NATIONAL SURVEY OF PUBLIC OPINION ON GLOBAL WARMING

STANFORD UNIVERSITY

RESOURCES FOR THE FUTURE

RECONMR

Interviewing conducted by ReconMR

Survey designed by

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with

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Interview dates: May 28- August 16, 2020

Interviews: 999 adults nationwide
Margin of error: +/- 4.0 percentage points at the 95% confidence level for full sample results

Notes:
All results show percentages among all respondents unless otherwise labeled.
All results shown are percentages unless otherwise labeled.
The sum might not add to exactly 100 due to rounding.
Some "0"s are numbers less than .5 rounded down
DK/RF is the sum of the percent of respondents who said "don't know" and the percent of respondents who declined to answer a question.
"(Vol.)" means that interviewers were instructed to record a particular answer if a respondent provided it, despite that answer not being offered explicitly as a response option by the question.

[2020] QN14_1. In many parts of the western U.S., wildfires have been happening throughout history, but during the last 40 years, wildfires have been happening more often and have been doing more and more damage each year to buildings and killing more people.

Scientists who study wildfires believe that in the coming years, those fires will happen more often and will be more damaging, [RANDOM HALF OF RESPONDENTS: because global warming has been causing the land and the air to be dryer for long periods of time, so they burn more easily.]

Next, I'll list some things that the federal government and state governments can do to try to reduce the damage that wildfires will do in the future. For each one, please tell me whether you think government should or should not do it.

First, government can require homeowners and business owners in risky areas to buy insurance that will pay for fixing damage caused by fires. Do you think that government should or should not do this?

QN14_1	Should do	Should not do	DK/RF	Total	N
Aug-2020	60	40	0	100	505

[2020] QN14_2. Government can pay for some of the cost of this type of insurance for poor families. Do you think that government should or should not do this?

QN14_2	Should do	Should not do	DK/RF	Total	N
Aug-2020	72	26	2	100	505

[2020] QN14_3. Government can remove large amounts of dead plants and trees in forests, so there is less to burn. Do you think that government should or should not do this?

QN14_3	Should do	Should not do	DK/RF	Total	N
Aug-2020	76	24	0	100	505

[2020] QN14_4. Government can make it illegal to build new buildings near where fires are likely to happen. Do you think that government should or should not do this?

QN14_4	Should do	Should not do	DK/RF	Total	N
Aug-2020	58	41	1	100	505

[2020] QN14_5. Government can increase the number of firefighters who can put the fires out. Do you think that government should or should not do this?

QN14_5	Should do	Should not do	DK/RF	Total	N
Aug-2020	85	13	2	100	505

[2020] QN14_6. Government can require that when people build new buildings, the buildings need to be made in a way that doesn't burn easily. Do you think that government should or should not do this?

QN14_6	Should do	Should not do	DK/RF	Total	N
Aug-2020	87	12	1	100	505

[2020] QN14_7. Government can offer to pay people money if they agree to move away from living near where fires are likely to happen. Do you think that government should or should not do this?

QN14_7	Should do	Should not do	DK/RF	Total	N
Aug-2020	47	51	2	100	505

[2020] QN14_8. After wildfires happen, government can help people who lose their homes and businesses to get a place to live. Do you think that government should or should not do this?

QN14_8	Should do	Should not do	DK/RF	Total	N
Aug-2020	79	20	1	100	505

[2020] [ASK IF GOVERNMENT SHOULD DO ONE OR MORE, QN14_1 to QN14_8] QN15a. Do you think that doing things to reduce damage by wildfires should be done mainly by the federal government in Washington, mainly by the governments of the states where fires are likely to happen, or by both the federal government and the state governments?

QN15a	The federal government	The governments of the states	Both the federal government and the state governments	DK/RF	Total	N
Aug-2020	2	28	69	0	100	501

[2020] [ASK IF GOVERNMENT SHOULD DO ONE OR MORE, QN14_1 to QN14_8] QN15b. How do you think the costs of preventing damage from fires should be paid for? By people living in dangerous areas paying higher taxes, or by everyone in America paying higher taxes, including people who do not live in dangerous areas?

QN15b	By people living in dangerous areas	By everyone in America	DK/RF	Total	N
Aug-2020	69	27	4	100	501

[2020] QN16_1. Severe storms cause flooding along the coasts of the U.S. and inland as well. These floods tend to happen in the same places and kill people, damage homes, businesses, roads, crops, and other things. During the last 40 years, these floods have been happening more often and have been doing more and more damage each year.

