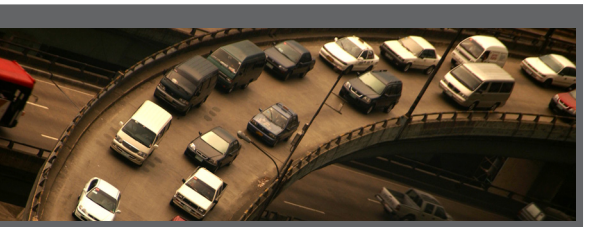
Do Americans' Opinions About Federal Transportation Tax Options Depend on Survey Mode? A Comparison of Results from Telephone and Online Surveys

MTI Report WP 12-16



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REPORT WP 12-16

DO AMERICANS' OPINIONS ABOUT FEDERAL TRANSPORTATION TAX OPTIONS DEPEND ON SURVEY MODE? A COMPARISON OF RESULTS FROM TELEPHONE AND ONLINE SURVEYS

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16. Abstract

This research project compared the results from a public opinion survey about transportation taxes that was administered using two different survey modes, a national, random-digit-dial (RDD) telephone survey and an online survey with respondents recruited from a panel. There is considerable interest among survey researchers in using online survey panels as a replacement for RDD surveys. RDD surveys are becoming much more expensive to conduct, and researchers also worry that the quality of the results may be dropping because of rising refusal rates for phone surveys. However, a key question for researchers is to understand how a study's results may differ depending on the survey mode.

The survey questionnaire tested for this study asked United States residents their views on various transportation tax and fee options available at the federal level, including questions specifically designed to assess public-transit-related spending. The revenue tools explored include raising the federal gas tax rate and replacing the gas tax with a mileage fee. In addition, the survey collected data on standard sociodemographic variables, a few travel-related characteristics, opinions about the transportation system, and knowledge about funding for public transit.

Comparing the results from the two survey modes reveals statistically significant differences both about who answered the survey as well as how respondents answered the questions. Responses were statistically significantly different by survey mode for most questions, with the magnitude of the differences often ten percentage points or more.

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I. INTRODUCTION

This research project compared the results from a public opinion survey about transportation taxes that was administered using two different survey modes: a national, random-digit-dial (RDD) telephone survey, and an online survey with respondents recruited from a panel.

There is considerable interest among survey researchers in using online survey panels as a replacement for RDD surveys. RDD surveys are becoming much more expensive to conduct, and researchers also worry that the quality of the results may be dropping because of rising refusal rates for phone surveys.

A key question for researchers considering new survey modes is to understand how a study's results may differ depending on the survey mode. One of the more recent such studies, published by the Pew Research Center in 2015, concluded that online panels are a reasonable replacement for RDD phone surveys for certain types of questions, including political views.[1] However, other survey researchers have come to much less encouraging conclusions, such as a 2016 Dutch study by Brüggen, van den Brakel, and Krosnick which compared results from surveys using 18 opt-in online panels with a sample randomly drawn from the full Dutch adult population.[2]

Though the survey literature as a whole has explored the validity of online panels in some depth, only a few studies have explored the question for transportation-related surveys.[3] This project helps to fill that gap, providing researchers with additional evidence to help them decide when an online survey panel may be an appropriate methodological choice.

The survey questionnaire tested for this study asked US residents their views on various transportation tax and fee options available at the federal level, including questions specifically designed to assess public transit-related spending. The questionnaire gathered information on support levels for a variety of transportation revenue tools, including raising the federal gas tax rate and replacing the gas tax with a mileage fee. In addition, the survey collected data on standard sociodemographic variables, a few travel-related characteristics, opinions about the transportation system, and knowledge about funding for public transit.

The data analysis compares the results from the two survey modes, investigating whether there are statistically significant differences in the responses from the two groups. The first analysis explores whether the same *types* of people responded to both survey modes, comparing the respondents by Census region and a variety of sociodemographic characteristics. The second analysis looks at whether the *responses* to the survey questions differ by survey mode.

The remainder of the report is organized as follows. Chapter 2 describes the study methodology, including the questionnaire design and administration of the online and phone surveys. Chapters 3 and 4 then present findings from the analyses of respondent characteristics and question responses. Chapter 5 concludes with a discussion of the study limitations, recommendations for future research, and recommendations for future survey researchers.

II. STUDY METHODOLOGY

The goal of this study was to assess how survey mode impacts both respondent characteristics (*who* responds) and question responses (*how* they respond), so the basic approach was to administer the same questionnaire using two modes: a random-digit-dial telephone survey and an online panel self-administered survey. This chapter describes the survey questionnaire design process and survey administration for both modes.

