RESEARCH & DEVELOPMENT

Public Perceptions of Transportation Fees and Taxes in North Carolina

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16. Abstract

Changing trends in the automobile market are challenging the long-term sustainability of revenue streams—and possibly how the public perceives them. In response, NCDOT commissioned a survey to better understand how the public perceives transportation taxes and fees. Using the knowledge gained from the literature review, the research team designed and administered a 21-question survey to 37,000 randomly selected households in North Carolina. The final sample included over 2,200 responses from across the state, with each of the NCDOT divisions represented. The survey responses were weighted by county population and response rate, gender, age, and education to adjust the sample for representativeness of North Carolina's population. In addition, two versions of the survey were administered: one with no additional background information for each transportation tax or fee and with this background information provided. The results suggest several instances where providing background information does have an impact. Preferences for general-based transportation taxes and fees are 14 percent greater when given the information-based survey than when compared to the baseline survey response. Second, there appears to be statistical differences by demographic group regarding support for increasing transportation funding. Those living in urban areas, males, those 50 years or older, those with a Bachelor's degree or higher, and self-identified Democrats tend to be more supportive of transportation funding increases while those living in rural areas; females, those less than 50 years old, those with less than a Bachelor's degree, and self-identified Republicans tend to be less supportive. In addition, 26.8 percent of respondents correctly identified the combined federal and state gas tax rate in North Carolina of 53.9 cents (selected by ranges.) However, little difference was observed between Survey B (with additional background on the federal and state gas tax) and the Survey A version. The results also suggest that some respondents thought they paid a fair amount for transportation. Finally, the findings suggest a relatively little difference in responses between those that live in urban and rural areas. Finally, the results suggest statistical differences (but not many practical differences) in education, political affiliation, and age.

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PUBLIC PERCEPTIONS OF TRANSPORTATION FEES AND TAXES IN NORTH CAROLINA

December 2019

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Table of Contents

List of Tables

List of Figures

Executive Summary

Changing trends in the automobile market are challenging the long-term sustainability of revenue streams—and possibly how the public perceives them. In response, NCDOT commissioned a survey to better understand how the public perceives transportation taxes and fees. Additionally, NCDOT created the NC First Commission. This state level committee of subject matter experts has been tasked with evaluating North Carolina's current and future transportation investment needs and advising the Secretary of Transportation on those needs was created.

While findings from the literature review on the public perception of transportation funding varied, several key trends emerged. First, public support for increased transportation taxes and fees was greatest among those living in urban areas, those who were more knowledgeable about how transportation is funded, those who were self-identified Democrats, and those with higher levels of education. Other common factors considered included general demographic information, use of different transportation modes, importance of road conditions, and political and environmental ideologies among respondents.

Using the knowledge gained from the literature review, the research team designed and administered a 21-question survey to 37,000 randomly selected households in North Carolina. The final sample included over 2,200 responses from across the state, with each of the NCDOT divisions represented. The survey responses were weighted by county population and response rate, gender, age, and education to adjust the sample for representativeness of North Carolina's population. In addition, two versions of the survey were administered: one with no additional background information for each transportation tax or fee and with this background information provided. The results suggest several instances where providing background information does have an impact. Preferences for general-based transportation taxes and fees are 14 percent greater when given the information-based survey than when compared to the baseline survey response. Second, there appears to be statistical differences by demographic group regarding support for increasing transportation funding. Those living in urban areas, males, those 50 years or older, those with a Bachelor's degree or higher, and self-identified Democrats tend to be more supportive of transportation funding increases while those living in rural areas; females, those less than 50 years old, those with less than a Bachelor's degree, and self-identified Republicans tend to be less supportive.

In addition, 26.8 percent of respondents correctly identified the combined federal and state gas tax rate in North Carolina of 53.9 cents (selected by ranges.) However, little difference was observed between Survey B (with additional background on the federal and state gas tax) and the Survey A version. The results also suggest that some respondents thought they paid a fair amount for transportation. Finally, the findings suggest a relatively little difference in responses between those that live in urban and rural areas. Finally, the results suggest statistical differences (but not many practical differences) in education, political affiliation, and age.

Introduction

Background

The North Carolina Department of Transportation (NCDOT) provides transportation services across North Carolina for a variety of functions and uses, including highway and roadway construction and maintenance, operation of airports, railroads, transit, ferry system, and bicycle and pedestrian infrastructure. Currently, however, the state's funding sources that support these services are being strained due to long-term gas tax revenue sustainability and fuel source and economy innovations in the automobile market. The growing gap between needs and revenue continue to increase as tax revenues drop due to the increasing fuel efficiency of today's vehicles, leaving the motor fuel tax insufficient to cover the full needs of the state. In addition, it is projected that the North Carolina population will increase more than 25 percent from 10.3 million residents to 12.8 million residents by 2035, creating additional demand and funding needs for the state's transportation infrastructure, and further overstretching the capability of the current funding mechanisms (North Carolina State Demographer, 2019).

The growing gap between needs and revenue for transportation funding is not a problem limited to North Carolina. Since 2012, 35 states, including North Carolina, have taken some form of legislative action to increase transportation funding (NC Budget and Management, 2019). North Carolina is one of 22 states that has indexed its motor fuels tax, which means the rate adjusts according to changes in the consumer price index or other inflation-based measures (National Conference of State Legislatures, 2019). This has helped North Carolina's transportation deficit remain relatively limited compared to the states that do not use indexing. However, the lack of indexing at the federal level and improved vehicle fuel economies is applying an increasing burden on North Carolina's transportation infrastructure. Actions have ranged from raising the gas tax, raising the sales tax to cover transportation funding, approving transportation bonds, increasing vehicle registration fees, and even testing new funding mechanisms, such as vehicle miles traveled taxes.

Despite the growing transportation deficit, it has proven to be difficult to introduce tax increases, for transportation purposes. Nationwide, drivers spend between $6,000 and $10,000 annually for owning and operating a vehicle (dependent on vehicle type). Of that expenditure, less than 10 percent is spent on fees that support the state's surface transportation system. Evidence from previous studies suggests the average driver does not have full understanding of how little of the annual cost of owning and operating a vehicle goes to funding transportation maintenance and expansion (Nixon and Agrawal 2018).

As North Carolina confronts increasing transportation budget deficits, reliable revenue generating mechanisms and creating an informed general public will become invaluable to preserve the state's transportation infrastructure. Understanding the public perception of

current and potential transportation funding mechanisms will be important for NCDOT and other decision-makers.

Scope and Objectives

The scope of this research is to improve NCDOT's understanding of North Carolina's perceptions related to current and future potential transportation funding mechanisms. Previous studies have sought to assess the North Carolina public's understanding of transportation taxes and fees; however, no one to date has conducted a comprehensive statewide survey of residents in all 100 North Carolina counties (Zmud and Arce 2008). As such, the ITRE team developed a 21-question survey with a goal of completion by 2,000 randomly selected households in all 100 North Carolina counties.

The objectives of this research are to (1) develop a better understanding on the public's perception of transportation taxes and fees currently under consideration by states around the country, (2) develop a clear understanding on the geography of transportation funding support, and (3) help provide NCDOT with a framework for understanding which transportation policy decisions the public may support. This report summarizes, in detail, the results attributed to this survey.

Report Organization

This technical report is organized into five sections, which contain the relevant findings from this research. The five sections that make up the report are organized as follows:

- **Section 1: Introduction** – This section provides an overall background of the research conducted, reviews the scope and objectives of this research, and summarizes the expected results.
- **Section 2: Literature Review** – This section provides an overall summary of the literature findings, including a review of previous transportation funding and finance polls conducted by other research organizations. This chapter also provides a brief review of other analysis models, a summary of key survey findings and gaps in the literature.
- **Section 3: Methodology** – This section provides an overview of the methodology used for developing the survey and identifying and testing relevant hypotheses based on literature review findings.
- **Section 4: Summary of Findings** – This section provides a brief summary of the final results, including a tabulation for each question. Full results from the survey may be found in Appendix 1.
- **Section 5: Conclusion** – This section provides a summary of relevant findings for NCDOT and opportunities for future research.

About the Survey Research Team

This survey was administered by the NC State Institute for Transportation Research and Education (NC State ITRE.) ITRE is an institutional center located at NC State University and conducts surface and air transportation research, training, and technical support activities for municipal, state, federal, and international clients to address critical transportation issues. ITRE is committed to developing leadership in its study of transportation issues through fostering analytical thinking, integrating technology in education and research, serving as a catalyst for problem solving, and cultivating professionals and students dedicated to excellence in transportation.

Literature Review

Analysis of Survey Findings

In recent years, academic institutions, public sector agencies, and philanthropists have sponsored surveys to measure public opinion regarding transportation taxes and fees. Based on this review, the most common survey administration methods were (1) cellular and landline telephone surveys via the random digit dialing (RDD) method, (2) email invitation, and (3) online surveys. Some surveys used a combination of one or more of these methods. Surveys measuring public opinions for transportation funding were administered nationwide, statewide, or within a region of the U.S. Table 1 below summarizes the date, sample size, method, number of responses, and survey margin of error (i.e., error in polling that can result from the process of selecting a sample) for key surveys administered nationwide, across a state, and in local/regional geographies.

Table 1: **Public Opinion Surveys of Transportation Funding Options**

	Source	Sample		Survey Method	Number of Responses	Margin of Error (pct. Points)
National	Fridling 2018	U.S. adults		email invitation/ online survey	1,090	+/- 3
	Nixon and Agrawal 2018	U.S. adults		Random-digit dialing	1,201	+/- 2.8
	Krause et al 2013	adults in 21 largest U.S. cities		n/a	2,302	n/a
	Public Opinion Strategies 2011	registered voters		phone	1,001	+/- 3.1
State	Simek and Geiselbrecht 2014	Texas	Registered voters	Random-digit dialing; web; mail	5,000	n/a
	Zmud and Arce 2008	North Carolina	Registered voters	n/a	898	+/- 3
	Zmud and Arce 2008	Wisconsin	Wisconsin residents	n/a	500	+/- 3.5
	Zmud and Arce 2008	Indiana	Indiana residents	Random-digit dialing	501	+/- 4.4
	Zmud and Arce 2008	New Jersey	New Jersey residents	n/a	1,000	n/a
	Zmud and Arce 2008	Pennsylvania	Pennsylvania voters	n/a	1,160	+/- 3.3
	Dill and Weinstein 2007	California	California adults	Random-digit dialing	2,705	n/a
	Warburton 2006	Utah	Utah residents	n/a	415	+/- 5
	Podgkorski and Kockelman 2006	Texas	Registered Texas voters	Random-digit dialing	5,000	n/a
Local/Regional	Zmud and Arce 2008	San Antonio, TX; Registered voters in Alamo Regional Mobility Authority jurisdiction		n/a	500	n/a
	JMM 2006	San Diego voters		n/a	1,200	+/- 2.9
	Ginsberg 2005	Adults living in Washington, D.C., Maryland, and Virginia		n/a	1,204	n/a
	NuStats 2005	Adults residing in Austin area who are potential toll road users		Random-digit dialing	n/a	+/- 2
	Baldassare 2003	Orange County, CA residents		telephone	1,004	+/- 3

Effects of Transportation Funding Knowledge on Opinions

Regarding knowledge of transportation funding, several articles provide useful and historical insight. For example, Nixon et al (2018) finds respondents support the increase of a fee or tax when they are given information on the use of the collected funds. Duncan (2017) finds that billing drivers for distance traveled using a transparent, accurate, and easy-to-use method for measuring distance can increase support for a Vehicle Miles Traveled (VMT) fee system. Fisher and Wassmer (2016) finds when respondents were knowledgeable of the current tax rates and structures, support for proposed tax increases or additional tolling was higher. Table 2 below provides a summary of key findings regarding the public's knowledge of transportation funding methods.

Table 2: Relevant Findings from Surveys on Knowledge of Transportation Funding Methods

Source	Relevant Findings
Fridling 2018	Americans are willing to pay tolls when given travel time alternatives information
Nixon and Agrawal 2018	When given information on what taxes will likely be used to fund, public support increased
Duncan 2017	Transparent, accurate, easy-to-use methods can increase support for VMT fee system
Kruse et al 2013	Recommended randomized informational and educational trials be conducted to determine whether consumers who become better informed about plug-in electric vehicle (PEV) technology become more inclined to consider a PEV.
Fichner and Riggleman 2007	Few members of a Minnesota study group knew their state's gas tax rate of 38.4 cents per gallon. Minnesota respondents thought the annual tax paid ranged from a low of $50 per vehicle per year to a high of $10,000 per vehicle per year. The actual tax paid for that year in Minnesota for those residents was between $600 to $700 per year.

Other literature examined ways in which a lack of knowledge can affect support. For example, Fichner and Riggleman (2007) found that few members of a study group knew their state's gas tax rate of 38.4 cents per gallon in Minnesota. Respondent answers ranged from a low of 9 cents per gallon to $1.00 per gallon (Fichtner and Riggleman 2007). Furthermore, responses on the annual tax paid ranged from a low of $50 per vehicle per year to a high of $10,000 per vehicle per year. The actual tax paid for that year was estimated to be in the range of $600 to $700 per year. Other work, such as Krause et al (2013), recommended randomized informational and educational trials be conducted to determine whether consumers who become better informed about plug-in electric hybrid (PEV) technology became more inclined to consider these types of vehicles.

Based on the literature, there are also several differences in perception between urban and rural areas. For example, Baker Goodin and Munnich (2011) finds evidence suggesting differences

in perceptions of residents living in rural areas. For example, respondents in urban areas were far more likely to agree that changes in transportation funding were needed when given more information about the long-term limitations of the funding structure. Respondents living in rural areas, by contrast, were not as likely to change their minds. Furthermore, Podgkorski and Kockelman (2006) found that residents in urban areas were far more concerned with toll projects, whereas people in more rural areas were far more concerned about privacy regarding toll tags and equity. Table 3 below provides a summary of the literature on the perception differences of transportation taxes and fees between urban and rural areas.

Table 3: Rural and Urban on Perception Differences

Source	Relevant Findings
Goodin, Baker and Munnich Jr 2011	• Residents in rural areas perceive the transportation funding crisis as "not real" • Majority of Texans correctly identified fuel tax, registration fees, tolls, and driver license fees as sources of revenue to fund transportation but were less successful at identifying methods that were not directly related to transportation. • Support for broad transportation funding options (e.g., increase transportation investment to reduce traffic congestion) was high. When more concrete transportation funding policy options were proposed (e.g., increase the state motor fuels tax), support decreased.
Podgkorski and Kockelman 2006	• Residents in urban areas were far more concerned with toll projects than those in rural areas • Residents in rural areas were far more concerned over privacy regarding toll tags; residents in these areas were also far more concerned with what respondents perceived as toll "fairness" (i.e., paying a fair share based on toll road use.)