Scientists who study flooding believe that in the coming years, those floods will happen more often and will be more damaging, [RANDOM HALF: because global warming is causing storms to be bigger, to last longer, and to do more damage]

I'd like to tell you about some things that the federal government and state governments can do to try to reduce the damage that future flooding will do. For each one, please tell me whether you think the government should or should not do it.

First, government can require homeowners and business owners in risky areas to buy insurance that will pay for future flood damages. Do you think that government should or should not do this?

QN16_1	Should do	Should not do	DK/RF	Total	N
Aug-2020	66	31	3	100	494

[2020] QN16_2. Government can pay for some of the cost of this type of insurance for poor families. Do you think that government should or should not do this?

QN16_2	Should do	Should not do	DK/RF	Total	N
Aug-2020	68	31	1	100	494

[2020] QN16_3. Government can do construction work so that water will drain more quickly in risky areas. Do you think that government should or should not do this?

QN16_3	Should do	Should not do	DK/RF	Total	N
Aug-2020	87	11	1	100	494

[2020] QN16_4. Government can make it illegal to build new buildings in risky areas. Do you think that government should or should not do this?

QN16_4	Should do	Should not do	DK/RF	Total	N
Aug-2020	57	41	2	100	494

[2020] QN16_5. Government can require that when people build new buildings in risky areas, the buildings need to be made in a way that doesn't get damaged easily by floods. Do you think that government should or should not do this?

QN16_5	Should do	Should not do	DK/RF	Total	N
Aug-2020	84	15	1	100	494

[2020] QN16_6. Government can offer to pay people money if they agree to move their homes and businesses away from risky areas. Do you think that government should or should not do this?

QN16_6	Should do	Should not do	DK/RF	Total	N
Aug-2020	59	40	1	100	494

[2020] QN16_7. After floods happen, government can help people who lose their homes and businesses to floods. Do you think that government should or should not do this?

QN16_7	Should do	Should not do	DK/RF	Total	N
Aug-2020	77	20	2	100	494

[2020] [ASK IF GOVERNMENT SHOULD DO ONE OR MORE, QN16_1 to QN14_7] QN17a. Do you think that doing things to reduce damage by floods should be done mainly by the federal government in Washington, mainly by the governments of the states where fires are likely to happen, or by both the federal government and the state governments?

QN17a	The federal government	The governments of the states	Both the federal government and the state governments	DK/RF	Total	N
Aug-2020	3	23	72	2	100	475

[2020] [ASK IF GOVERNMENT SHOULD DO ONE OR MORE, QN16_1 to QN16_7] QN17b. How do you think the costs of preventing damage from floods should be paid for? By people living in risky areas paying higher taxes, or by everyone in America paying higher taxes, including people who do not live in risky areas?

QN17b	By people living in dangerous areas	By everyone in America	DK/RF	Total	N
Aug-2020	62	34	4	100	475

Appendix A: 2020 National Survey of Public Opinion on Global Warming Method

The 2020 National Survey of Public Opinion on Global Warming involved telephone interviews with a representative sample of 999 adults living in the United States. 310 respondents were interviewed on a landline telephone, and 689 were interviewed on a cell phone. Interviewing was conducted from May 28 to August 16, 2020, in English. AAPOR's Response Rate 3 was 18% for the landline frame, 6% for the cell phone frame, and 10% for the whole study sample.

Sample Design

Phone numbers used for this study were randomly generated from landline and cell phone sampling frames, with an overlapping frame design. The RDD landline sample was generated through Dynata. The Dynata RDD procedure produces an Equal Probability Selection Method (EPSEM) sample of randomly drawn telephone numbers from all working banks with one or more assigned numbers. The sample was generated shortly before the beginning of data collection to provide the most up-to-date sample possible, maximizing the number of valid telephone extensions. Additional sample was generated during the fielding period to ensure appropriate representation between census regions. The initial landline sample went through Dynata's disconnect screening process. The unlisted phone numbers are sent a 'pulse' to determine switch status. If the switch is not active, the number is flagged disconnected. If the switch is active, the system uses post-call analysis to determine if the number is disconnected (SIT, fax, fast busy etc.) or working (no answer, live answer, answering machine).