THE QUESTIONNAIRE

The questionnaire was originally developed as a computer-assisted telephone interview (CATI) survey. Complete details about this questionnaire are available in the project report for that study.[4] The online survey questionnaire uses language identical to the phone survey where possible, but the online question language was sometimes adapted to account for the fact that respondents process information differently depending on whether they hear a question or read it. We do not believe these slight variations change the nature of the question, however. For example, the surveys each asked a question about road condition as follows:

Phone – text read aloud:	**Online – text presented in writing:**
In the community where you live, would you say that roads and highways are in very good condition, somewhat good condition, or bad condition?	In the community where you live, how is the condition of the roads and highways? Very good condition Somewhat good condition Bad condition

The appendix to this report presents both questionnaires side by side, to show the differences.

PHONE SURVEY ADMINISTRATION

The Survey Research Lab (SRL) at Portland State University conducted the phone survey on behalf of the Mineta Transportation Institute's National Transportation Finance Center. The interviewing was conducted from February 21 to April 28, 2017 (with a break from April 12 to April 24, so as not to survey within a few days of the April 18 deadline for filing federal and state income taxes).

SRL provided the following description of the sampling frame:

> The SRL initially purchased a sample of 34,200 national phone numbers proportionally distributed across time zones (Eastern, Central, Mountain, Pacific, Alaska, and Hawaii) from Marketing Systems Group2 (MSG). This sample consisted of 27,000 RDD landline phone numbers and 7,200 cell phone numbers. The RDD sample was compromised of both listed and unlisted records, randomly selected to reflect the proportion in the population. Once the sample was received, replicates of randomly selected numbers, distributed proportionally across landline and

cell phone sample types and across time zones, were created to allow for gradual and systematic uploading. A second batch of sample was purchased in early March, which added 17,700 records (5,700 cell records and 12,000 RDD listed landline records), resulting in a total of 51,900 purchased records. Once all the sample was prepared and all the replicates were loaded, a total of 30,352 sample records were called.

To ensure phone survey results were representative of the US population, respondent gender, age group, income, education level, race, ethnicity and time zone were monitored throughout calling.[5]

A total of 1,201 adults nationwide were interviewed by telephone in either English or Spanish, with 41 (3.4%) of the interviews conducted in Spanish. Survey respondents were reached by both cell phone (40%) and landline phone (60%). The mean time to complete each survey was 15.46 minutes and the median time was 14 minutes.

The margin of error for the total sample is ± 2.83 percentage points at the 95% confidence level. Smaller subgroups have larger margins of error.

We calculated response, cooperation, and refusal rates following standards recommended by the American Association for Public Opinion Research (AAPOR).[6] The survey had a response rate of 6% of eligible phone numbers (AAPOR Response Rate Calculation Method 3), a cooperation rate of 22% (AAPOR Cooperation Rate Method 3), and a refusal rate of 22% (AAPOR Refusal Rate 2).

ONLINE SURVEY ADMINISTRATION

The online survey was administered through SurveyMonkey using SurveyMonkey Audience, an online panel of participants voluntarily recruited from people who participated in general SurveyMonkey surveys. The US panel is called SurveyMonkey Contribute, and panel members complete a demographic profile and provide other information to SurveyMonkey for use in market targeting. When members take surveys, SurveyMonkey provides contributions to a charity of the member's choice or provides an opportunity to win a sweepstakes prize. SurveyMonkey claims that panels are balanced based on census information on age and gender, but that the panels are not necessarily representative of the general population. SurveyMonkey does claim that their panel represents US adult residents who are online.[7]

The survey was administered from March 6 to March 20, 2017. A total of 1,767 respondents started the survey, and 1,277 provided complete responses.

The margin of error for the total sample is ± 2.77 at the 95% confidence level. Smaller subgroups have larger margins of error.

Response time was a mean of 8:31 minutes and a median time of 7:47 minutes.[8]

SurveyMonkey does not let authors know how many individuals received an invitation to participate, so we cannot calculate response or cooperation rates.

ADMINSTRATION DIFFERENCES BETWEEN THE SURVEYS

Table 1 presents a brief comparison of how the two surveys were administered. Both were administered at similar times (spring), had at least 1,200 complete responses, and have similar margins of error at the 95% confidence interval. One notable difference was that the RDD phone survey but not the online survey was offered in Spanish as well as English, with 3% of the phone respondents completing the survey in Spanish.

Table 1. Comparison of Administration Approach, by Survey Mode

Administration Approach	RDD Phone	Online Panel
Administrative entity	Portland State University Survey Research Lab	SurveyMonkey Contribute
Dates administered	February 21 to April 28, 2017	March 6 to 20, 2017
Number of complete responses	1,201	1,277
Margin of error (95% confidence interval)	±2.83	±2.77
Response time (minutes):		
Mean	15.46	8.52
Median	14	8
AAPOR Response Rate 3[a]	6%	Unknown[b]
AAPOR Cooperation Rate 3[a]	22%	Unknown[b]
AAPOR Refusal Rate 2[a]	22%	
Percent responding in Spanish	3.4%	N/A (no Spanish option)

[a] We calculated response, cooperation, and refusal rates following standards recommended by the American Association for Public Opinion Research (AAPOR). For details on how to calculate the rates, see American Association for Public Opinion Research (AAPOR), “AAPOR Response Rate Calculator” (May 2016), http://www.aapor.org/Education-Resources/For-Researchers/Poll-Survey-FAQ/Response-Rates-An-Overview.aspx, accessed 31 August 2017.