Analysis of Models

To analyze the results of the surveys, the research team used various methods of statistical testing including: Chi-Squared tests and discrete choice modelling techniques, consistent with similar studies. The team used a variety of logistic regression tools to model the relationships between support for road funding and various independent variables. Logistic regression, or logit models, are an extension of linear regression models which allow for a binary dependent variable, enabling researchers to predict yes or no type responses.

Across most of the surveyed literature, the common research question, and resulting binary dependent variable, is whether or not respondents are willing to pay for increased investments in transportation infrastructure. For example, Yusuf (2018) studied the Hampton Roads region, an urban area in Southeastern Virginia, by examining two related research questions: (a) to what extent residents support tolls, an increase in the tax on fuel, or both? (b) What roles do political and ideological beliefs have in determining residents' support for increasing the tax on fuel consumption, introduction of tolls, or both? Yusuf et al. (2018) Both of these questions were used to create a binary dependent variable. Additionally, Nixon and Agrawal (2018) measured support for nine different dependent variables, also using a logit methodology

coupled with an odds ratio analysis to examine whether Americans will support increases in gasoline taxes, with different phasing-in scenarios to measure support for increased investments. Like Yusuf (2018), the dependent variables of yes/no are framed in terms of willingness to pay for slight increases in the gas tax. For example, one such choice is whether respondents will support a 10-cent increase in the gasoline tax (Nixon and Agrawal 2018).

Other model types were used in the literature reviewed, such as ordered probit models and multinomial logistic regression. For example, Podgorski and Kockelman (2006) used ordered probit, binomial logit and, multinomial logit models, finding that residents in Texas broadly supported road improvements. Several dependent variables were included to gauge respondents' opinions on a variety of topics. The consensus of approximately 2,000 Texans, with over 70 percent support, was to attend to already built roads, maintaining existing roads as toll-free, using revenues by region where those taxes originated, and increasing tolls on trucks. However, there were some opinions that varied by region, as urban Austin residents were more likely to support additional transportation funding other than those residents of the Lower Regions.

The variables that were most generally consistent in a sample of the surveyed literature included age, gender, party affiliation, environmental ideology, opinion of government, race, opinion of government's role in transportation investment, use of public transit, and transportation use in congested areas. The sampled literature proposed a variety of questions, and data for indicators were not necessarily measured or collected in the same way, but examining the body of literature, these indicators will be useful in predicting measures of support for proposed policy measures.

For example, party affiliation, when included in the example models, is consistently statistically significant, as self-identified Democrats were more likely to support road financing than Republicans regardless as to whether the funding was presented as a gas tax or a VMT. Perhaps, counterintuitively, miles driven by respondents did not have statistically significant effects on revenue raising proposals. This is somewhat noteworthy, because in terms of a gas tax, those who would pay more of the tax would be those drivers who consume more gasoline and drive relatively more miles. Higher educational attainment, generally measured as whether or not respondents had attained an undergraduate degree, indicates support for revenue raising measures. Other consistent findings include, individuals with higher levels of income are more likely to support increased road financing; those who believed the government should have a role in transportation funding were more likely to support increased road financing; and generally, older individuals were less likely to support increased road financing efforts.

Reviewing the current literature revealed numerous gaps in the research field, such as what factors determine knowledge of road funding structures, the effect of knowledge of current road financing conditions on support for alternative funding mechanisms and increase in revenue, and the difference in support between urban and rural communities. These questions could have policy implications as it could help tailor educational outreach, as well as, provide more

insight into the factors related to support of transportation funding alternatives in rural and urban communities.

Table 4 below summarizes key findings from the literature review. An independent variable was considered significant if the study regression resulted in a corresponding estimated parameter with a p-value of less than .05. A plus sign (+) means the study found a positive relationship between the independent variable and support for road funding, a negative sign (-) implies the opposite relationship. Common independent variables used in the models across the literature included general demographic information, such as age, educational attainment, income range, race/ethnicity, political affiliation, and environmental ideologies. Many of the papers surveyed also included factors considering individual's use of congested roads, other modes of transit, and opinion regarding government. Given the diversity of years, geography, and econometric methods used in the surveyed literature, each variable was not shown to be statistically significant in all publications.

Table 4: Comparison of Independent Variables Used

	Dependent Variable	Support for Tolls	Support for Increased Fuel Tax	Support for Increased Fuel Tax	Support for Variable VMT (By Vehicle Type)	Support for VMT	Willingness to pay for road improvements	Willingness to pay Toll to be free of delays	Support for Increased Fuel Tax
Independent Variable	Age (Older)	(-)	(+)	*	(-)	*	*	*	(+)
	Education (Higher Levels of Education = 1)	(+)	(+)	(+)	*	*	(+)		(+)
	Employment (Employed = 1)	*	*			*		*	
	Gender (Male = 1)	*	*	(+)	(-)	*	*	*	(+)
	Income (Higher Income)			(+)	*		(+)	(+)	(+)
	Miles Driven (More miles driven)			*	*	*	*		(+)
	Opinion of Government Investment in Transportation Funding (Favorable Opinion = 1)		*	(+)	(+)				(+)
	Party Affiliation (Democrat = 1)	(-)	(+)	(+)	(+)	(+)	(+)		(+)
	General Level of Support	28%	29%	36%	19%	21%	38%	24%	40%
	Location of Study (Author, Year)	Virginia (Yusuf, 2018)		National (Nixon/ Agrawal, 2018)		National (Duncan, 2017)	California and Michigan (Fisher/ Wassmer, 2016)	Virginia (Yusuf, 2014)	California (Weinstein/ Dill, 2007)

* *Indicates the variable was included in the model but was found to be insignificant*

(+) *Indicates the variable was **positively** correlated with the dependent variable*

(-) *Indicates the variable was **negatively** correlated with the dependent variable*

Summary of Literature Findings

This analysis focused on examining the current state of knowledge regarding the public's perception of transportation taxes and fees. First, a brief overview of the different survey design and methods used were presented. Next, this report summarized current findings regarding the current state of knowledge of public opinions related to transportation funding. Finally, this synthesis presented a summary of the models used.

While the findings from each survey varied somewhat, several key trends emerged. First, public support for increased transportation taxes and fees was highest among those living in urban areas, those who were more knowledgeable about how transportation is funded, those that were self-identified Democrats, and those with higher levels of education. By contrast, support for transportation taxes and fees is lower for those living in rural places, among those with lower levels of education, and self-identified Republicans. Furthermore, most of the survey results were analyzed using discrete, or qualitative, choice models. Across the surveyed literature, common dependent variables include a willingness to pay from users for infrastructure and road improvements, as well as, support for an increased tax or toll. Common factors considered included general demographic information, use of different transportation modes, importance of road conditions, and political and environmental ideologies among respondents.

Overall, the findings from this literature review suggest support for transportation taxes and fees varies based on demographic, political, and geographical factors. These factors appear to be especially relevant for states such as North Carolina with varying regional and local identities and opinions.

Methodology

Survey Purpose and Development

The purpose for this survey was to assess the North Carolina general public's perception of transportation taxes and fees. Previous surveys have sought to assess the public's understanding of transportation taxes and fees; however, no study in North Carolina to date has conducted a comprehensive review of residents statewide. Notably, the research team was especially interested in identifying potential differences in opinion and perception between the state's rural regions and urban centers. The results presented in Section 4 of this report contrasts the survey results by county type and urbanized area.

Design and Administration

The survey was designed to measure preferences for road-funding sources as well as measure responses to questions on transportation funding knowledge that could have influenced respondent preferences. The main focus question of this survey was: "Do respondents in North Carolina, given a set of demographics and characteristics, support funding roads primarily by an increase in a gas tax, an installation of a vehicle miles traveled fee, or the implementation of additional toll-based measures?" This question is at the root of the current transportation funding challenge, as the state government has to determine what method of revenue generation would be most likely garner the support of North Carolinians.

Given the research questions that were of interest of the research team, as well as, select variables of interest that we identified through the literature search, questions were created to make up our survey. The questions on the survey were refined by the research team to minimize response bias and respondents' confusion and the answer choices in the survey were structured in a way that would allow the research team to convert the answers into variables that could be used for analysis. In an attempt to isolate the effects of information on respondents' perceptions and opinions, two surveys were developed and distributed at equivalent rates: one that measures the effect of information and a baseline survey that acts as the control:

- **Baseline Knowledge (Version A):** This survey assessed respondents' overall knowledge of transportation taxes and fees in North Carolina. This survey was completed by approximately half of the total respondents and was the control group.
- **Information Effects (Version B):** The survey asked the same questions as Version A, but did include additional information for most questions. The aim of this survey was to measure the effects of providing background information on respondent's understanding, perception, and opinion of current and potential future transportation funding mechanisms. This survey was completed by approximately half of the total number of respondents.

Both versions of the survey are located in Appendix 2 of this report.

These surveys were administered through the ETC Institute, a market research and survey company, with a goal of completion by 2,000 randomly selected households across all 100 North Carolina counties. As shown in figure 1, to obtain a representative sample, the state population was stratified at the county level and then households were randomly selected from each county subpopulation. Each family selected for the survey, was randomly sent a paper version or email invitation of one of the two versions of the survey to ensure that roughly half of each subpopulation received the baseline and the information effects surveys. To improve the ease of response, each version of the paper survey had a URL printed on it that could be used to take the survey online via Qualtrics.

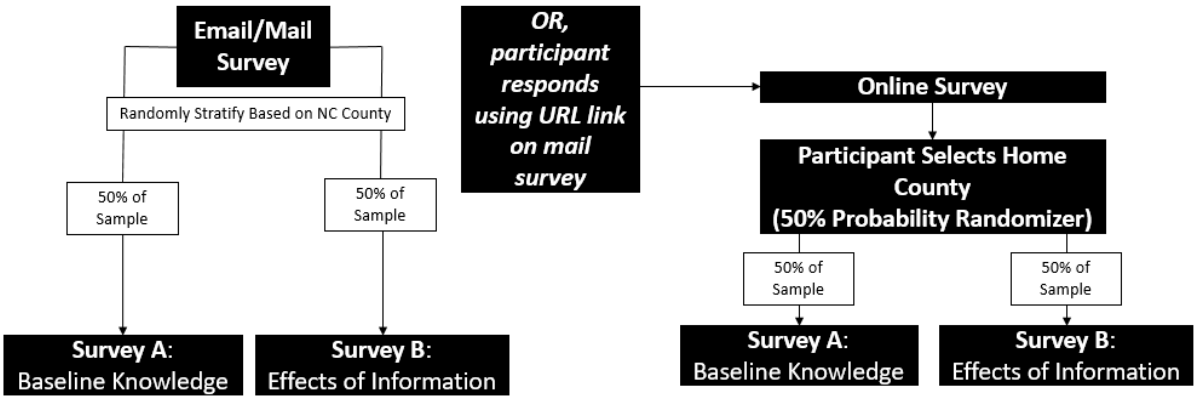


Figure 1: Survey Administration Process

To ensure randomness, researchers requested that respondents of the survey in a multi-person household be an adult of at least 18 as well as the person with the most recent birthday to date of completing the survey. The sampling was completed in a three-stage process, where the first stage was a randomly selected sample of 25,000 households from the state level. Each household selected in the first stage was sent a mailer asking them to participate in the survey, as well as, four email reminders asking the individuals to complete the survey. The second stage was a targeted over-sampling of 7,715 households from select counties which had low response rates in stage one. These households were sent a mailer, as the households from stage one did. Due to continued low response rates from young respondents, the research team made the decision to create an additional sample of 10,000 individuals under the age of 30 in an attempt to improve the representativeness of the sample.

Weighting

In case of overrepresentation from any subgroup of the population, we conducted reweighting of our sample, which is considered standard practice in survey analysis. The research team utilized iterative weighting on the gender, age, education, and county variables in an attempt to improve the fit of the survey sample to the population of North Carolina. Table 5 summarizes the

impacts of the weighting adjustments. Additional information on weighting factors used by county can be found in Appendix 3.

Table 5: Weighting of Results

Weighting Criteria	Category	Population	Unweighted Percentage	Weighted Percentage
Sex	Male	48.7%	51.1%	45.1%
	Female	51.3%	48.9%	54.9%
Age	18-29	25.1%	3.2%	24.9%
	30-49	32.2%	19.2%	32.3%
	50-69	30.6%	57.1%	30.7%
	70+	12.1%	20.5%	12.1%
Education	High School Degree (GED)	49.2%	16.2%	49.1%
	Associates Degree	17.1%	25.1%	17.1%
	Bachelor's Degree	21.7%	31.8%	21.7%
	Advanced Degree	12.0%	26.9%	12.0%

**Weighting also improved the fit of the county distribution and the comparison of the population, unweighted, and weighted percentages can be found in the appendix*

Variable Creation and Modeling

Using the survey questions, the research team created variables that could be used for descriptive statistics and further analysis. Table 6 through 9 below provides a list of these relevant questions and the hypothesized model variables the research team extracted from the survey questions. The six hypothesized regression models will provide insight as to the demographics, geography, and knowledge of North Carolinians that hold certain perceptions and opinions. Figure 2 below provides a conceptual overview of how each hypothesis was constructed.

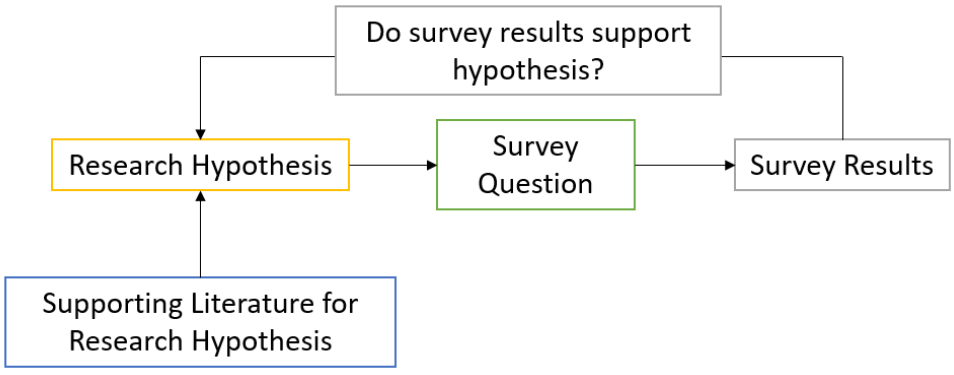


Figure 2: Research Hypothesis and Survey Question Overview

Table 6 below provides an overview of each hypothesis, the relevant question from the survey, and the supporting literature for each survey.