The RDD Cell Phone sample was generated by Dynata. Dynata starts with the most recent monthly Telcordia TPM (Terminating Point Master) Data file. This is Telcordia's master file of NPA-NXX and Block-ID records for the North American Number Plan. It contains at least one record per NPA-NXX. For prefixes (NPA-NXXs) where 1000-block number pooling is in effect, this file also provides information for individual 1000-blocks. This allows users to identify those 1000-blocks that have either not been assigned for service or that have been allocated to different service providers. "Mixed" or "shared" 100-blocks (NXXTYPES 50, 54, 66) are then compared to Dynata's list---assisted RDD database. 100-blocks with no listed numbers are retained in the wireless frame and 100-blocks containing listed numbers on the RDD frame are removed. The result is a frame of 100-blocks that is mutually exclusive of Dynata's list-assisted RDD frame while allowing coverage in prefixes and 1000-blocks that potentially provide both landline and wireless service.

Field Procedures

Because of the onset of the global Covid-19 Pandemic and in order to provide a safe environment for the employees to work, ReconMR shut down on-site operations in March 2020, and turned it into a virtualized call center environment. As such, the survey was conducted by interviewers working from home. Measures were taken to ensure data security and the continued adherence to data quality and data collection standards for ReconMR's work from home solution. Interviewers were set up to connect to ReconMR's data center via a secure, private VPN tunnel. This solution employs end-to-end encryption as well as multi-factor authentication. In addition, all servers remained behind a secure firewall, and all calls were initiated from on-premises devices. ReconMR work-from-home solution allowed for all agents to continue to be live-monitored for quality assurance via our Voxco audio and video monitoring systems.

Interviews were conducted using computer-assisted telephone interviewing (CATI) software. Interviewer training was conducted prior to the study pilot. CATI interviewers received an annotated questionnaire and project materials that explained the history, background, and goals of the study. The background and overview training of the study's various components was followed by a detailed CATI program training. Experienced project team supervisors and trainers spent time reviewing both questionnaires one question at a time with each interviewer. The goal was to fully explain the proper delivery of each question and the reasoning and intent behind all the sections and response option in

each questionnaire. Interviewers spent a great deal of time practicing with the CATI program and conducting mock interviews with each other and the data collection supervisors. Interviewers were carefully trained to ask for the youngest male or the youngest female currently at home when calling a landline. Interviewers were also trained at explaining the purpose of the study, how to gain respondent cooperation by explaining the inherent benefits of the research, how the project will benefit the public good and how to answer respondent's questions, as well as how to record respondents' answers accurately.

In order to maximize survey participation, the following procedures were enacted during the field period:

- Up to 5 follow-up attempts were made to contact non-responsive numbers (e.g. no answer, busy, answering machine). Exception was made to records flagged as belonging to census groups greater than 50% Hispanic. These cases received up to 7 follow-up attempts to non-responsive numbers.

- Non-responsive numbers were contacted multiple times, varying the times of day, and the days of the week that call-backs were placed.

- Interviewers stressed that the study was done for research purposes and that responses were strictly confidential and, when asked, they stated as accurately as possible the expected length of the interview. In addition, interviewers were provided with responses to possible respondent concerns raised during interviews, in order to minimize break offs.

- Respondents were offered the option of scheduling a call-back at their convenience.

- Households where the initial call resulted in respondents hanging up the phone or breaking off during the interview were called back after a 28-hour delay in an attempt to convert into a completed interview. Interviewers received special instructions on how to handle these calls.

- Respondents reached by cell phone were offered $10 if they requested compensation for their time. No such cell phone complaints were made during fielding of either study.

Quality/Data Verification

Project supervisors validated 10% of each interviewer's completed surveys by calling back the respondent and verifying specific responses. Additionally, supervisors continually monitored live calls through ReconMR's call monitoring system in order to ensure proper interviewing procedures were maintained.

Appendix B: 2020 National Survey of Public Opinion on Global Warming Weighting

This Appendix describes the two-stage procedure used to construct weights. During the first stage, each respondent was assigned a base weight that accounted for unequal probability of selection. The second stage introduced adjustments to the base weights so that sample distributions of target variables match distributions of those same variables in the in the U.S. adult population. More details about each of these stages are provided below.