[b] The panel provider, SurveyMonkey, does not let authors know how many individuals actually received an invitation to participate, so we cannot calculate response or completion rates.

III. COMPARISON OF RESPONDENT SOCIODEMOGRAPHICS AND CENSUS REGION

The sociodemographic characteristics of the two survey modes were different across most variables measuring personal characteristics, as shown in Table 2. The table highlights in green those characteristics for which there was no statistically significant difference – in other words, for which the samples were essentially the same. This was true for gender and most Census regions, but not for most other variables. Overall, the variation ranged from a low of 1.3 percentage points to a high of 11.1 percentage points.

Table 2. Comparison of Respondents by Survey Mode

	RDD Survey Sample				
	Landline (%)	Cell (%)	Total (%)	Online Survey (%)	Difference (Phone – Online)
Census region[a]					
Northeast	19	13	17	20	**-3.7**
Midwest	27	24	26	23	**2.5**
South	26	35	30	28	**1.4**
West	28	28	28	28	**-0.3**
Gender					
Male	36	55	43	44	**-1.2**
Female	64	45	57	56	**1.2**
Of Hispanic/Latino origin/descent	6	12	8	6	**2.2**
Race					
White	79	72	76	84	**-7.4**
Black/African-American	9	11	10	4	**6.7**
Asian/Asian-American	2	3	3	3	**-1.8**
Other, including multiracial	9	14	11	8	**2.5**
Education					
Less than high school graduate	3	6	4	1	**3.3**
High school graduate	19	22	20	10	**9.6**
Some college	31	30	31	29	**1.7**
College graduate	22	24	23	34	**-11.1**
Graduate degree	25	18	22	26	**-3.5**
Income (annual household)					
$0 – $25,000	17	22	19	14	**5.3**
$25,001 – $50,000	26	21	24	20	**4.4**
$50,001 – $75,000	21	19	20	20	**-0.1**
$75,001 – $100,000	13	14	13	13	**0.3**
$100,001 – $150,000	15	12	14	20	**-5.8**
$150,001+	9	12	10	14	**-4.2**

Table 2, continued

	RDD Survey Sample			Online Survey (%)	Difference (Phone – Online)
	Landline (%)	Cell (%)	Total (%)		
Age					
18 – 29	3	23	11	18	**-7.3**
30 – 39	3	16	8	17	**-8.8**
40 – 49	8	14	11	16	**-5.5**
50 – 59	19	21	20	21	**-1.3**
60 – 69	32	17	26	18	**7.6**
70 – 79	22	8	16	8	**7.8**
80+	13	2	9	1	**7.5**

[a] Census regions are defined at U.S. Census Bureau, "Census Regions and Divisions of the United States with State FIPS Codes" (no date), http://www2.census.gov/geo/docs/maps-data/maps/reg_div.txt (accessed May 17, 2017).

Notes:

- Green highlighting indicates that there was no statistically detectable difference between the two survey modes in terms of percentage of respondents stating that opinion, as determined from a test of two proportions.
- Some percentages do not sum to 100% due to rounding.

Comparing the respondent population for both survey modes to US Census Bureau data for the full US population shows that both modes recruited respondent populations statistically significantly different from US adults across most of the sociodemographic categories tested (Table 3).

Table 3. Comparison of Respondents Characteristics for Each Survey Mode to the US Population

	Unweighted Samples			Difference from US Adults	
	Phone	Online	US Adults[a]	Phone	Online
Census region[b]					
Northeast	17	20	18	-1.2	2.5
Midwest	26	23	21	4.8	2.3
South	30	28	38	-7.8	-9.2
West	28	28	23	4.1	4.4
Gender					
Male	43	44	49	-6.1	-4.9
Female	57	56	51	6.1	4.9
Of Hispanic/Latino origin/descent	8	6	18	-9.4	-11.6
Race					
White	76	84	73	3.6	11.0
Black/African-American	10	4	13	-10.1	-8.3
Asian/Asian-American	3	3	5	4.4	-2.3
Other, including multiracial	11	8	9	2.1	-0.4
Education					
Less than high school graduate	4	1	13	-8.5	-11.8
High school graduate	20	10	28	-7.9	-17.4
Some college	31	29	31	-0.2	-1.9
College graduate	23	34	18	4.7	15.8
Graduate degree	22	26	10	12.0	15.4
Income (annual household)					
$0 – $25,000	19	14	22	-2.9	-8.2
$25,001 – $50,000	24	20	23	1.1	-3.4
$50,001 – $75,000	20	20	18	2.0	2.1
$75,001 – $100,000	13	13	12	1.0	0.8
$100,001 – $150,000	14	20	14	5.3	11.1
$150,001+	10	14	11	-6.5	-2.3
Age					
18 – 29	11	18	22	-10.8	-3.5
30 – 39	8	17	17	-9.2	-0.4
40 – 49	11	16	17	-5.9	-0.4
50 – 59	20	21	18	1.8	3.1
60 – 69	26	18	14	11.9	4.3
70 – 79	16	8	8	8.4	0.5
80+	9	1	5	3.8	-3.7