Table 6: Hypothesis, Relevant Survey Question, and Supporting Literature

Hypothesis	Relevant Survey Question	Hypothesis Supporting Literature
What are common characteristics of an individual who wants to increase/decrease road funding. For example, are drivers who drive more annually more likely to want to increase road funding?	Q1: What statement comes closest to your view regarding government spending on roads in NC?	Agrawal (2018) found that the youngest respondents were more supportive of increasing taxes to support transportation than older respondents.
What are common characteristics of an individual who is knowledgeable of the NC gas tax rate? For example, are urban individuals more knowledgeable than rural because of increased exposure to information on the subject?	Q2: To help pay for roads, you pay both federal and state taxes whenever you buy gas. What do you think the gas tax is in NC, per gallon, including federal and state taxes?	Agrawal (2018) found that while the basic concept of a gas tax increase is not popular, restructuring how the gas tax is increase is implemented or described that can increase support.
What theoretical funding ideology lines up with certain demographics? For example, are Republicans more likely to support road use funding as opposed to general taxes?	Q3: Which of the following sources of road funding do you prefer for NC?	A 2019 poll conducted by the American Road and Transportation Builders Association found 61% of those that self-describe as Republican and 68% of those that self-describe as Democrat responded with “very important” toward improving road infrastructure like roads, bridges, transit, and water systems.
What are common characteristics of an individual who believes this is an inexpensive/expensive price? For example, are households with a larger number of vehicles more likely to find this price per vehicle too expensive?	Q5: An average NC vehicle owner who travels 15,000 miles in one year would pay approximately $400 in gas tax.	Yusuf and O’Connell (2015) examined the effect on willingness to raise taxes and fees based on three common approaches to public consultation: telephone survey, focus group with discussion but no information, and focus group with information; this sudy concluded that support usually is the highest with the combination of information and discussion.
What are common characteristics of an individual who prefers a VMT/gas tax? For example, are individuals who have a higher minutes per daily miles driven more likely to support a VMT as opposed to a gas tax as they burn more fuel stuck in congestion?	Q6: If you had to choose, which of the following options do you believe NC should most rely on for future funding of the state’s road projects?	Agrawal (2018) found that while the concept of a mileage tax is not popular, popularity increases by modifying the tax structure so that the rate varies according to the vehicle’s environmental performance.
What are common characteristics of an individual who supports Hybrids paying less? For example, are Democrats without hybrid vehicles likely to support this? Are republicans with hybrids likely to support this despite supporting road funding being sourced from road use?	Q9: Hybrid vehicles are typically more fuel efficient than gasoline-powered vehicles. For this reason, drivers of a hybrid vehicle pay lower taxes for their use of the roadway because they travel further per each gallon of gas purchased.	Agrawal, Dill, and Nixon (2010) found that support for “green” taxes found that 73% of Democrats and 57% of Republicans supported a “green” vehicle registration fee.

Summary of Findings

This research aimed to assess the general public's perception of transportation taxes and fees in North Carolina. As discussed previously, the ITRE team developed a 21-question survey that administered to 2,200 randomly selected households across the state. The survey responses were weighted by county population and response rate, gender, age, and education to ensure the sample was representative of North Carolina's population.

A few key trends emerged from the following questions:

- Overall, North Carolinians support increasing transportation funding. The results suggest a preference for the gas tax; however, there also appears to be support for other methods such as, such as using motor vehicle and driver's license fees, a highway use tax, and a fee based on the amount of miles driven. When provided background information, support for funding transportation through general taxes and fees rather than through usage-based means increased by 20 percent.
- North Carolinians appear split over whether road funding should come from general taxes or usage-based fees. In addition, they appear only moderately aware of how much they contribute via taxes on gas purchases
- A bare majority said that paying $400 for driving 15,000 miles annually was a "fair" price to pay in gas taxes
- Differences in responses were most attributed to gender, age, highest level of education attained, and political affiliation; however, there appear to be minor practical differences in opinion between these demographic groups.
- Despite popular belief, this study shows that rural and urban North Carolinians share many common opinions when it comes to transportation funding in the state.

While the results provide insight into the perceptions of transportation funding and financing, additional research is needed to be able to fully assess the perceptions of key groups in the future.

The following figures and tables summarize, in detail, survey results by question. It is worth noting, however, that the use of weighting had an effect on the results. Weighting is typically used to adjust the results of the study to bring those results more in line with what is known about a population.

Question 1

The first question of the survey surrounds the role of public infrastructure spending in North Carolina. Both Survey A and B respondents were asked: “what comes closest to your view regarding government spending on roads in North Carolina?”

- North Carolina needs to increase spending,
- North Carolina currently spends the right amount
- North Carolina needs to decrease spending
- I have no opinion.

Survey B respondents had the following statement added to their question: “Transportation funding in NC has failed to keep up with the growing demand, resulting in increasingly deteriorated and congested roads. The amount of available funds has been decreasing primarily because a tax on gas generates most of the funds to pay for roads but newer vehicles are more fuel efficient so drivers don’t need to buy as much gas. What comes closest to your view regarding government spending on roads in NC?” The weighted percentage breakdown of responses is provided by Figure 3. Differences in support for funding increase, by group, is provided in Figure 4.

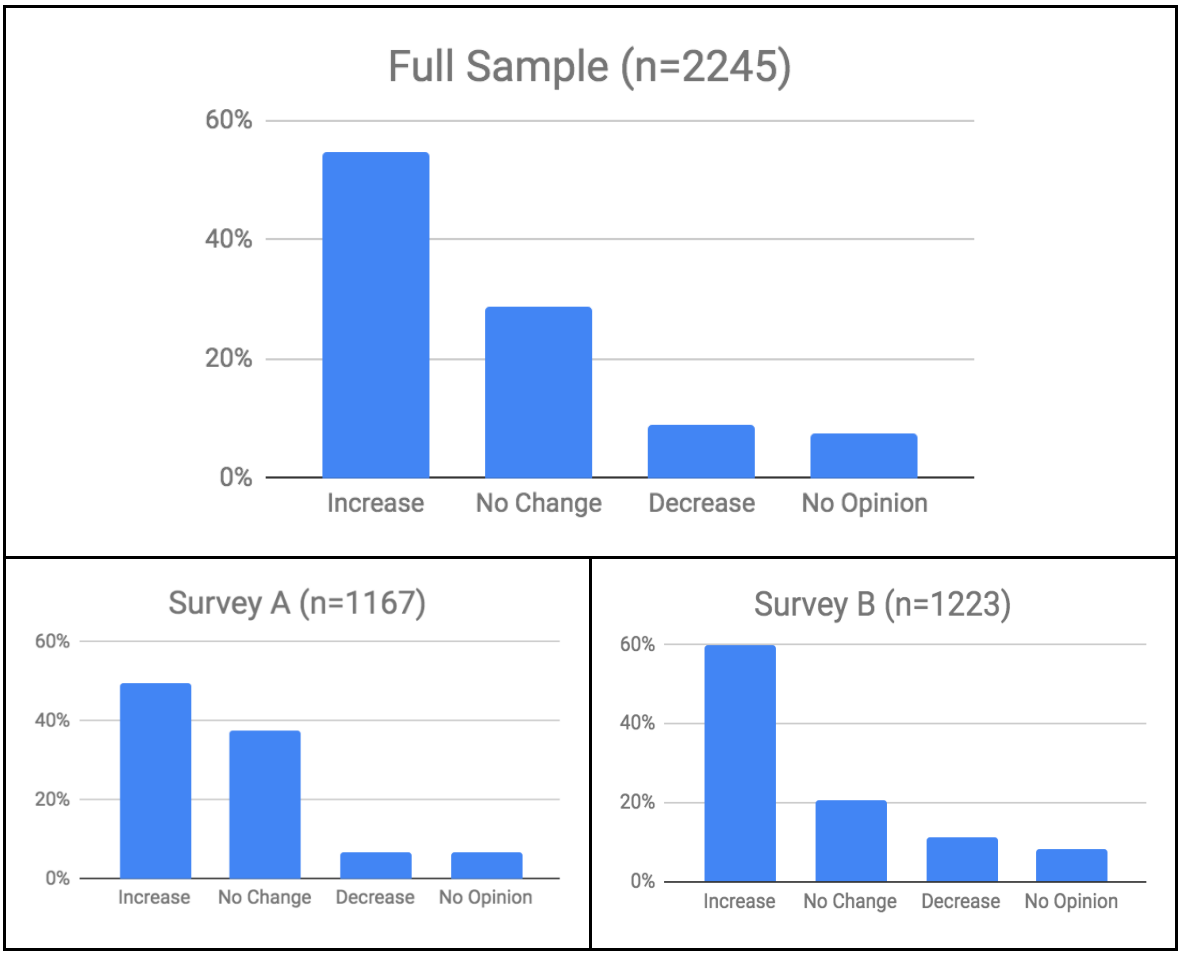


Figure 3: Question 1, Weighted Percentage Breakdown by Category

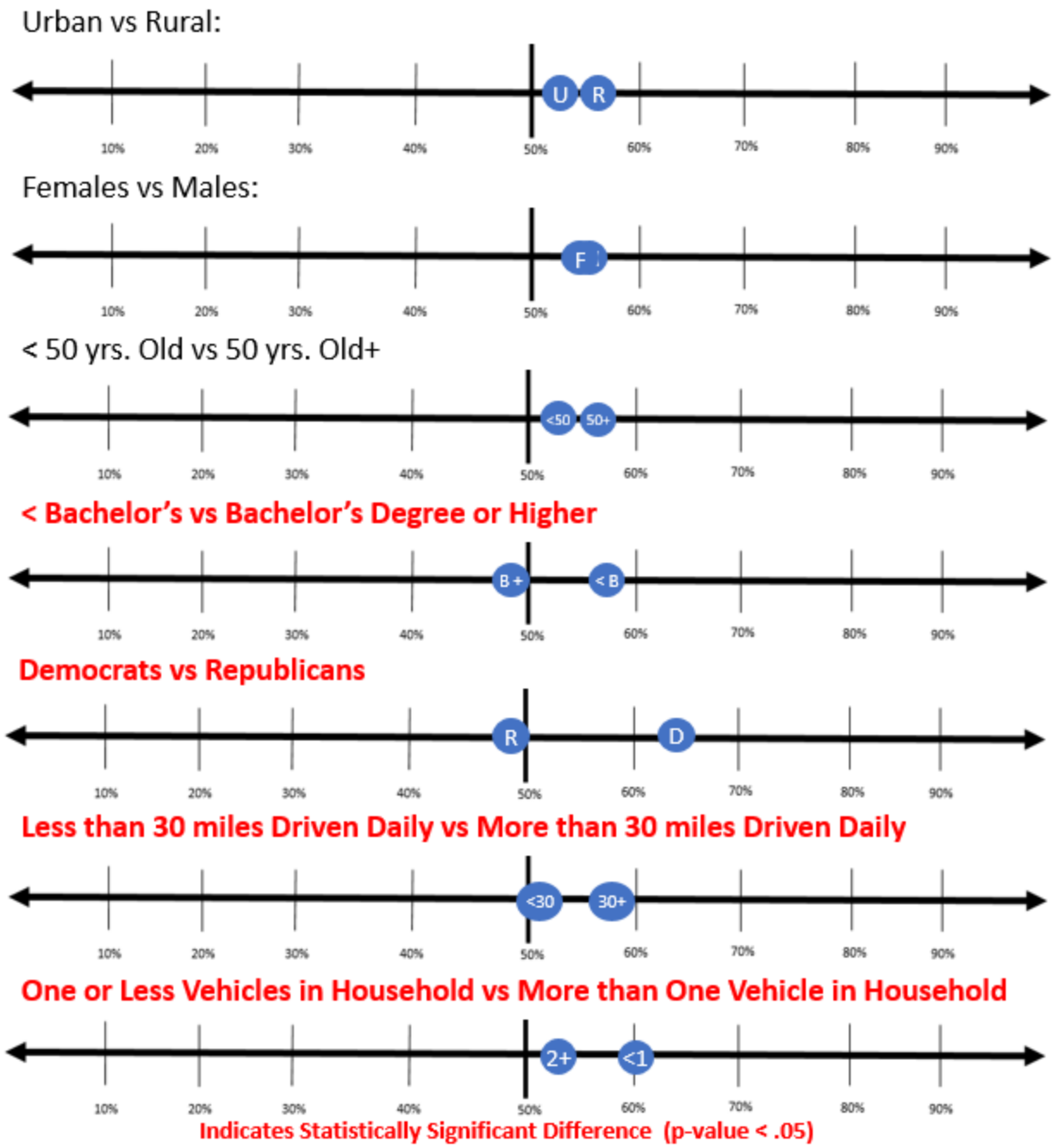


Figure 4: Question 1, Support for Funding Increase, Difference by Group

Question 2

The second question is focused on resident knowledge of gas taxes, asking both Survey A and B respondents to indicate what they believe the gas tax per dollar is currently (state + federal). Survey A respondents were allowed to enter the gas tax rate as an open-ended number, whereas Survey B respondents were given five intervals to select from. For consistency, the results for Survey A were reported based on this interval.

- 0-19 cents
- 20-39 cents
- 40-64 cents
- 65-89 cents
- 90-100 cents
- Don't know

The actual gas tax at the time this survey was administered (state + federal) was 53.8 cents per gallon.

