHM	Race / Ethnicity
PPEDUC	Education (highest degree received)
PPRENT	Ownership Status of Living Quarters
PPINCIMP	HH Income
PPMARIT	Marital Status
PPHHSIZE	Household Size
PPWORK	Current Employment Status
PPSTATEN	State (numeric)
PPNET	Household Internet Access

Key Personnel

Key personnel on the Perception of Economic Security Survey include:

Mike Dennis – Senior Vice President, Government & Academic Research. M. Dennis is based in the Menlo Park office of Knowledge Networks.
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Methodology

Introduction

The ANES panel was recruited by Knowledge Networks using similar processes to those employed for recruitment to its KnowledgePanel[SM], so that it is representative of the entire U.S. population. Full details regarding ANES panel methodology will be released by ANES project staff later in 2009. A brief overview of the methodology is provided below.

ANES Recruitment Methodology

ANES panel members were randomly recruited by telephone and households were provided with access to the Internet and hardware if needed. Unlike other Internet research that covers only individuals with Internet access who volunteer for research, Knowledge Networks surveys are based on a sampling frame that includes both listed and unlisted phone numbers, and is not limited to current Web users or computer owners. ANES Panelists were selected by chance to join the panel; unselected volunteers were not able to join the ANES panel.

For the ANES panel, Knowledge Networks initially selected households using random digit dialing (RDD) sampling methodology. Once a household is contacted by phone and a household member is recruited to the panel by obtaining their e-mail address or setting up an e-mail address, panel members are sent surveys over the Internet using e-mail (instead of by phone or mail). This permits surveys to be fielded quickly and economically, and also facilitates longitudinal research. In addition, this approach reduces the burden placed on respondents, since e-mail notification is less obtrusive than telephone calls, and allows research subjects to participate in research when it is convenient for them.

Knowledge Networks' panel recruitment methodology uses the quality standards established by selected RDD surveys conducted for the Federal Government (such as the CDC-sponsored National Immunization Survey).

Knowledge Networks utilizes list-assisted RDD sampling techniques on the sample frame consisting of the entire United States residential telephone population. Knowledge Networks excludes only those banks of telephone numbers (consisting of 100 telephone numbers) that have zero directory-listed phone numbers. Two strata are defined using 2000 Census Decennial Census data that has been appended to all telephone exchanges. The first stratum has a higher concentration of Black and Hispanic households and the second stratum has a lower concentration relative to the national estimates. Knowledge Networks' telephone numbers are selected from the 2+ banks with equal probability of selection for each number within each of the 2 strata, with the Black and Hispanic stratum being sampled at a higher rate than the other stratum .

Telephone numbers for which Knowledge Networks is able to recover a valid postal address is about 60%-70%. The telephone phone numbers for which an address is recovered are selected

with certainty; 75% of the remainder are subsampled randomly. For the ANES panel, the address-matched telephone numbers were sent an advance mailing informing them that they were selected to participate in a monthly study sponsored by Stanford University, the University of Michigan, and the National Science Foundation.

Following the mailing, the telephone recruitment process began for all sampled phone numbers. Cases sent to telephone interviewers were dialed up to 90 days, with at least 19 dial attempts on cases where no one answered the phone and on phone numbers known to be associated with households. Extensive refusal conversion was also performed. Experienced interviewers conducted all recruitment interviews. The recruitment interview, which typically required about 10 minutes, began with the interviewer informing a household member that their household was selected to join the special panel study. If the household did not have a PC and access to the Internet, they were told that in return for completing monthly surveys, the household would be given an MSN TV2 set-top box and free monthly Internet access. All members of the household who were U.S. citizens aged 18 or older as of November 4, 2008 were then enumerated and one such household member was selected for participation on the panel. Some initial demographic variables and background information was then collected from this person.

Those RDD households that informed interviewers that they had a home computer and Internet access were recruited to the panel and asked to take their surveys using their own equipment and Internet connections. Those without Internet access were provided with an MSN TV2 unit, as noted above. Prior to shipment, each MSN TV2 unit was custom configured with an individual e-mail account, so that it was ready for immediate use by the selected panelist. Most panelists are able to install the hardware without additional assistance, though Knowledge Networks maintains a telephone technical support line and will, when needed, provide on-site installation. The Knowledge Networks Call Center also contacts household members who do not respond to e-mail and attempts to restore contact and cooperation. PC panel members provide KN with their e-mail account and their weekly surveys are sent to that e-mail account.

All new MSN TV2 panel members were sent an initial survey to confirm equipment installation and familiarize them with the MSN TV2 unit. For all new panel members, demographics such as gender, age, race, income, and education were collected in a follow-up survey to create a member profile.