[a] All data are for adults 18 years and older, with the exception of household income, which is for all U.S. households. U.S. population estimates were downloaded from the American FactFinder website using the tables for Demographic and Housing Estimates (DP05), Annual Estimates of Resident Population by Single Year of Age (PEPSYASEXN), 1-Year Household Income in the Past 12 Months Estimates (in 2015 inflation-adjusted dollars (B19001), and 1-Year Educational Attainment Estimates (S1501), https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t (accessed May 17, 2017).

[b] Census regions are defined at U.S. Census Bureau, “Census Regions and Divisions of the United States with State FIPS Codes” (no date), http://www2.census.gov/geo/docs/maps-data/maps/reg_div.txt (accessed May 17, 2017).

Notes:

- Green highlighting indicates that there was no statistically detectable difference in results between that survey mode and US adults, as determined from a test of two proportions.
- Some percentages do not sum to 100% due to rounding.

IV. COMPARISON OF QUESTION RESPONSES

The next set of analyses compares how respondents answered the survey questions. For this analysis, we accounted for the respondent differences between the survey modes by weighting both datasets to match the Census Bureau's 2015 American Community Survey one-year estimates with respect to gender, race, Hispanic ethnicity, education level, imputed income values, and age.[9]

Tables 4 through 7 compare the responses for different types of questions: opinions about the transportation system, opinions about the priority government should place on transportation issues, support for different transportation tax options, and knowledge and opinions about government funding for public transit. The tables highlight in green those question responses for which the answers were essentially the same by survey mode—the statistical testing did not detect a difference in responses between the two modes. Overall, responses were statistically significantly different by survey mode for most questions, with the magnitude of the differences often 10 percentage points or more and in one case as large as 19 (18.5) percentage points.

Table 6 shows the difference in support for the taxes. In four of the ten cases, there was no statistically significant difference in the percent supporting each tax, but for the other six taxes the online sample had consistently higher support.

Table 4. Comparison of Opinions About the Transportation System

	% of Respondents		Difference (Phone – Online)
	Phone	Online	
Condition of roads and highways in community			
Very good condition	19.4	17.9	**1.5**
Somewhat good condition	57.4	64.4	**-7.0**
Bad condition	23.2	17.7	**5.5**
Quality of transit service in community			
Very good service	21.3	11.5	**9.8**
Somewhat good service	40.0	50.2	**-10.2**
Poor service	16.0	22.4	**-6.4**
No service	22.8	15.9	**6.8**

Notes:

- Green highlighting indicates that there was no statistically detectable difference between the two survey modes in terms of percentage of respondents stating that opinion, as determined from a test of two proportions.
- Some percentages do not sum to 100% due to rounding.

Table 5. Comparison of Opinions About the Priority Government Should Place on Transportation Issues

	% of Respondents		Difference (Phone – Online)
	Phone	Online	
Reducing traffic congestion			
High priority	57.2	53.5	**3.7**
Medium priority	30.7	35.3	**-4.6**
Low priority	12.1	11.1	**0.9**
Maintaining streets, roads, and highways in good condition			
High priority	79.9	71.7	**8.2**
Medium priority	18.3	25.1	**-6.8**
Low priority	1.8	3.2	**-1.4**
Expanding and improving local public transit, like buses or light rail			
High priority	45.6	50.4	**-4.8**
Medium priority	38.6	34.3	**4.3**
Low priority	15.8	15.3	**0.6**
Reducing accidents and improving safety			
High priority	71.7	58.5	**13.2**
Medium priority	20.2	31.4	**-11.2**
Low priority	8.1	10.2	**-2.1**

Notes:

- Green highlighting indicates that there was no statistically detectable difference between the two survey modes in terms of percentage of respondents stating that opinion, as determined from a test of two proportions.
- Some percentages do not sum to 100% due to rounding.

Table 6. Comparison of Support for Transportation Tax Options

	% of Respondents		Difference (Phone – Online)
	Phone	Online	
National half-cent sales tax			
Support	52.7	63.1	-10.4
Oppose	47.3	36.9	10.4
Gas tax 10¢ increase (flat)			
Support	36.1	42.2	-6.1
Oppose	63.9	57.8	6.1
Gas tax 10¢ increase over 5 years			
Support	58.0	57.4	0.6
Oppose	42.0	42.6	-0.6
VMT fee 1¢ per mile (flat)			
Support	23.2	34.9	-11.7
Oppose	76.8	65.1	11.7
VMT fee 1¢ per mile (variable by vehicle pollution level)			
Support	45.0	47.5	-2.5
Oppose	55.0	52.5	2.5
Gas tax 10¢ increase (air pollution)			
Support	57.4	66.6	-9.2
Oppose	42.6	33.4	9.2
Gas tax 10¢ increase (global warming)			
Support	54.4	66.5	-12.1
Oppose	45.6	33.5	12.1
Gas tax 10¢ increase (maintain streets, roads, and highways)			
Support	78.2	77.5	0.7
Oppose	21.8	22.5	-0.7
Gas tax 10¢ increase (reduce accidents and improve safety)			
Support	64.6	72.8	-8.2
Oppose	35.4	27.2	8.2
Gas tax 10¢ increase (with information provided on cost to average driver)			
Support	51.9	51.3	0.6
Oppose	48.1	48.7	-0.6