Stage 1: Constructing base weights

A base weight was constructed for each respondent to account for unequal selection probabilities. Some respondents could have been contacted by via multiple telephone numbers (mobile and/or landline), and for some telephone numbers persons other than the respondent may also have been reachable. The base weights account for these differences by assigning respondents who could have been contacted via several telephone numbers a value that is proportionally smaller that values assigned to respondents who could have been contacted via fewer numbers.

The base weights were constructed by first computing a total number of "selection opportunities" for each respondent. Each selection opportunity for a respondent is the probability of selecting the respondent via one of the telephone numbers by which she or he could have been contacted. Each selection opportunity is based on the assumption that mobile device telephone numbers are not shared with other adults while landline telephone numbers are shared with all adults in a household. This means the probability of selecting the respondent if a respondent's mobile device telephone number had been dialed is 1.00. However, for landline telephone numbers the selection opportunity is proportional to the number of adults in a household. For example, the probability of selecting the respondent if the respondent's landline telephone number had been dialed and the respondent lives in a household with three other adults would be ¼ or .25. The selection opportunities across all telephone numbers by which a respondent could have been reached were summed to produce a "total selection opportunities" for each respondent.

Two transformations to each respondent's total selection opportunities produced the base weights. First, 1 was divided by each respondent's total selection opportunities to produce values that decreased proportionally to increases in total selection opportunities. This transformation produced values that ranged from 4.00 to .06, with a mean value across the sample of .67. Second, the values produced by the first transformation were divided by the mean value for a sample. This second transformation produced base weights for the respondents with a sample mean value of 1.00. For the sample, the base weights ranged from 5.98 to .10.

Stage 2: Post-stratification

Post-stratification using ANESRake in R was used to adjust the base weights to produce weights that brought sample distributions in line with U.S. adult population distributions in terms of sex, age combined race and ethnicity, education, census region, and telephone use. The U.S. adult population distributions of sex, age combined race and ethnicity, education, and census region were based on data from the March 2020 Current Population Survey (CPS). The U.S. adult population distribution of telephone use was based National Health Interview Survey data collected during the first six months of 2019 and published by the National Center for Health Statistics (Blumberg & Luke, May, 2020).[1]

[1] Blumberg, Stephen J. and Julian V. Luke. May, 2020. Wireless substitution: Early release of estimates from the National Health Interview Survey, January–June 2019. National Center for Health Statistics. Available from: https://www.cdc.gov/nchs/nhis.htm.

Post-stratification raking using ANESRake in R was conducted such that the one-way marginal distributions of the preceding demographic variables in the sample converged on the one-way marginal distributions of those variables in the U.S. adult population. Post-stratification raking was conducted using only variables for which all categories included at least 5% of the U.S. adult population and 5% of the sample, and for which the percentage in the U.S. adult population differed from the percentage in the sample by at least 5 percentage points.[2] The weights produced by post-stratification raking were constrained such that no weight was greater than 5, and the mean weight was 1, ranging from .80 to 5.0.

Effects of weighting

Weights produced by post-stratification brought the sample distributions into alignment with population distributions. Table 1 includes the U.S. adult population distributions of variables used in post-stratification raking, as well as the unweighted, base weighted, and post-stratification weighted sample distributions of those variables. The table also include U.S adult population and sample distributions of variables that were not used in post-stratification. For all categories of variables used in post-stratification, no difference between the post-stratification weighted sample and U.S. adult population was greater than 1.5 percentage points. Thus, no difference exceeded the 5 percentage points identified by DeBell and Krosnick (2009) as a criterion for additional post-stratification adjustment.

The design effect associated with the final (post-stratification) weights was 1.64.

[2] This strategy follows recommendations in DeBell, Matthew and Jon A. Krosnick. 2009. *Computing Weights for American National Election Study Survey Data*, ANES Technical Report Series, No. nes012427.

Table 1. Distributions of variables in the U.S. adult population and the sample (variables used for post-stratification raking are in **bold**)