ANES Survey Administration

Active, eligible ANES panel members are invited to complete each monthly survey. Once assigned to a survey, members receive a notification e-mail on their MSN TV2 or personal computer letting them know there is a new survey available for them to take. The e-mail notification contains a button to start the survey. No login name or password is required.

E-mail reminders are sent to nonresponding panel members. If e-mail does not generate a response, a phone reminder is initiated. ANES panel members also receive $10 for each survey that they complete to encourage participation.

Sample Weighting

The design for an ANES panel sample begins as an equal probability sample that is self-weighting with several enhancements incorporated to improve efficiency. Since any alteration in the selection process is a deviation from a pure equal probability sample design, statistical weighting adjustments are made to the data to offset known selection deviations. These adjustments are incorporated in the sample's **base weight**.

There are also several sources of survey error that are an inherent part of any survey process, such as non-coverage and non-response due to panel recruitment methods and to inevitable panel attrition. We address these sources of sampling and non-sampling error using a **panel demographic post-stratification weight** as an additional adjustment.

Lastly, a set of **study-specific post-stratification weights** are constructed to adjust for sample design and survey non-response.

A description of these types of weights follows.

The Base Weight

In an ANES panel sample, there are five known sources of deviation from an equal probability of selection design. These are corrected in the Base Weight and are described below.

1. **Under-sampling of telephone numbers unmatched to a valid mailing address**

   An address match is attempted on all the Random Digit Dial (RDD) generated telephone numbers in the sample after the sample has been purged of business and institutional numbers and screened for non-working numbers. The success rate for address matching is in the 60-70% range. The telephone numbers with valid addresses are sent an advance letter, notifying the household that they will be contacted by phone to join the ANES panel. The remaining, unmatched numbers are under-sampled at a rate of 0.75 as a recruitment efficiency strategy. Advance letters improve recruitment success rates.

2. **RDD selection proportional to the number of telephone landlines reaching the household**

   As part of the field data collection operation, information is collected on the number of separate telephone landlines in each selected household. A multiple line household's selection probability is down weighted by the inverse of its number of landlines.

3. Under-sampling of households not covered by the MSN® TV service network

Certain small areas of the U.S. are not serviced by MSN®, thus MSN TV2 units cannot be used. We under-sample households in these areas and use other Internet Service Providers for their Internet access.

4. Oversampling of African- American and Hispanic telephone exchanges

Knowledge Networks over-samples telephone exchanges with a higher density of minority households (uniquely African American and Hispanic) to increase panel membership for those groups. These exchanges are oversampled at approximately twice the rate of other exchanges. This over-sampling is corrected in the base weight.

5. Selection of one adult in a household with two or more adults

For the ANES panel, participants are selected in two stages: households in the first stage and one eligible person per household in the second stage. A base weight selection correction is made by multiplying the selected person by the inverse of the number of eligible persons residing in the household.

The Panel Demographic Post-stratification Weight

Once the study data are returned from the field, the final qualified respondent data are subjected to an additional post-stratification process to adjust for any non-response and non-coverage as a result of the study-specific sample design.

The primary purpose of this post-stratification adjustment is to reduce the sampling variance for any characteristics highly correlated with the representative study population's demographic and geographic totals (these are referred to as the population benchmarks). This adjustment also helps reduce bias due to survey non-response. The following benchmark distributions are generally utilized for this type of post-stratification adjustment:

- Gender: Female/Male
- Age: 18-29, 30-44, 45-59, 60+
- Race/ethnicity: white (non-Hispanic), black (non-Hispanic), other (non-Hispanic), Hispanic, 2+ race (non-Hispanic)
- Education: Less than high school, high school graduates, some college, college graduates
- Metro, Non-metro status

Comparable distributions are calculated using all completed cases from the field data. Since study sample sizes are typically too small to accommodate a complete cross-tabulation of all the survey variables with the benchmark variables, an iterative proportional fitting is used for the post-stratification weighting adjustment. This procedure adjusts the sample data back to the selected benchmark proportions. Through an iterative convergence process, the weighted sample data are optimally fitted to the marginal distributions.

After this final post-stratification adjustment, the distribution of the calculated weights are examined to identify and, if necessary, trim outliers at the extreme upper and lower tails of the weight distribution. The post-stratified and trimmed weights are scaled to the sum of the total sample size.

It is important to note that the final weighting process and calculations for the ANES as a whole are still in the planning stage. Therefore, the process and calculations ultimately used to develop ANES weights for data released by the ANES later in 2009 may result in weights that differ from those provided with the current file.