Notes:

- Green highlighting indicates that there was no statistically detectable difference between the two survey modes in terms of percentage of respondents stating that opinion, as determined from a test of two proportions.
- Some percentages do not sum to 100% due to rounding.

Table 7. Comparison of Knowledge and Opinions About Funding for Public Transit, by Survey Mode

	% of Respondents		Difference (Phone – Online)
	Phone	Online	
Belief that fares cover the full cost of transit service			
Yes	34.6	39.9	-5.3
No	65.4	60.1	5.3
Belief that the federal government helps pay for transit service			
Does pay	66.1	52.8	13.3
Does not pay	27.8	22.6	5.2
Don't know (volunteered for phone, offered as option for online)	6.1	24.6	-18.5
Belief that the state government helps pay for transit service			
Does pay	82.6	65.9	16.7
Does not pay	12.8	14.9	-2.1
Don't know (volunteered for phone, offered as option for online)	4.5	19.2	-14.7
Belief that the local government helps pay for transit service			
Does pay	72.7	61.4	11.3
Does not pay	21.4	17.7	3.7
Don't know (volunteered for phone, offered as option for online)	5.9	20.9	-15.0
Support or oppose spending some gas tax money on public transit			
Support	69.9	59.4	10.5
Oppose	30.1	40.6	-10.5
Support or oppose raising the federal gas tax to expand and improve public transit			
Strongly support	15.2	13.0	2.1
Support	33.0	34.6	-1.6
Oppose	19.6	20.4	-0.8
Strongly oppose	32.3	31.9	0.4
Support or oppose reduce spending on other federal programs to expand and improve public transit			
Strongly support	29.5	23.4	6.1
Support	33.0	42.2	-9.2
Oppose	20.9	24.2	-3.3
Strongly oppose	16.6	10.1	6.5
Support or oppose raising transit fares to expand and improve public transit			
Strongly support	18.9	21.6	-2.6
Support	38.8	38.1	0.7
Oppose	18.8	25.4	-6.6
Strongly oppose	23.5	14.9	8.6

Notes:

- Green highlighting indicates that there was no statistically detectable difference between the two survey modes in terms of percentage of respondents stating that opinion, as determined from a test of two proportions.
- Some percentages do not sum to 100% due to rounding.

V. CONCLUSION

This research project compared the results from a public opinion survey about transportation taxes that was administered using two different survey modes, a national, random-digit-dial (RDD) telephone survey and an online survey with respondents recruited from a panel. Analysis comparing the results from the two survey modes shows statistically significant differences about *who* answered the survey as well as *how* they answered the questions.

Overall, responses were statistically significantly different by survey mode for most questions, with the magnitude of the differences often 10 percentage points or more and in one case as large as 19 percentage points. The only discernable pattern relates to support for the tax options. In four of the ten cases, there was no statistically significant difference in the percent supporting each tax, but for the other six taxes the online sample had consistently higher support.

Unfortunately, there is no national dataset on transportation opinions that is a true census of the American population, so we cannot determine which survey mode produced responses more representative of the US population.

STUDY LIMITATIONS

A key limitation of our study is that we only experimented with a single online panel, SurveyMonkey Audience. We cannot generalize from our findings even to all online panels, let alone to online surveys in general. Different online respondent panels might well produce somewhat different results.

Another limitation is that the questionnaire was originally designed to be administered by phone and did not transfer word-for-word to an online format. Future studies could design questionnaires that require less variation to accommodate both survey modes. This approach would better ensure that differences between the samples reflect survey mode effects instead of question wording effects.

RECOMMENDATIONS FOR FUTURE RESEARCH

As a next step with this data set, we plan to conduct multivariate models to explore how the two samples perform at predicting support for the different tax options.

Longer term, it would be valuable to run similar experiments comparing multiple online panels to an RDD phone survey. Another option would be to run online panel surveys that ask transportation-related questions identical to those asked in the American Community Survey or other national probability-sample surveys such as the Consumer Expenditure Survey.

IMPLICATIONS FOR SURVEY RESEARCHERS

The study results suggest that researchers should assume that survey mode effects will lead to differences in who responds, as well as to how respondents answer questions. For trend surveys, it would be unwise to switch between the two survey modes, as there is a clear survey mode effect. However, the findings from this study cannot prove that one survey mode is more or less representative of the US population in terms of personal characteristics and opinions.