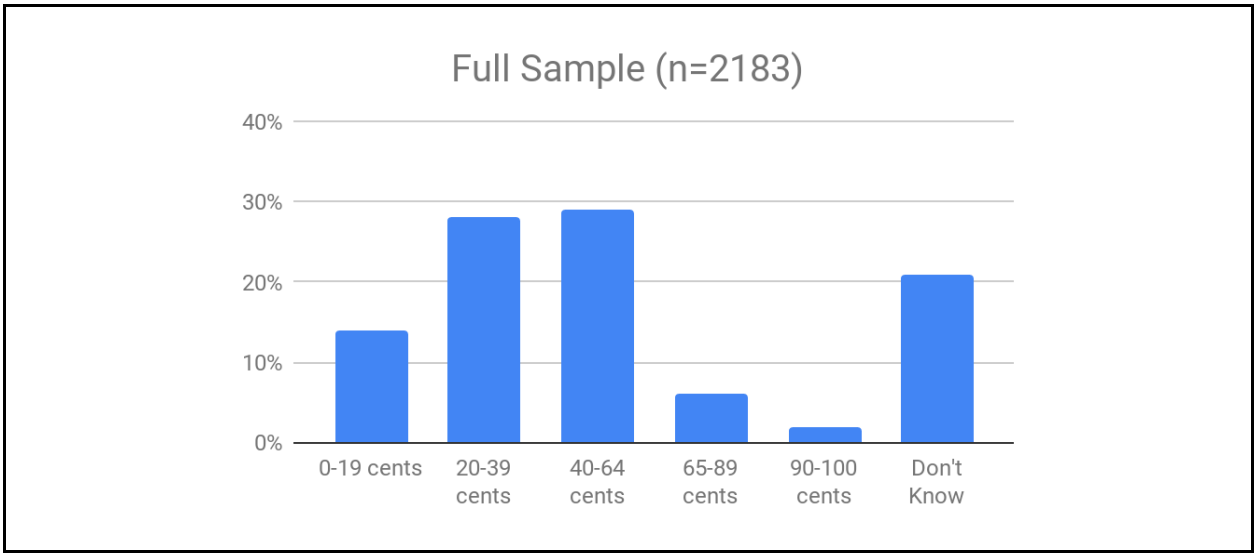


Figure 5: Question 2, Weighted Percentage Breakdown by Category

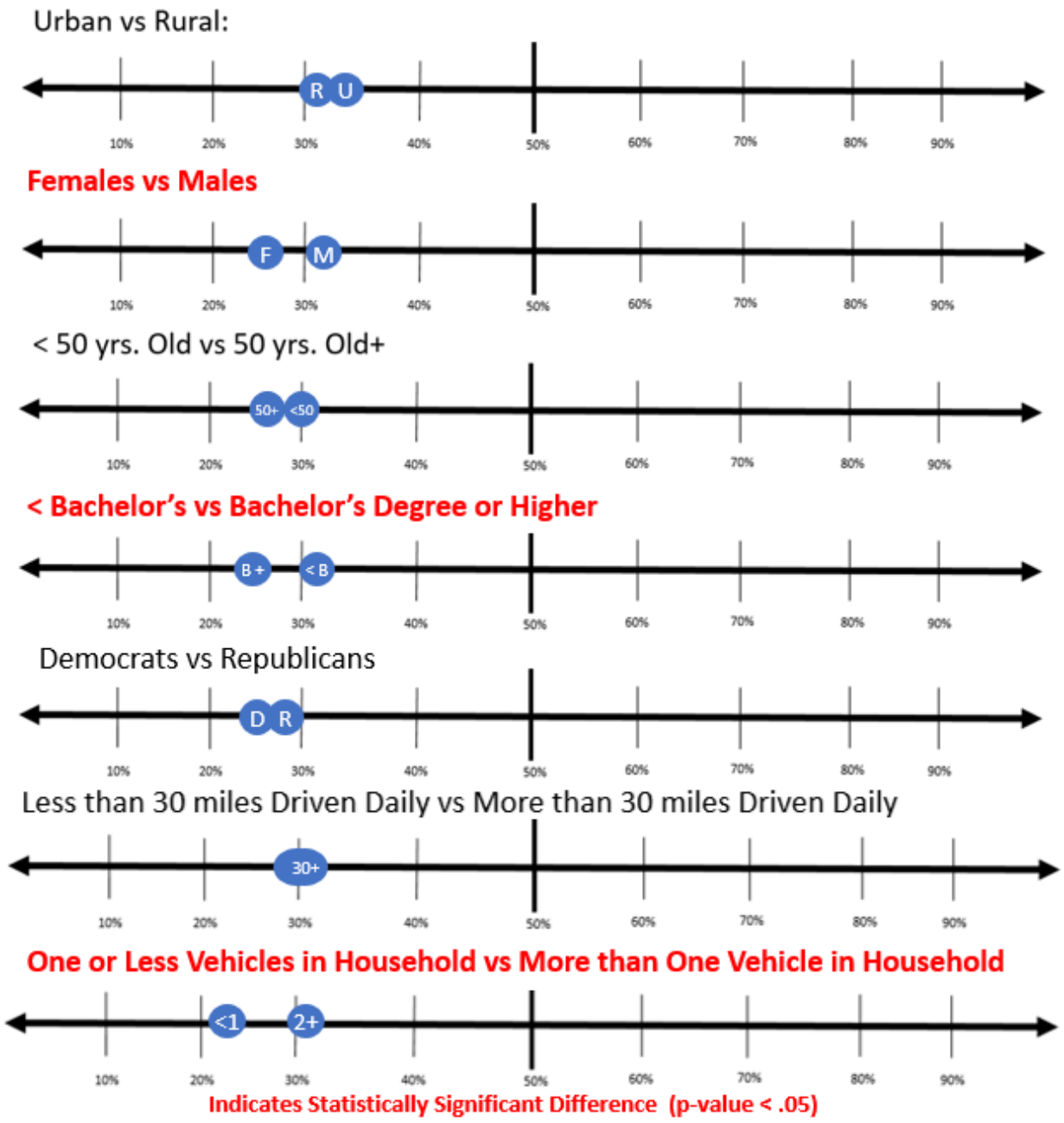


Figure 6: Question 2, Accuracy of Answer, Difference by Group

Question 3

The third question asked respondents to provide feedback on the sources of revenues by which roads are paid for; sources related to road usage (gas purchases, toll fees, etc.), or more general sources (sales/property tax, etc.). Survey A respondents were given "general" and "related to the use of road" options, whereas Survey B respondents were provided a description distinguishing the two: *"Some people say that drivers who use the roads more should pay a greater share of the costs of building and maintaining them. This means taxing gas or miles driven, including toll roads. Others say that everyone should contribute more or less equally since everyone benefits from good roads. This means relying more on general taxes, such as the sales tax when you buy goods and services, plus property taxes."*

Respondents were asked to identify which of the two options they preferred.

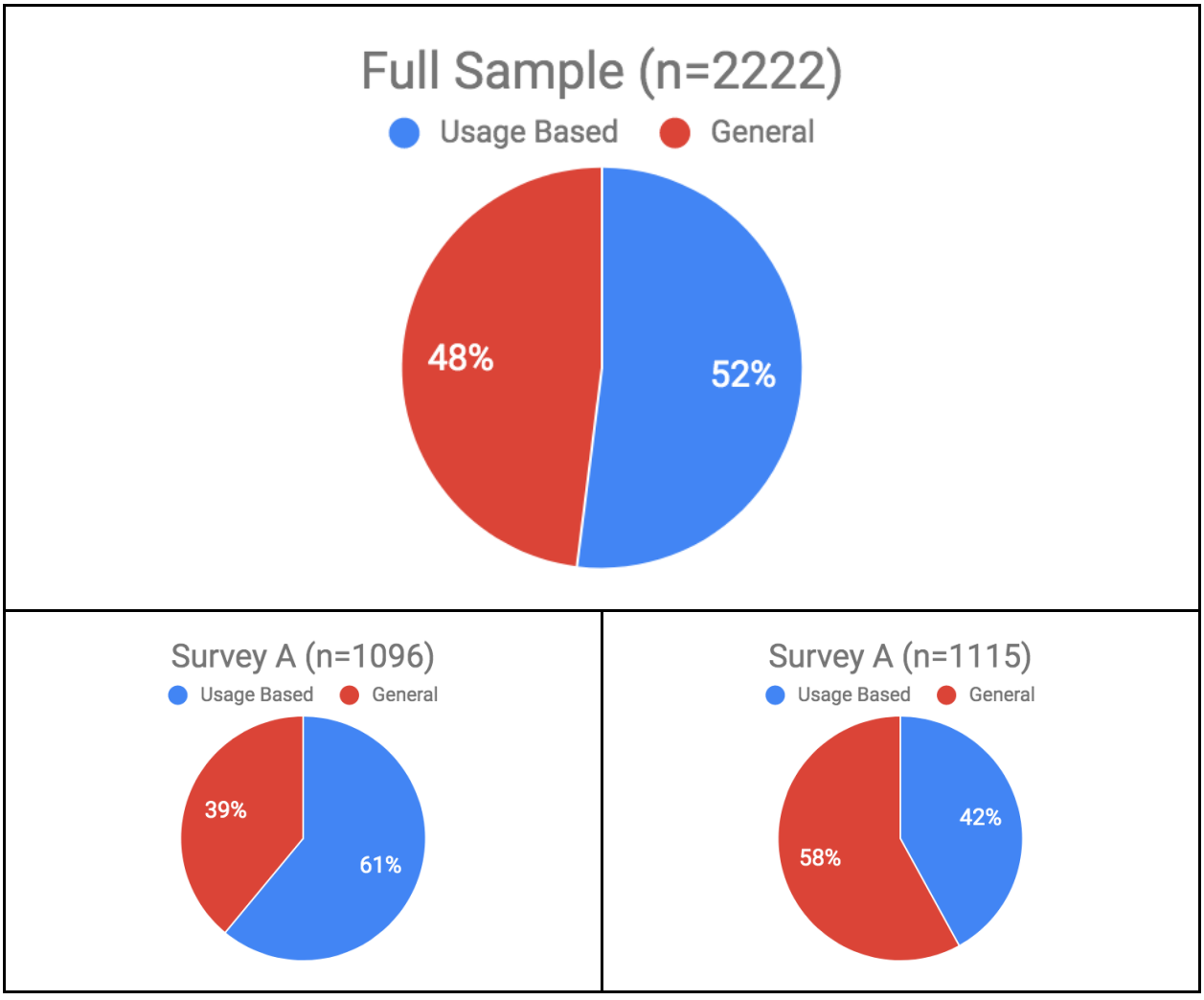


Figure 7: Question 3, Weighted Percentage Breakdown by Category

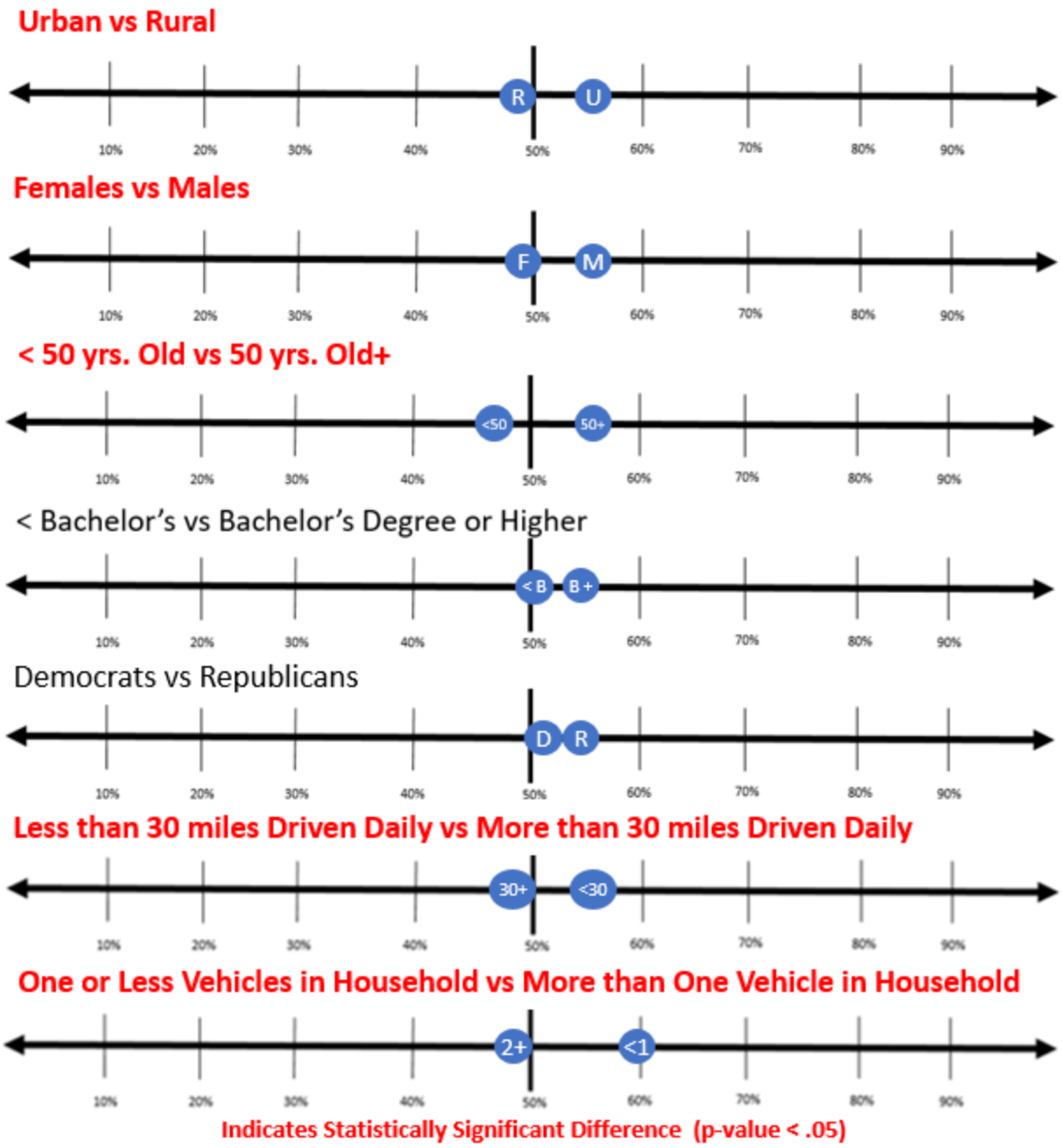


Figure 8: Question 3, Preferred Usage-Based, Difference by Group

Question 4

The fourth question of the survey focuses on some “usage financed” forms of road funding, and how the state should bring in the necessary revenue to pay for infrastructure costs. Specifically, it asks respondents to consider three “per usage” options for road funding:

- Paying by the amount of fuel used
- Paying by the amount of miles driven
- Paying by the weight of the driver’s vehicle

Respondents were asked to rank the three options in terms of preference, where “1” stands for the option they prefer the most, and “3” the option they prefer the least. The following charts show preferences by each option and how frequently it was selected as most, second most, and least desirable choices. The following chart shows how frequently each option was placed into the various categories.

The question did not vary between surveys.