		Sample (N=999)				
Variable	Category	Unweighted	Base weighted	Base weighted plus post-stratified	U.S. adult population	Difference between base weighted plus post-stratified and U.S. adult population
Sex	**Male**	**53.7%**	**53.9%**	**48.2%**	**48.3%**	**-.1%**
	Female	**46.0%**	**45.8%**	**51.6%**	**51.7%**	**-.1**
	Missing	**.3%**	**.3%**	**.2%**	**.0%**	
	Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	
Age	**18 to 24 years old**	**6.8%**	**8.2%**	**11.5%**	**11.5%**	**.0%**
	25 to 34 years old	**8.5%**	**8.7%**	**17.8%**	**17.9%**	**.0**
	35 to 44 years old	**14.2%**	**14.3%**	**16.3%**	**16.4%**	**-.1**
	45 to 54 years old	**16.0%**	**14.8%**	**15.9%**	**15.9%**	**.0**
	55 to 64 years old	**20.8%**	**20.7%**	**16.8%**	**16.8%**	**.0**
	65 years old or older	**33.2%**	**32.8%**	**21.5%**	**21.5%**	**.0**
	Missing	**.4%**	**.3%**	**.2%**	**.0%**	
	Total	**100.0%**	**99.9%**	**100.1%**	**100.0%**	
Combined race and Hispanicity	**Hispanic**	**7.7%**	**7.9%**	**16.7%**	**16.7%**	**.0%**
	White	**72.2%**	**71.9%**	**62.7%**	**62.7%**	**.0**
	Black	**7.8%**	**8.2%**	**12.0%**	**11.9%**	**.1**
	Other	**12.3%**	**12.0%**	**8.6%**	**8.7%**	**.0**
	Missing	**.0%**	**.0%**	**.0%**	**.0%**	
	Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	
Education	**No diploma**	**5.1%**	**5.0%**	**9.6%**	**9.8%**	**-.2%**
	High school	**17.3%**	**17.6%**	**27.2%**	**27.7%**	**-.5**
	Some college	**25.8%**	**25.1%**	**27.3%**	**27.8%**	**-.5**
	Bachelor's degree	**26.2%**	**26.4%**	**21.9%**	**22.0%**	**-.1**
	Advanced degree	**24.4%**	**24.1%**	**12.6%**	**12.6%**	**.0**
	Missing	**1.1%**	**1.7%**	**1.2%**	**.0%**	
	Total	**100.0%**	**100.0%**	**99.9%**	**100.0%**	
Census region	**Northeast**	**17.5%**	**17.6%**	**17.3%**	**17.4%**	**-.1%**
	Midwest	**21.9%**	**21.9%**	**19.4%**	**20.7%**	**-1.3**
	South	**35.3%**	**35.3%**	**37.7%**	**38.0%**	**-.2**
	West	**25.0%**	**25.0%**	**25.3%**	**23.8%**	**1.5**

	Missing	**.2%**	**.2%**	**.2%**	**.0%**	
	Total	**100.0%**	**100.1%**	**100.0%**	**100.0%**	
Phone service	**Not mobile only**	**45.6%**	**44.9%**	**39.5%**	**40.1%**	**-.6%**
	Mobile only	**52.9%**	**53.6%**	**59.0%**	**59.9%**	**-.9**
	Missing	**1.5%**	**1.5%**	**1.4%**	**.0%**	
	Total	**100.0%**	**100.0%**	**99.9%**	**100.0%**	
Race	White only	77.0%	77.2%	73.4%	77.5%	-4.2%
	Black only	8.1%	8.6%	13.1%	12.7%	.4
	Other/Mixed	14.9%	14.2%	13.5%	6.3%	7.2
	Missing	.0%	.0%	.0%	.0%	
	Total	100.0%	100.0%	100.0%	96.6%	
Hispanic	Yes	7.7%	7.9%	16.7%	16.7%	.0%
	No	90.3%	90.0%	81.6%	83.3%	-1.7
	Missing	2.0%	2.2%	1.7%	.0%	
	Total	100.0%	100.1%	100.0%	100.0%	
Marital status	Married	52.9%	51.3%	42.9%	53.1%	-10.1%
	Not married	46.4%	48.1%	56.5%	46.9%	9.5
	Missing	.7%	.6%	.6%	.0%	
	Total	100.0%	100.0%	100.0%	100.0%	
Income	Less than $35,000	16.1%	16.1%	20.7%	23.5%	-2.8%
	$35,000 to $49,999	11.1%	11.8%	13.9%	12.8%	1.1
	$50,000 to $74,999	15.3%	15.3%	16.0%	18.7%	-2.7
	$75,000 to $99,999	12.2%	12.2%	11.8%	13.3%	-1.4
	$100,000 or more	32.7%	32.1%	26.1%	31.8%	-5.7
	Missing	12.5%	12.4%	11.5%	.0%	
	Total	100.0%	100.0%	100.1%	100.0%	