C.2 FFRISP Weighting Report

Weighting Procedures for MRI National Sample: Month One Survey

July 14, 2009

The baseline survey consists of 1,000 respondents. Each baseline respondent was assigned a final weight (finalwgt) based on the weighting methodology developed by Tourangeau and Sakshaug (add reference?). The final step in their weighting approach involved raking on eight socio-demographic variables to control margins constructed from the 2007 American Community Survey PUMS.

A total of 989 baseline respondents completed the Month One survey. Using the final weight calculated for these 989 respondents as the input weight to the raking, we raked on the same eight control variables using the SAS Raking Macro, developed by Izrael et al. (2009). The raking algorithm converged when all of the weighted Month One sample percentages were within 0.001 of the corresponding ACS control percentages.

A reduction of the variability in the weights, as measured by the coefficient of variation of the weights, can be achieved by reducing a few large weight values and increasing a few low weight values. A weight-trimming procedure developed by Izrael et al. (2009) was implemented during the raking iterative process in order to ensure that: 1) a limit will be placed on high and low weight values in the final weights, 2) the convergence criteria were satisfied, and 3) the weights sum to the correct population total. The IGCV (Individual and Global Cap Value) method is based on the specification of global low and high weight cap factors, and individual low and high weight cap values. The global low cap value (GLCV) equals the mean of the input weights time a user specified factor less than one. The global high cap value (GHCV) equals the mean of the input weights time a user specified factor greater than one. The individual low and high weight cap values (ILCV and IHCV, respectively) are calculated separately for each respondent in the survey. The individual low cap value equals the respondent's input weight value time a factor less than one. The individual high cap value equals the respondent's input weight value time a factor greater than one. The IGCV method is implemented at each iteration after the raking adjustment procedure is applied to each control variable within that iteration. The following IGCV values were used:

1. Global low weight cap value factor: Mean input weight times 0.20
2. Global high weight cap value factor: Mean input weight times 5.0
3. Individual low weight cap value (ILCV) factor: Respondent's weight times 0.20
4. Individual high weight cap value (IHCV) factor: Respondent's weight times 5.00

Table 1 gives the weighted distribution of the Month One respondents before raking and the ACS control percentages. Table 2 gives the weighted distribution of the Month One respondents after raking and the ACS control percentages. Table 3 presents descriptive statistics on the final weights for the Month One survey.

The weight variable is named wave1_finalwgt.

Table 1. Weighted distribution of Month One survey prior to raking and 2007 ACS PUMS control totals

Housing Status	Input Weight Sum of Weights	ACS Target Total	Weighted Difference	% of Input Weights	ACS Target % of Weights	Difference in %
Own (1)	150637752.1	150206022	431729.75	72.600	72.392	0.208
Rent/Other (2)	56850931.85	57282662	-431729.75	27.400	27.608	-0.208

Presence of children	Input Weight Sum of Weights	ACS Target Total	Weighted Difference	% of Input Weights	ACS Target % of Weights	Difference in %
Yes (1)	77943229.64	77627934	315295.45	37.565	37.413	0.152

Presence of children	Input Weight Sum of Weights	ACS Target Total	Weighted Difference	% of Input Weights	ACS Target % of Weights	Difference in %
No (2)	129545454.4	129860750	-315295.45	62.435	62.587	-0.152

# persons in HH	Input Weight Sum of Weights	ACS Target Total	Weighted Difference	% of Input Weights	ACS Target % of Weights	Difference in %
1	29501677.42	29884910	-383232.58	14.218	14.403	-0.185
2	71867154.17	71754355	112799.17	34.637	34.582	0.054
3	40762366.86	40479829	282537.86	19.646	19.509	0.136
4	35628252.48	35807562	-179309.52	17.171	17.258	-0.086
5+	29729233.07	29562028	167205.07	14.328	14.248	0.081

Age	Input Weight Sum of Weights	ACS Target Total	Weighted Difference	% of Input Weights	ACS Target % of Weights	Difference in %
18-34 (1)	61527694.79	61695916	-168220.81	29.654	29.735	-0.081
35-54 (2)	81104779.21	80998599	106180.43	39.089	39.038	0.051
55+ (3)	64856210.00	64794170	62040.38	31.258	31.228	0.030

Gender	Input Weight Sum of Weights	ACS Target Total	Weighted Difference	% of Input Weights	ACS Target % of Weights	Difference in %
Male (1)	99495698.40	100199316	-703617.92	47.952	48.291	-0.339
Female (2)	107992985.6	107289368	703617.92	52.048	51.709	0.339

Hispanic Ethnicity	Input Weight Sum of Weights	ACS Target Total	Weighted Difference	% of Input Weights	ACS Target % of Weights	Difference in %
Yes (1)	20165551.87	20299151	-133599.25	9.719	9.783	-0.064
No (2)	187323132.1	187189533	133599.25	90.281	90.217	0.064