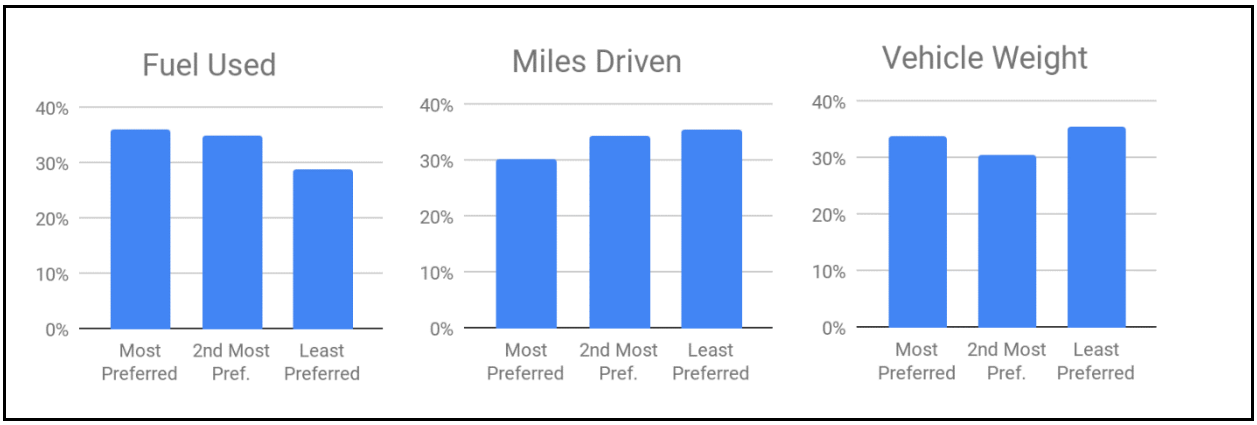


Figure 9: Question 4, Weighted Percentage Breakdown by Category

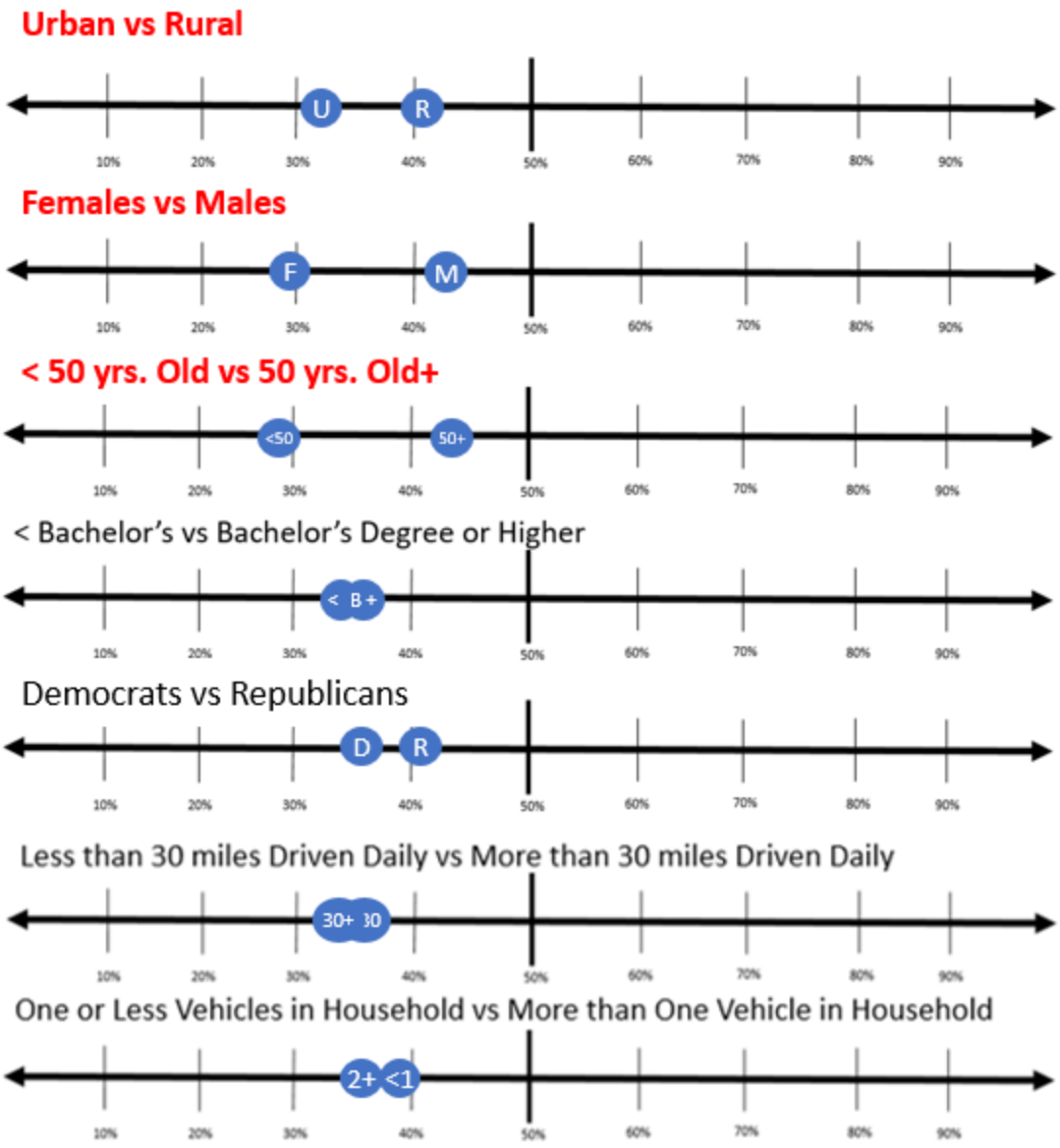


Figure 10: Question 4, Selected Most for Fuel Used, Difference by Group

Question 5

Question 5 asked respondents about their opinions towards travel costs relative to the amount of tax paid. Respondents were informed that the average NC vehicle owner who travels 15,000 miles in one year would pay roughly $300 in gas tax. Furthermore, Survey B respondents exclusively were told that the average NC vehicle owner pays approximately $6,500 every year to operate a vehicle. All respondents were then asked to indicate whether they believed $300 a year was too cheap, too expensive, or a fair price.

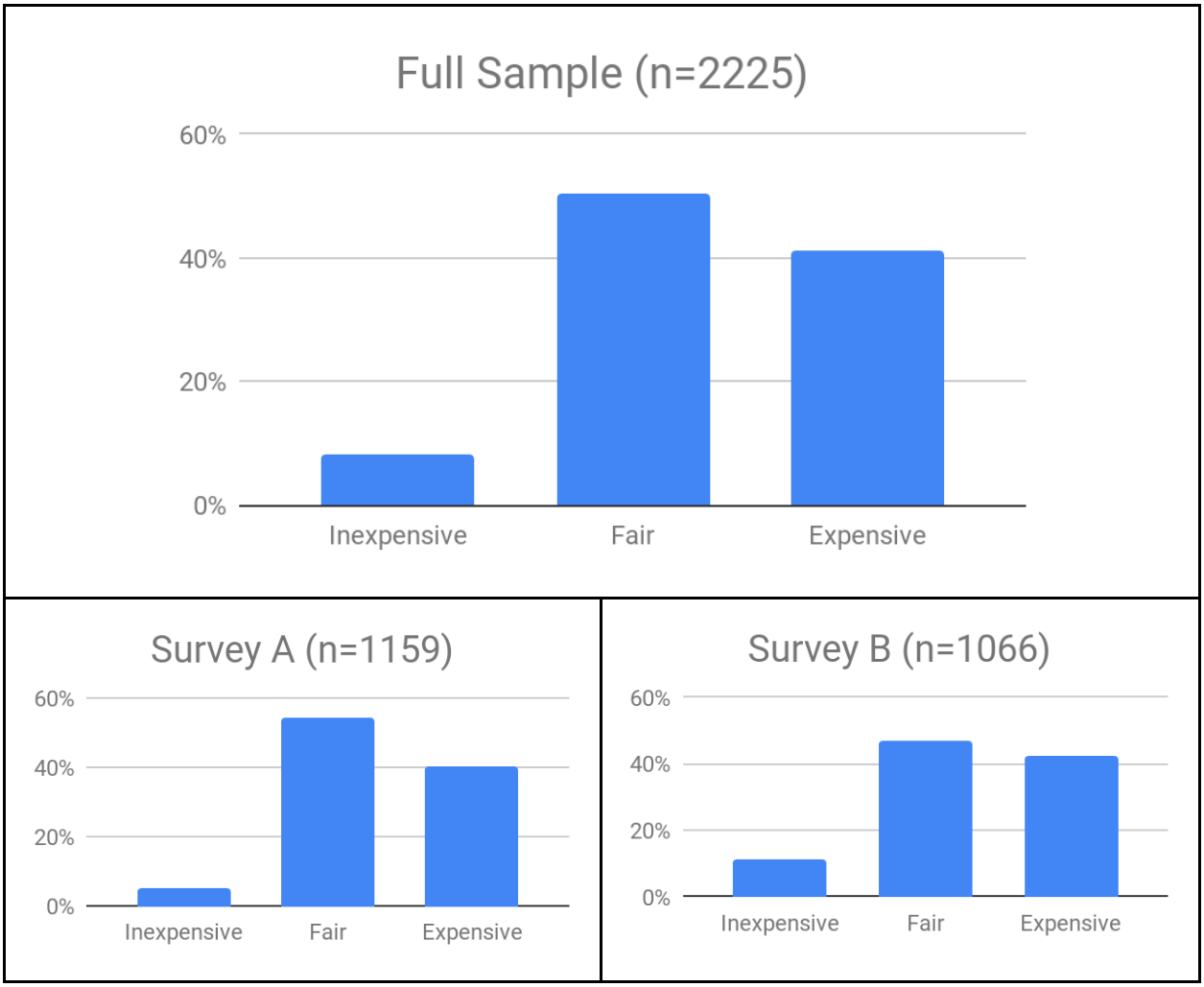


Figure 11: Question 5, Weighted Percentage Breakdown by Category

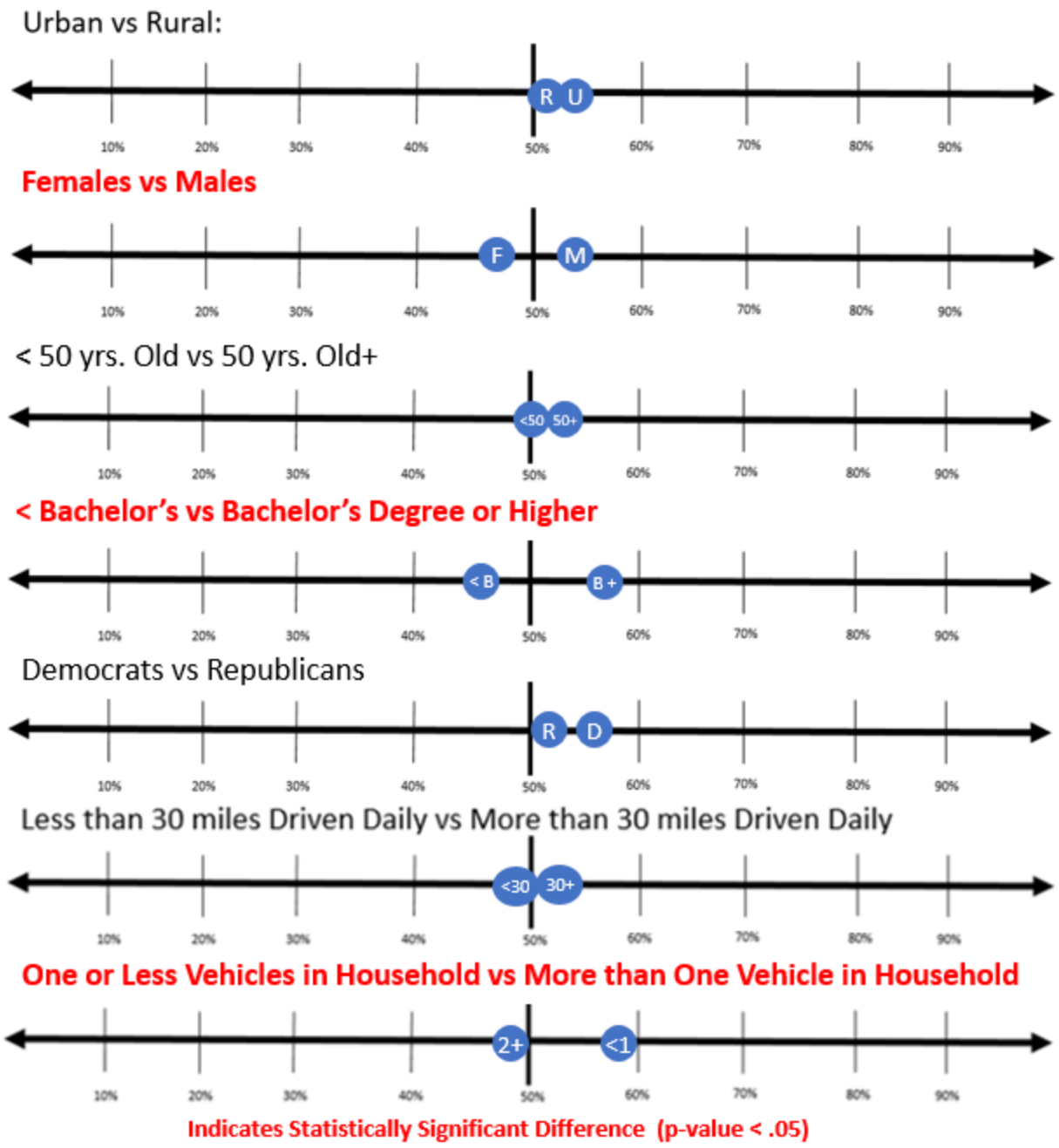


Figure 12: Question 5, Considered Fair, Difference by Group

Question 6

The sixth question asked respondents to select which of two options they would prefer to be used for funding state road projects:

- A fee based on miles driven
- Gas tax

There were no differences between Survey A and B's questions.