APPENDIX A: SURVEY QUESTIONNAIRE

This appendix presents the surveys questions as they were administered by phone and online. In some cases, minor wording changes were needed to facilitate online presentation of questions that had originally been designed for an interview-assisted telephone survey.

Phone	Online
We are interested in your opinions about the transportation system. When I talk about the transportation system, I mean local streets and roads, highways, and public transit services like buses, light rail, and trains.	We are interested in your opinions about the transportation system. The "transportation system" means local streets and roads, highways, and public transit services like buses, light rail, and trains.
In the community where you live, would you say that roads and highways are in very good condition, somewhat good condition, or bad condition?	In the community where you live, how is the condition of the roads and highways? Very good condition Somewhat good condition Bad condition
Does your community offer very good public transit service, somewhat good public transit service, poor public transit service, or no public transit service at all?	How is the public transit service in your community? Very good service Somewhat good service Poor service No service
Now, please think about what the government could do to improve the transportation system for EVERYONE in the state where you live. I'm going to read you several options. For each one, tell me whether you think government should make that a high priority, medium priority, or low priority.	Now, please think about what the government could do to improve the transportation system for EVERYONE in the state where you live. For each option, should government make that a high, medium, or low priority?
How about reducing traffic congestion? (Should government make that a high, medium, or low priority?)	Reducing traffic congestion High priority Medium priority Low priority
How about maintaining streets, roads, and highways in good condition, including filling potholes? (Should government make that a high, medium, or low priority?)	Maintaining streets, roads, and highways in good condition, including filling potholes High priority Medium priority Low priority

Phone	Online
How about expanding and improving local public transit service, like buses or light rail? (Should government make that a high, medium, or low priority?)	Expanding and improving local public transit service, like buses or light rail High priority Medium priority Low priority
How about reducing accidents and improving safety? (Should government make that a high, medium, or low priority)?	Reducing accidents and improving safety High priority Medium priority Low priority
There are many ways the U.S. Congress could raise money to pay for maintaining and improving the transportation system. I'm going to ask your opinion about some of these options. In each case, assume that the money collected would be spent ONLY for transportation purposes.	There are many ways the U.S. Congress could raise money to pay for maintaining and improving the transportation system. We're going to ask your opinion about some of these options. In each case, assume that the money collected would be spent ONLY for transportation purposes.
One idea (a DIFFERENT idea) is to adopt a new national, half-cent SALES TAX to pay for transportation. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose this new sales tax?	One idea is to adopt a new national, half-cent sales tax to pay for transportation. Would you support or oppose this new sales tax? Strongly support Somewhat support Somewhat oppose Strongly oppose
Right now, the federal government collects a tax of 18 cents per gallon when people buy gasoline. One idea (a DIFFERENT idea) to raise money for transportation is to increase the federal gas tax by 10 cents a gallon, from 18 cents to 28 cents. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose this gas tax increase?	Right now, the federal government collects a tax of 18¢ per gallon when people buy gasoline. One idea (a DIFFERENT idea) to raise money for transportation is to increase the federal gas tax by 10¢ a gallon, from 18¢ to 28¢. Would you support or oppose this gas tax increase? Strongly support Somewhat support Somewhat oppose Strongly oppose

Phone	Online
A VARIATION on the idea of raising the gas tax by 10 cents at one time would be to spread the increase over 5 years. The tax would go up by 2 cents a year for each of five years. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose this gas tax increase?	A VARIATION on the idea of raising the gas tax by 10¢ at one time would be to spread the increase over 5 years. The tax would go up by 2¢ a year for each of five years. Would you support or oppose this gas tax increase? Strongly support Somewhat support Somewhat oppose Strongly oppose
One idea (a DIFFERENT idea) is to adopt a new tax based on the number of miles a person drives. Each driver would pay a tax of one cent for every mile driven. For example, someone driving one hundred miles would pay a tax of one dollar. Vehicles would have an electronic meter to keep track of the miles driven, and the tax would be paid each time drivers buy gas. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose this new mileage tax?	One idea is to adopt a new tax based on the number of miles a person drives. Each driver would pay a tax of 1¢ for every mile driven. For example, someone driving 100 miles would pay a tax of $1. Vehicles would have an electronic meter to keep track of the miles driven, and the tax would be paid each time drivers buy gas. Would you support or oppose this new mileage tax? Strongly support Somewhat support Somewhat oppose Strongly oppose
A VARIATION on the mileage tax just described is to have the tax rate vary depending upon how much the vehicle pollutes. On average, vehicles would be charged one cent per mile, but vehicles that pollute less would be charged less, and vehicles that pollute more would be charged more. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose this new mileage tax?	A VARIATION on the mileage tax just described is to have the tax rate vary depending upon how much the vehicle pollutes. On average, vehicles would be charged 1¢ per mile, but vehicles that pollute less would be charged less, and vehicles that pollute more would be charged more. Would you support or oppose this new mileage tax? Strongly support Somewhat support Somewhat oppose Strongly oppose
Now, imagine that the U.S. Congress decided that the best option to raise money for transportation is to increase the federal gas tax by ten cents per gallon. I'm going to read you several different options for how the money is spent. For each, please tell me if you would strongly support, somewhat support, somewhat oppose, or strongly oppose the gas tax increase.	Now, imagine that the U.S. Congress decided that the best option to raise money for transportation is to increase the federal gas tax by 10¢ per gallon. Would you support or oppose the gas tax increase if the new money were spent ONLY on projects to:

Phone	Online
Would you support the gas tax increase if the new money were spent ONLY on projects to reduce local air POLLUTION caused by the transportation system?	Reduce local air pollution cause by the transportation system. Strongly support Somewhat support Somewhat oppose Strongly oppose
Would you support the gas tax increase if the money were spent ONLY on projects to reduce the transportation system's contribution to GLOBAL WARMING?	Reduce the transportation system's contribution to global warming. Strongly support Somewhat support Somewhat oppose Strongly oppose
Would you support the gas tax increase if the money were spent ONLY on projects to MAINTAIN streets, roads, and highways?	Maintain streets, roads, and highways. Strongly support Somewhat support Somewhat oppose Strongly oppose
Would you support the gas tax increase if the money were spent ONLY on projects to reduce accidents and improve safety?	Reduce accidents and improve safety. Strongly support Somewhat support Somewhat oppose Strongly oppose
Let me give you some information about how much the CURRENT federal gas tax costs an AVERAGE driver. Someone who drives 10,000 miles a year, in a vehicle that gets 20 miles to the gallon, will pay about 100 dollars a year. If Congress raised the gas tax by 10 cents a gallon, that same driver would now pay about 150 dollars a year. Now that you have this information, would you strongly support, somewhat support, somewhat oppose, or strongly oppose a 10-cent gas tax increase?	Let me give you some information about how much the CURRENT federal gas tax costs an AVERAGE driver. Someone who drives 10,000 miles a year, in a vehicle that gets 20 miles to the gallon, will pay about $100 a year. If Congress raised the gas tax by 10¢ a gallon, that same driver would now pay about $150 a year. Now that you have this information, would you support or oppose a 10¢ gas tax increase? Strongly support Somewhat support Somewhat oppose Strongly oppose
Now I have a few questions about public transit, which means buses, light rail, and trains.	Now I have a few questions about public transit, which means buses, light rail, and trains.

Phone	Online
When people ride public transit, they pay a fare. This money is used to pay for the service. Do you think that the money collected from public transit fares in general covers the FULL cost of the service?	When people ride public transit, they pay a fare. This money is used to pay for the service. Do you think that the money collected from public transit fares in general covers the FULL cost of the service? Yes No
In general, what PERCENT of the full cost of public transit services do you think the fares cover?	In general, what PERCENT of the full cost of public transit services do you think the fares cover?
I'm going to read you a list of potential funding sources. For each, please tell me if you think it helps to pay for public transit services.	For each potential funding source below, do you think it does or does not help to pay for public transit services?
The federal government?	Federal government. Does pay Does not pay Don't know
State governments?	State government. Does pay Does not pay Don't know
Local governments?	Local government. Does pay Does not pay Don't know
The following two questions were rotated so that half of the respondents received one question, while the other half received the alternative wording.	
Now I have a question about whether or not GAS tax money should be spent to pay for public transit. Some people say that money from gas taxes should only be spent on roads and highways, since drivers pay the tax. Other people say gas tax money should be used to pay for public transit IN ADDITION to roads and highways, because transit helps reduce traffic congestion and wear-and-tear on the roads. Would you SUPPORT or OPPOSE spending SOME gas tax money on public transit?	Now I have a question about whether or not GAS tax money should be spent to pay for public transit. Some people say that money from gas taxes should only be spent on roads and highways, since drivers pay the tax. Other people say gas tax money should be used to pay for public transit IN ADDITION to roads and highways, because transit helps reduce traffic congestion and wear-and-tear on the roads. Would you support or oppose spending SOME gas tax money on public transit?