Race	Input Weight Sum of Weights	ACS Target Total	Weighted Difference	% of Input Weights	ACS Target % of Weights	Difference in %
White (1)	163842338.4	163563502	278836.32	78.964	78.830	0.134
Black (2)	25296615.93	25296192	424.41	12.192	12.192	0.000
Other (3)	18349729.69	18628990	-279260.74	8.844	8.978	-0.135

Education	Input Weight Sum of Weights	ACS Target Total	Weighted Difference	% of Input Weights	ACS Target % of Weights	Difference in %
<HS (1)	26017483.05	26221777	-204293.94	12.539	12.638	-0.098
HS graduate (2)	63865379.42	63997339	-131959.59	30.780	30.844	-0.064
Some college (3)	46045355.12	46069412	-24056.39	22.192	22.203	-0.012
College grad (4)	71560466.41	71200156	360309.92	34.489	34.315	0.174

Table 2. Weighted distribution of Month One survey after raking and 2007 ACS PUMS control totals

Housing Status	Output Weight Sum of Weights	ACS Target Total	Weighted Difference	% of Output Weights	ACS Target % of Weights	Difference in %
Own (1)	150206693.2	150206022	670.78	72.393	72.392	0.000
Rent (2)	57281990.82	57282662	-670.78	27.607	27.608	-0.000

Presence of children	Output Weight Sum of Weights	ACS Target Total	Weighted Difference	% of Output Weights	ACS Target % of Weights	Difference in %
Yes (1)	77627426.95	77627934	-507.24	37.413	37.413	-0.000
No (2)	129861257.0	129860750	507.24	62.587	62.587	0.000

# persons in HH	Output Weight Sum of Weights	ACS Target Total	Weighted Difference	% of Output Weights	ACS Target % of Weights	Difference in %
1	29885242.27	29884910	332.27	14.403	14.403	0.000
2	71754846.89	71754355	491.89	34.583	34.582	0.000
3	40479742.84	40479829	-86.16	19.509	19.509	-0.000
4	35807195.33	35807562	-366.67	17.257	17.258	-0.000
5+	29561656.68	29562028	-371.32	14.247	14.248	-0.000

Age	Output Weight Sum of Weights	ACS Target Total	Weighted Difference	% of Output Weights	ACS Target % of Weights	Difference in %
18-34 (1)	61695332.87	61695916	-582.74	29.734	29.735	-0.000
35-54 (2)	80998578.65	80998599	-20.12	39.038	39.038	-0.000
55+ (3)	64794772.48	64794170	602.86	31.228	31.228	0.000

Gender	Output Weight Sum of Weights	ACS Target Total	Weighted Difference	% of Output Weights	ACS Target % of Weights	Difference in %
Male (1)	100199479.2	100199316	162.92	48.292	48.291	0.000

Gender	Output Weight Sum of Weights	ACS Target Total	Weighted Difference	% of Output Weights	ACS Target % of Weights	Difference in %
Female (2)	107289204.8	107289368	-162.92	51.708	51.709	-0.000

Hispanic	Output Weight Sum of Weights	ACS Target Total	Weighted Difference	% of Output Weights	ACS Target % of Weights	Difference in %
Yes (1)	20299607.84	20299151	456.72	9.783	9.783	0.000
No (2)	187189076.2	187189533	-456.72	90.217	90.217	-0.000

Race	Output Weight Sum of Weights	ACS Target Total	Weighted Difference	% of Output Weights	ACS Target % of Weights	Difference in %
White (1)	163563566.1	163563502	64.05	78.830	78.830	0.000
Black (2)	25296164.05	25296192	-27.46	12.192	12.192	-0.000
Other (3)	18628953.85	18628990	-36.58	8.978	8.978	-0.000

Education	Output Weight Sum of Weights	ACS Target Total	Weighted Difference	% of Output Weights	ACS Target % of Weights	Difference in %
<HS (1)	26221776.99	26221777	-0.00	12.638	12.638	0.000
HS graduate (2)	63997339.00	63997339	0.00	30.844	30.844	0.000
Some college (3)	46069411.52	46069412	0.00	22.203	22.203	0.000
College grad (4)	71200156.49	71200156	-0.00	34.315	34.315	-0.000

Table 3. Descriptive Statistics of final weights for the Month One survey

Sample size	Sum of weights	Weight mean	Coefficient of variation of the final weights	Minimum weight	Maximum weight
989	207,488,684	209,796.445	0.59333	41959.3	1,042,172.2

Reference

Izrael, D., Battaglia, M.P., and Frankel, M.R. (2009). Extreme Survey Weight Adjustment as a Component of Sample Balancing (a k.a. Raking). Proceedings of the SAS Global Forum 2009, Paper 247.