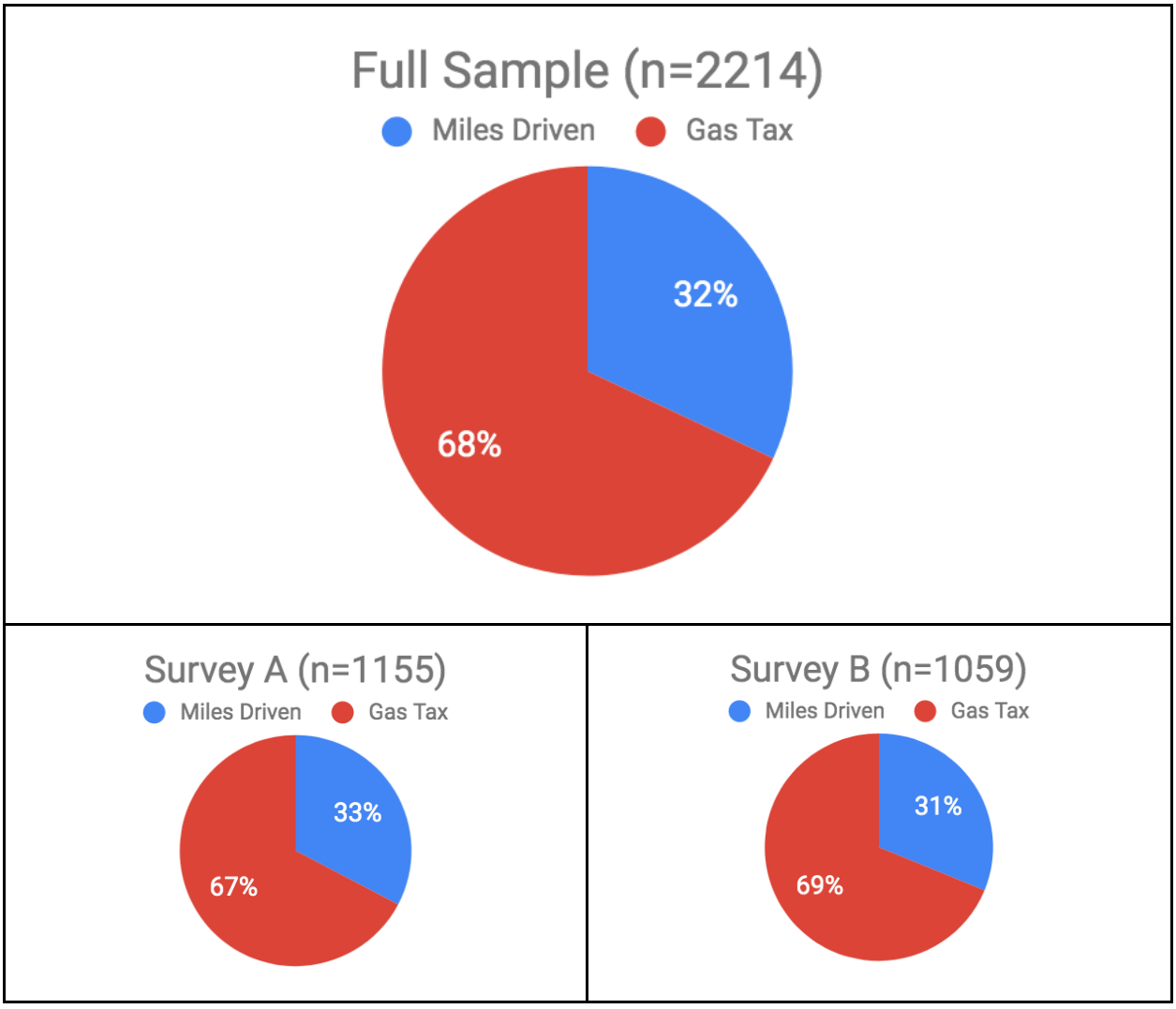


Figure 13: Question 6, Weighted Breakdown by Category

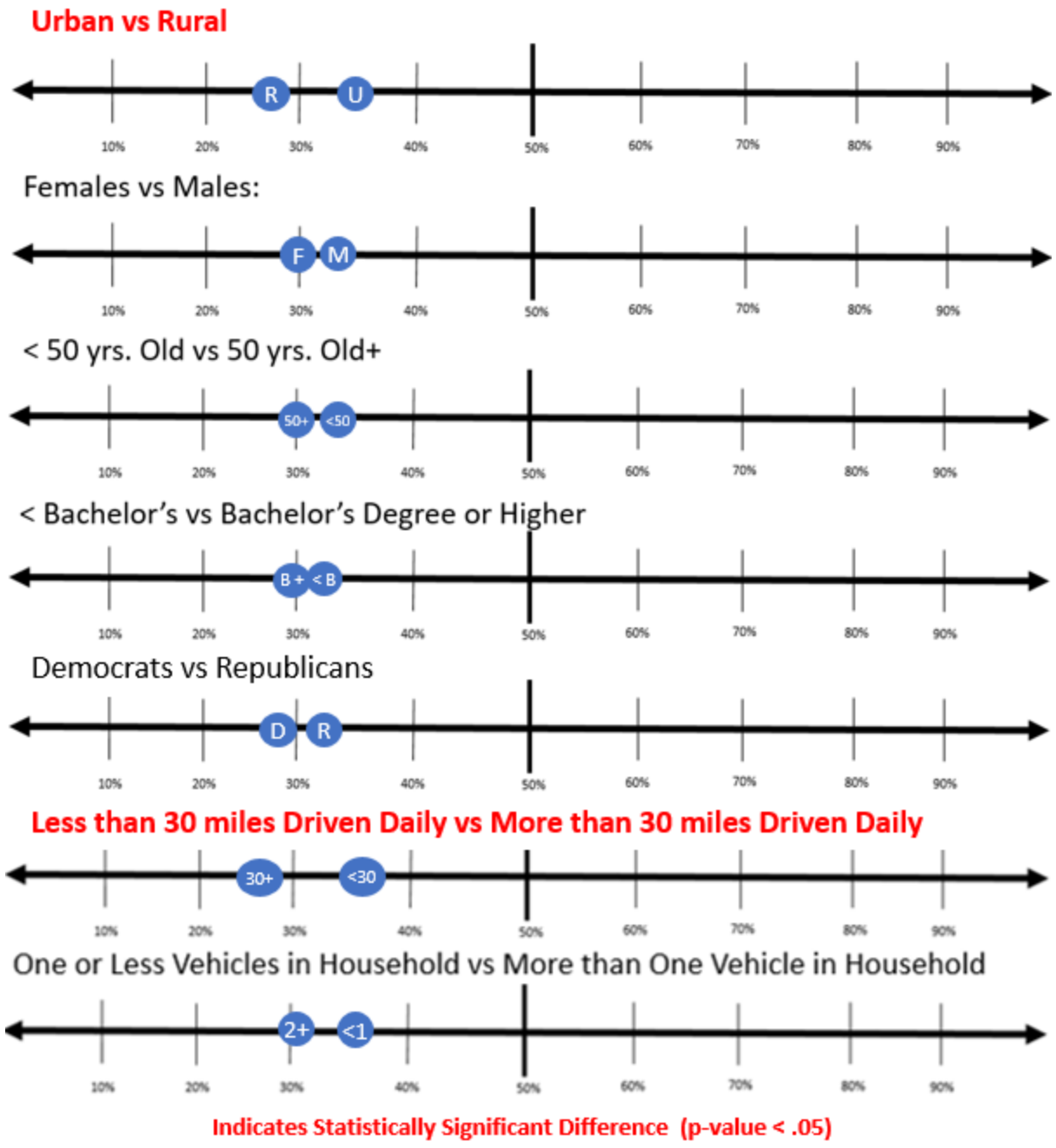


Figure 14: Question 6, Preferred Miles Driven, Difference by Group

Question 7

Question 7 asked respondents the following: "*For the previous question, please explain why you selected the answer you chose.*" This open-ended question allowed respondents to explain, in their own words, why they preferred a mileage-based user fee or a tax on the number of gallons purchased. The majority of reasons for both selecting miles driven fee or gas tax were considered fairness related issues. For the gas tax, a considerable percentage of the reasons were categorized as logistics reasons and environmental reasons.

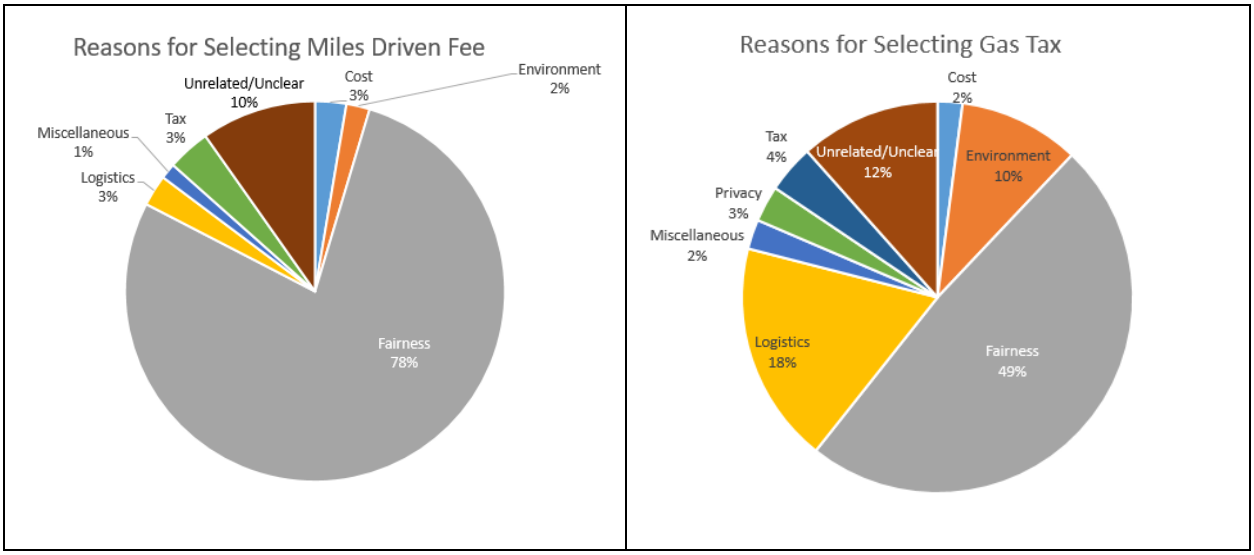


Figure 15: Question 7, Breakdown by Response Category

Question 8

Question 8 lists several common types of taxes and fees, and how much they contribute to roads in NC.

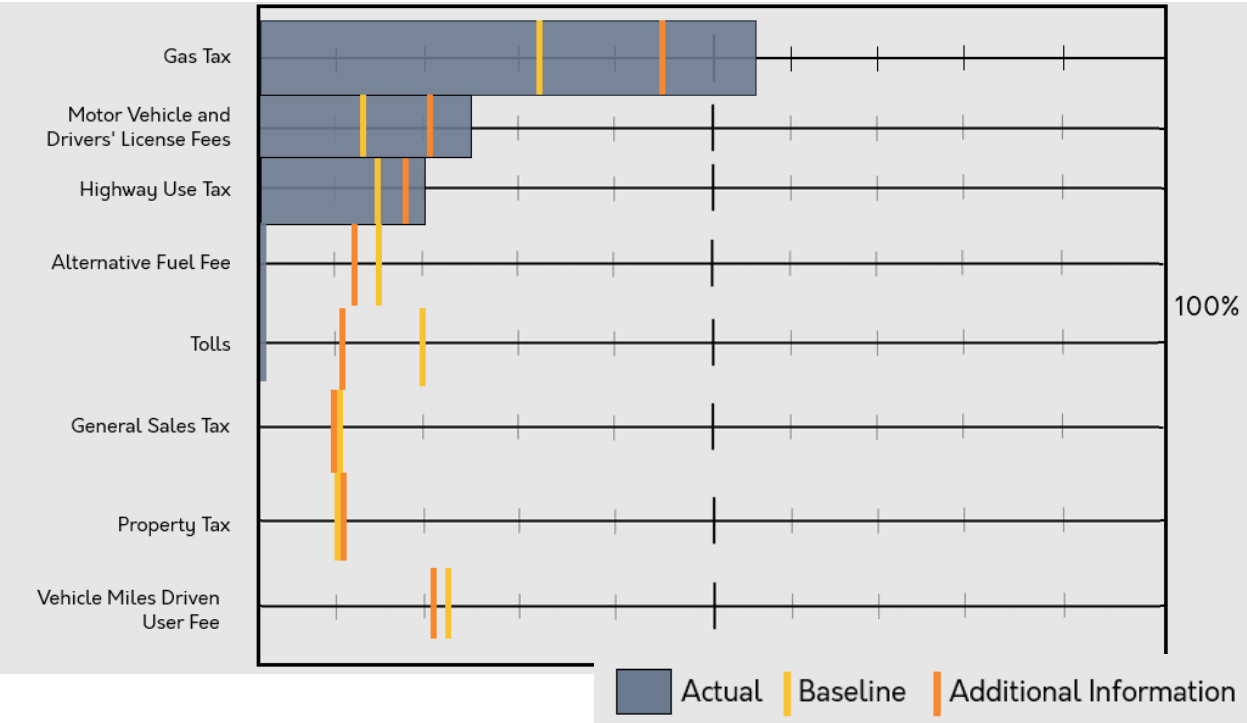
- Alternative Fuel Fee
- Gas Tax
- General Sales Tax
- Highway Use Tax (tax on vehicle purchases)
- Motor Vehicle and Drivers' License Fees
- Property Tax
- Tolls
- Vehicle Miles Driven User Fee

The question has the respondent imagine that they were responsible for determining which taxes and fees are used to pay for NC roads. This question then asks the respondent to indicate how much each of the potential revenue sources they would choose to contribute to NC roads? Answers could range from 0% to 100%, but the total contribution cannot exceed 100%. Survey B respondents were asked to provide what they thought the present make-up of how transportation is funded by revenue source, while Survey A respondents were not.

Table 7: Question 8, Weighted Percentage Breakdown by Category

Revenue Source	Actual	Full Sample		Survey A		Survey B	
		Average	Standard Deviation	Average	Standard Deviation	Average	Standard Deviation
Alternative Fuel Fee	Less than 0.1%	13.9%	12.5%	15.5%	13.3%	12.1%	11.1%
Gas Tax	55%	39.7%	22.9%	34.7%	25.4%	45.3%	18.1%
General Sales Tax	0%	10.9%	12.7%	11.2%	10.7%	10.2%	16.3%
Highway Use Tax	20%	16.0%	9.0%	14.9%	10.5%	17.1%	7.0%
Motor Vehicle and Drivers' License Fees	25%	17.3%	10.2%	13.6%	9.8%	21.0%	9.3%
Property Tax	0%	10.5%	9.6%	10.4%	8.6%	10.7%	11.9%
Tolls	Less than 0.1%	16.7%	17.8%	20.0%	17.6%	11.7%	17.1%
Vehicle Miles Driven User Fee	0%	22.4%	21.5%	23.1%	21.9%	21.2%	20.9%

Figure 16: Question 8, Comparison of Results by Survey Type



Question 9

Question 9 asked respondents to consider hybrid vehicles. Since hybrid vehicles are more fuel efficient, they often ultimately pay less in gas taxes because they drive further for each gallon of gas purchased. Respondents were asked to indicate whether they support or oppose the concept of hybrid owners paying less to use the roads.

Survey A respondents were presented with nothing more than the question as stated above. Survey B respondents had the following statement added to the question they read: “Similarly, drivers of electric vehicles do not pay any gas tax – however, they do pay $130 each year for their use of the roads.”