Phone	Online
Now I have a question about whether or not GAS tax money should be spent to pay for public transit. Some people say gas tax money should be used to pay for public transit IN ADDITION to roads and highways, because transit helps reduce traffic congestion and wear-and-tear on the roads. Other people say that money from gas taxes should only be spent on roads and highways, since drivers pay the tax. Would you SUPPORT or OPPOSE spending SOME gas tax money on public transit?	Now I have a question about whether or not GAS tax money should be spent to pay for public transit. Some people say gas tax money should be used to pay for public transit IN ADDITION to roads and highways, because transit helps reduce traffic congestion and wear-and-tear on the roads. Other people say that money from gas taxes should only be spent on roads and highways, since drivers pay the tax. Would you support or oppose spending SOME gas tax money on public transit?
Suppose Congress has voted to spend more money to expand and improve public transit around the country but has NOT yet decided how to pay for the improvements. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose each of the following ways to raise money for public transit? Raise the federal gas tax Reduce spending on OTHER federal programs Raise transit fares	Suppose Congress has voted to spend more money to expand and improve public transit around the country but has not yet decided how to pay for the improvements. Would you support or oppose each option below as a way to raise money for public transit? Raise the federal gas tax Reduce spending on other federal programs Raise transit fares
If you could only select ONE of the three options I just described, which would you prefer?	If you could only select ONE of the three options above, which would you prefer? Raise the federal gas tax Reduce spending on other federal programs Raise transit fares Other (please specify)
Finally, a few questions for statistical purposes only.	Finally, a few questions for statistical purposes only.
What year were you born?	What year were you born?
What is your gender?	What is your gender?
Are you Spanish, Hispanic or Latino/a?	Are you Spanish, Hispanic or Latino/a?

Phone	Online
Which of the following describes your race? You can select as many as apply. White Black or African American Asian or Asian American American Indian or Alaska Native Native Hawaiian or Other Pacific Islander Other	Which of the following describes your race? Select all that apply. White Black or African American Asian or Asian American American Indian or Alaska Native Native Hawaiian or Other Pacific Islander Other
What is the highest degree or level of education you have completed?	What is the highest degree or level of education you have completed? Less than high school High school diploma or GED Some college (includes vocational or technical degree) Bachelor's degree Graduate degree
Are you currently employed?	Are you currently employed? Yes, including part-time No
About how many miles did you, personally, drive during the past 12 months in all motorized vehicles? Please do not count miles you drove as part of a job.	About how many miles did you, personally, drive during the past 12 months in all motorized vehicles? If you work, include the commute to and from work, but NOT any miles driven while on the job.
Now think about the vehicle you drove the most in the past 12 months, to get around for personal reasons like shopping, commuting to work, or vacation trips. How many miles per gallon does the vehicle get?	Now think about the vehicle you drove the most in the past 12 months, to get around for personal reasons like shopping, commuting to work, or vacation trips. How many miles per gallon does the vehicle get?
As you know, many people are so busy these days they can't find time to register to vote, or they move around so often they don't get a chance to re-register. Are you now registered to vote, or have you not been able to register for one reason or another?	As you know, many people are so busy these days they can't find time to register to vote, or they move around so often they don't get a chance to re-register. Are you now registered to vote, or have you not been able to register for one reason or another? Yes -- registered to vote No -- not registered to vote Registered to vote in a country outside the U.S.

Phone	Online
In politics today, do you consider yourself a Republican, Democrat, or Independent?	In politics today, do you consider yourself a Republican, Democrat, or Independent? Republican Democrat Independent Something else
As of today, do you lean more to the Republican Party or more to the Democratic Party?	As of today, do you lean more to the Republican Party or more to the Democratic Party? Republican Democrat Neither
How often would you say you vote: all of the time, most of the time, occasionally, seldom, or never?	How often would you say you vote: all of the time, most of the time, occasionally, seldom, or never? All of the time Most of the time Occasionally Seldom Never
What is your zip code?	What is your zip code?
Finally, and of course anonymously, what was your total household income in 2016 from all sources, before taxes. Please stop me when I get to the right category.	Finally, and of course anonymously, what was your total household income in 2016 from all sources, before taxes? Less than $25,000 per year $25,000 - $49,999 $50,000 - $74,999 $75,000 - $99,999 $100,000 - $124,999 $125,000 - $149,999 $150,000 or more

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5. Portland State Survey Research Lab, "2017 Transportation Survey Final Report" (May 2, 2017), p. 7.

6. The formulas used to calculate these rates are available at American Association for Public Opinion Research, "Response Rates: An Overview" (no date) http://www.aapor.org/Education-Resources/For-Researchers/Poll-Survey-FAQ/Response-Rates-An-Overview.aspx (accessed May 17, 2017).

7. SurveyMonkey, "Buying Responses with SurveyMonkey Audience," https://help.surveymonkey.com/articles/en_US/kb/SurveyMonkey-Audience#Panel (accessed September 8, 2017).

8. To calculate this estimate, we removed response time data for 57 respondents who took more than 30 minutes to complete the survey.

9. The U.S. Census Bureau's 2015 American Community Survey 1-Year estimates were downloaded from the American FactFinder website using the tables for Demographic and Housing Estimates (DP05), Annual Estimates of Resident Population by Single Year of Age (PEPSYASEXN), 1-Year Household Income in the Past 12 Months Estimates (in 2015 inflation-adjusted dollars (B19001), and 1-Year Educational Attainment Estimates (S1501), https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t (accessed May 17, 2017).

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ABBREVIATIONS AND ACRONYMS

AAPOR	American Association For Public Opinion Research
CATI	Computer-Assisted Telephone Interview
RDD	Random-Digit-Dial
SRL	Survey Research Lab
US	United States

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