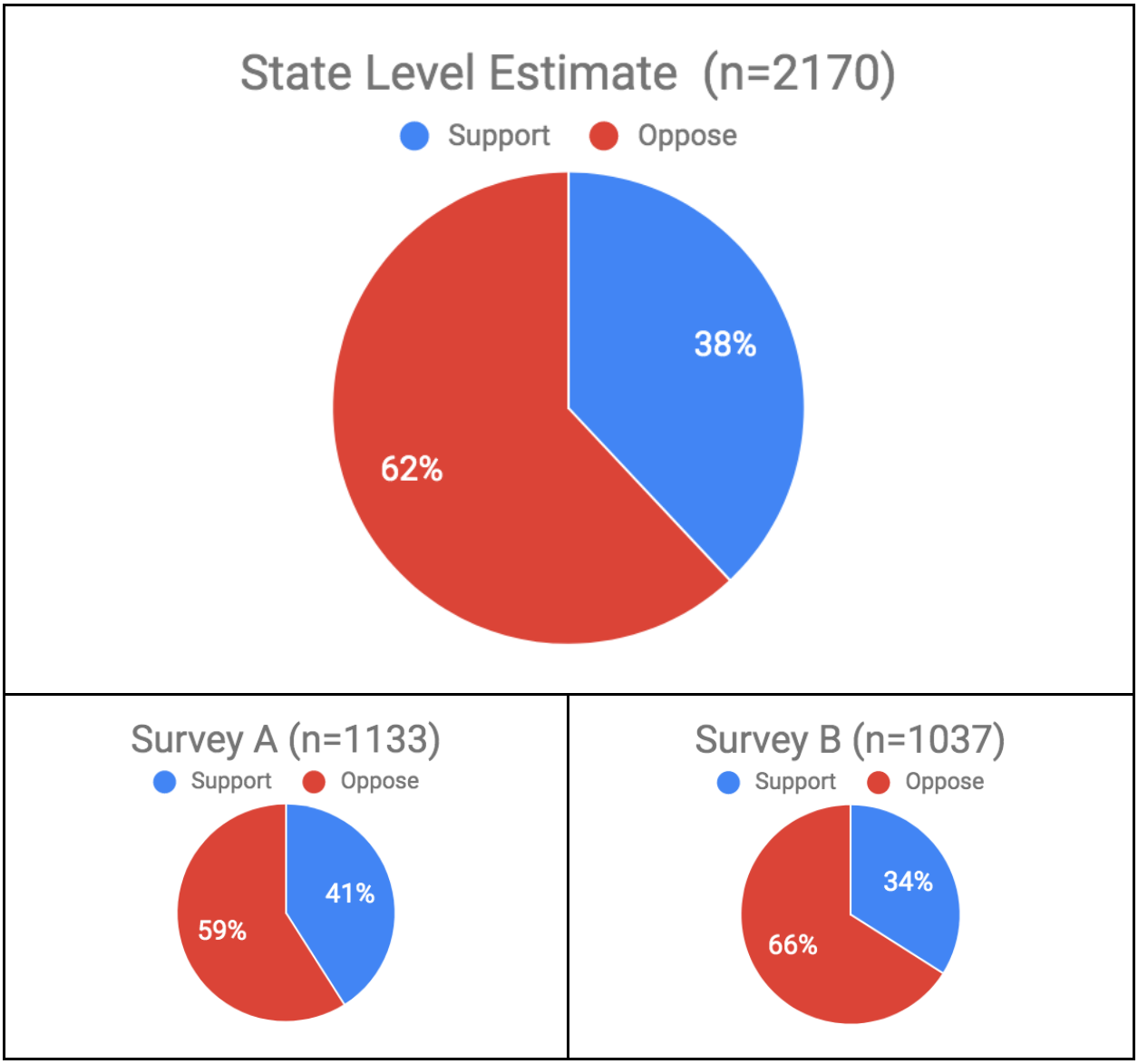


Figure 17: Question 9, Weighted Percentage Breakdown by Category

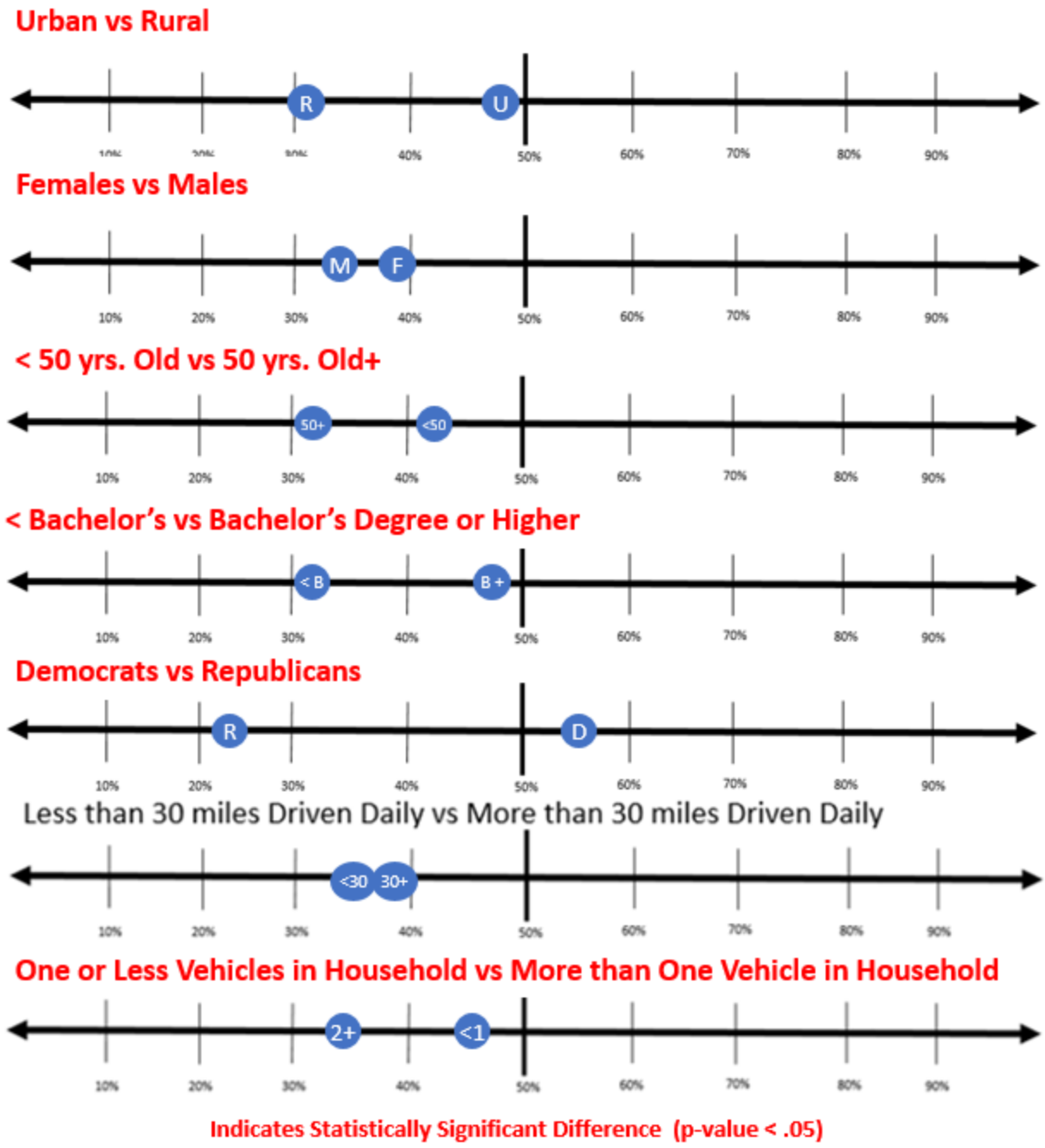


Figure 18: Question 9, Supported Statement, Difference by Group

Question 10

Question 10 asked its respondents to simply answer whether they had paid a toll to use a road within the past year. If respondents noted that they had, they were asked to indicate where they had paid that toll in North Carolina, another state, or both. Questions were the same across Surveys A and B.

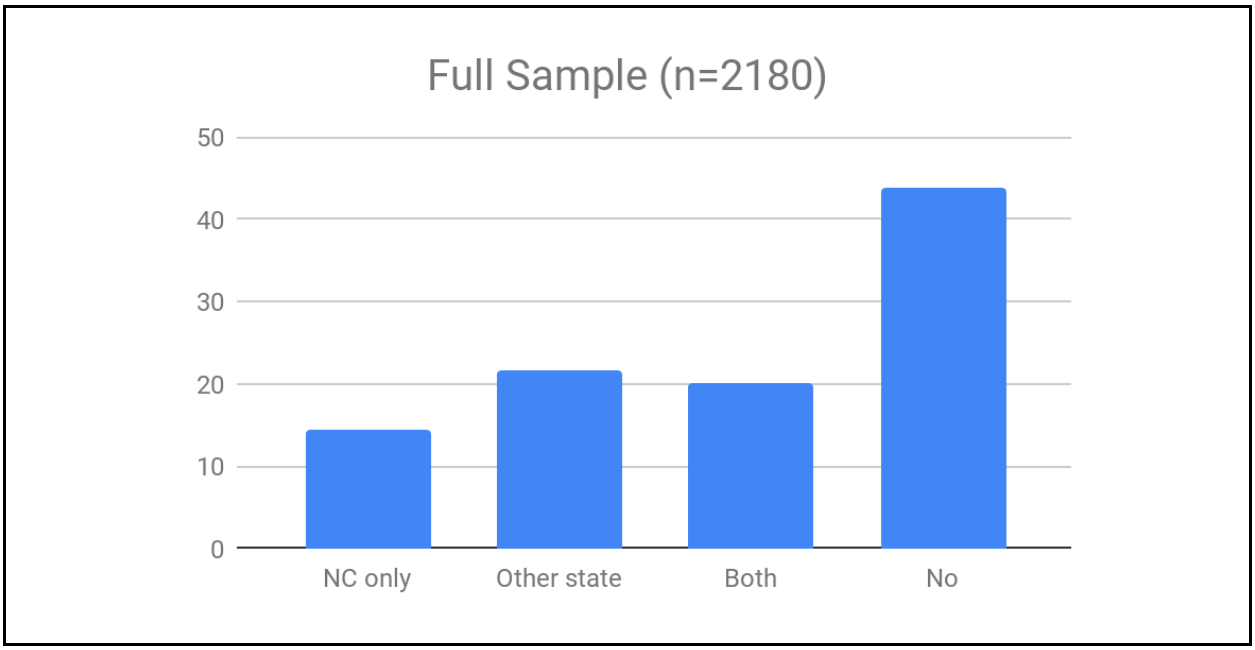


Figure 19: Question 10, Weighted Percentage Breakdown by Category (Road Tolls)

Question 11

Question 11 asked its respondents to note how often they drive across three time periods: How many days per week, how many miles per day, and how many minutes per day. Questions were the same across Surveys A and B.

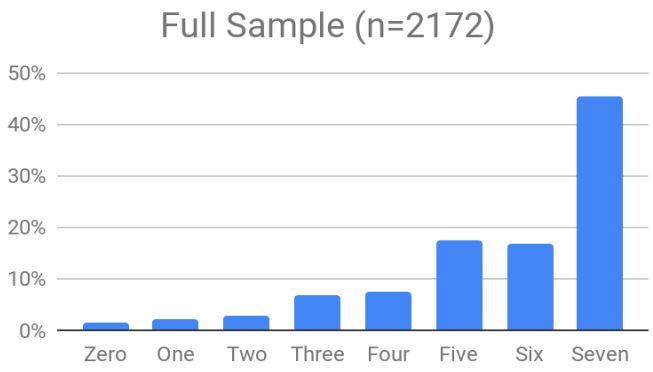
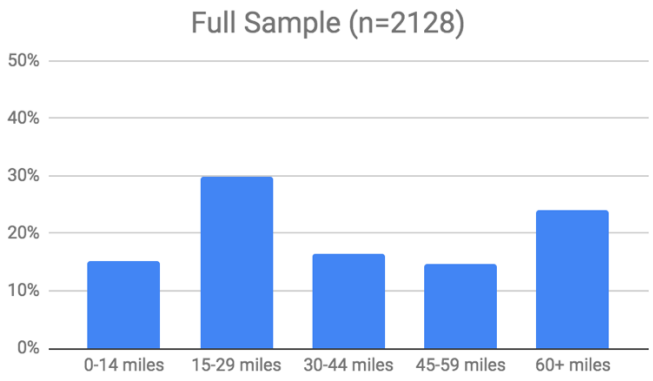
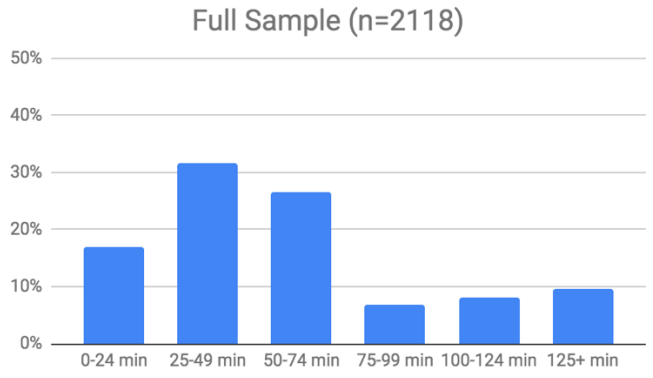
Days per Week	
Miles per Day	
Minutes per Day	

Figure 20: Question 11, Weighted Percentage Breakdown by Category

Question 12

This question asked respondents to indicate if they had a job that required them to use their car outside of commuting to and from work. Respondents who answered “yes” were asked to break their responses down into “most of the time” or “just some of the time.”

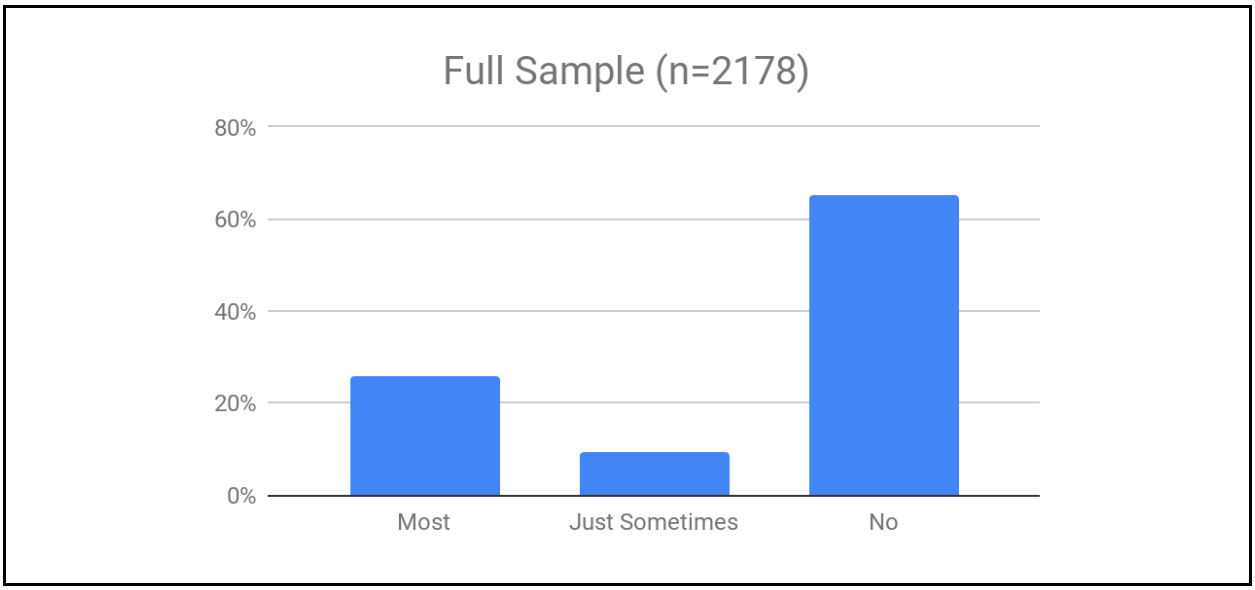


Figure 21: Question 12, Weighted Percentage Breakdown by Category (Car Usage for Work)

Question 13

This question asked respondents to reply with the number of people living in their home, including themselves. The question did not vary between surveys.

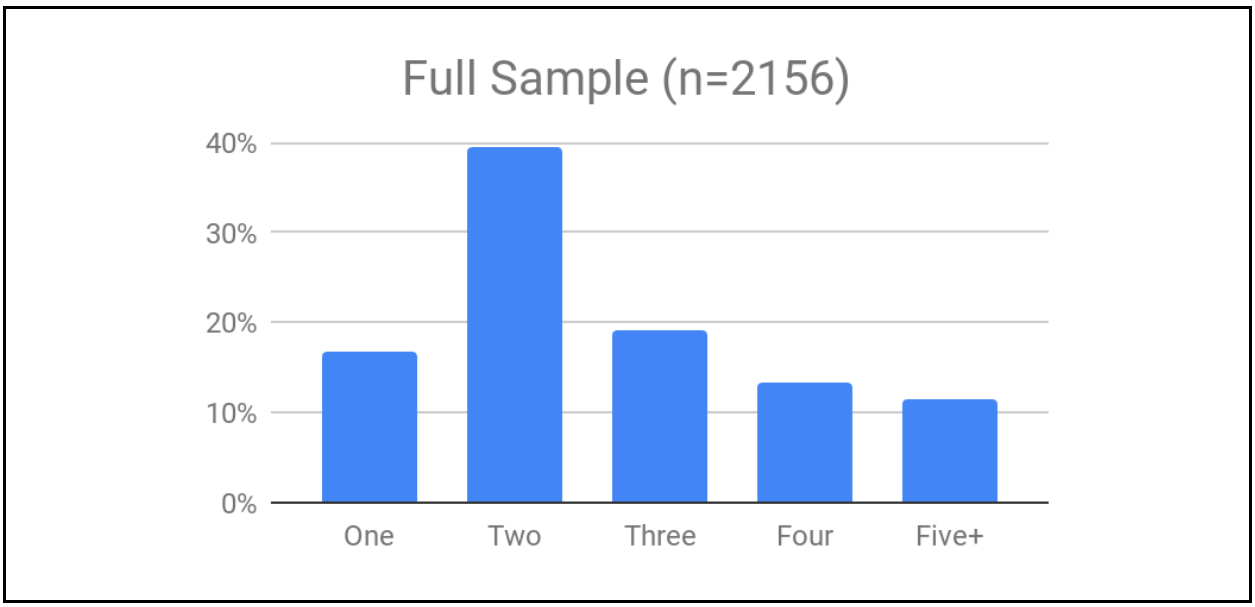


Figure 22: Question 13, Weighted Percentage Breakdown by Category (Number of Occupants per Household)

Question 14

This question asked respondents to reply with the number of cars owned by someone living in their home, including themselves. The question did not vary between surveys.

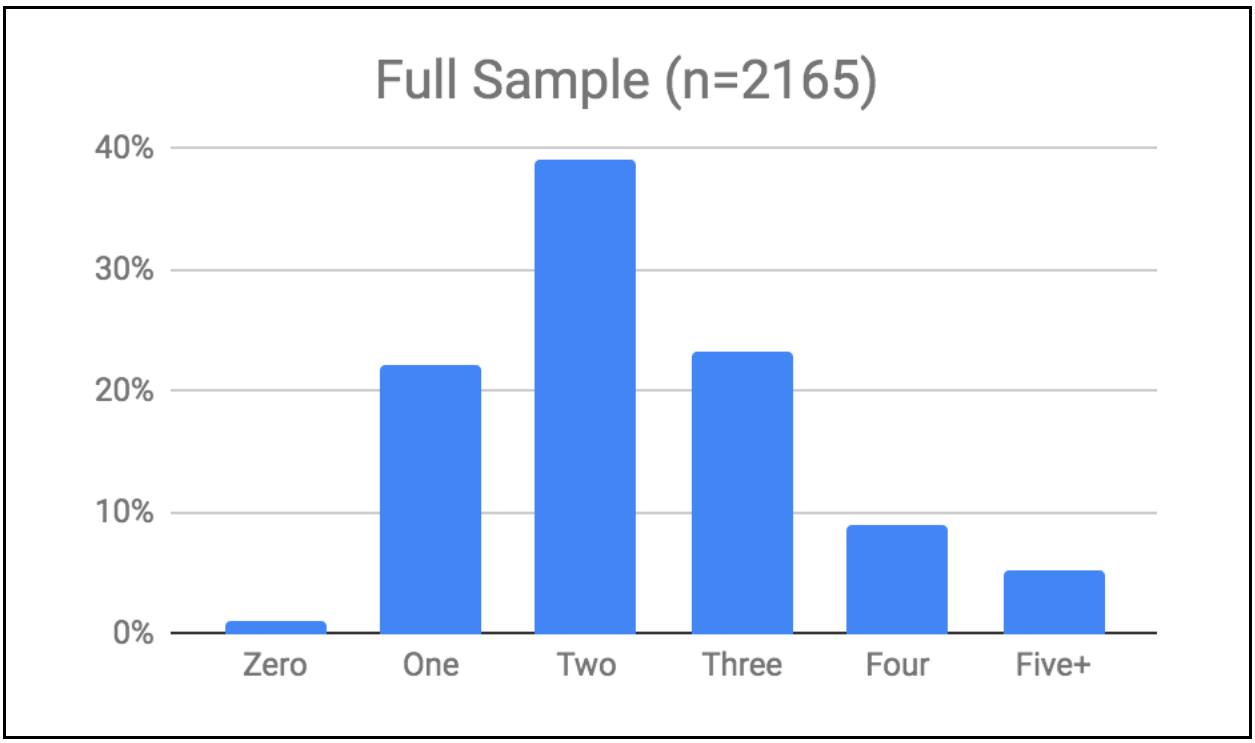


Figure 23: Question 14, Weighted Percentage Breakdown by Category (Number of Vehicles in Household)

Question 15

This question asked respondents to respond with the best description of their vehicle from the following categories:

- Gas
- Diesel
- Hybrid
- Electric
- Other
- I don't use a vehicle/not applicable

The question did not vary between surveys.

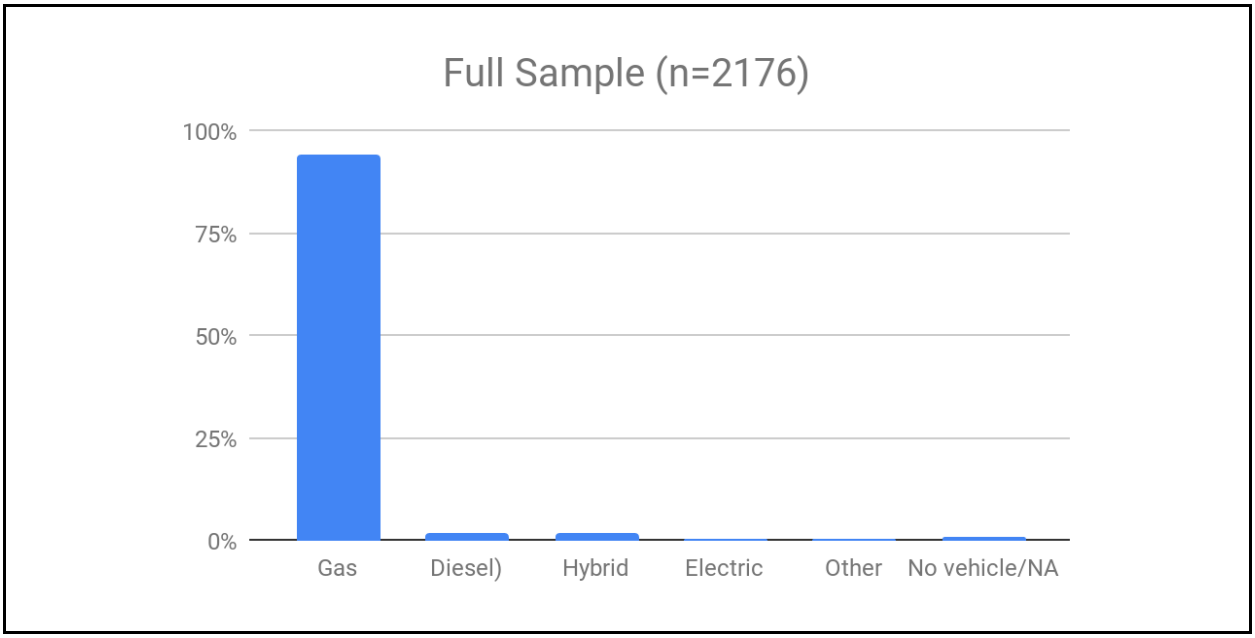


Figure 24: Question 15, Weighted Percentage Breakdown by Category (Vehicle Type)

Question 17

This question asked respondents to identify how many miles they had driven in the vehicle they used most frequently during the past twelve months. The question did not vary between surveys.

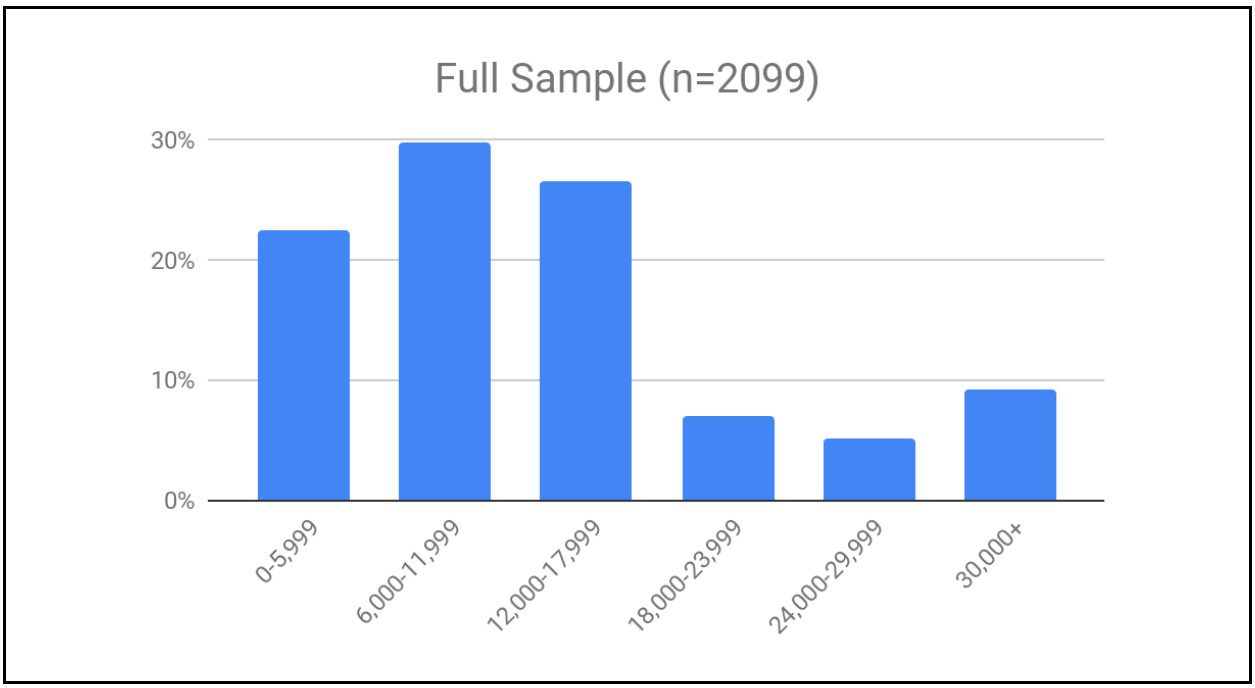


Figure 25: Question 17, Weighted Percentage Breakdown by Category (Miles Traveled)

Question 18

This question asked respondents to identify their gender. The question did not vary between surveys.

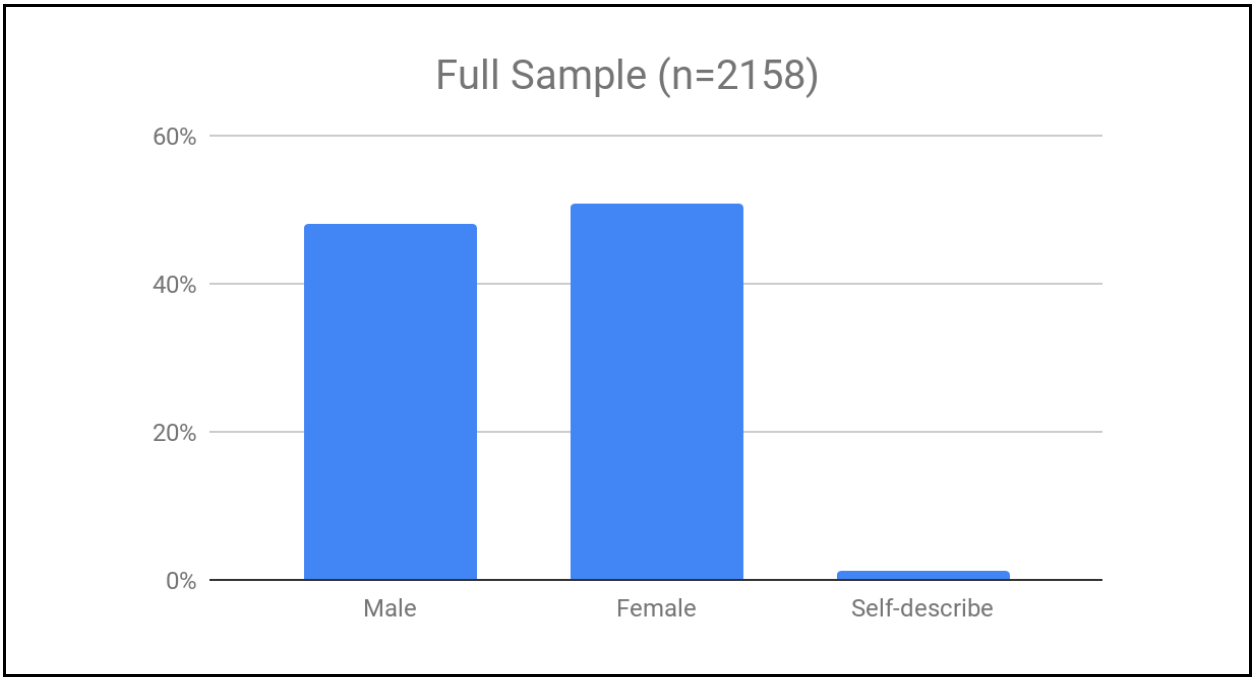


Figure 26: Question 18, Weighted Percentage Breakdown by Category (Gender)

Question 19

Question 19 asked respondents to indicate the highest level of education they had achieved: No education, High School degree/GED, Associate's degree, Bachelor's degree, or an advanced degree such as a Master's or a Ph.D. The question did not vary between surveys.

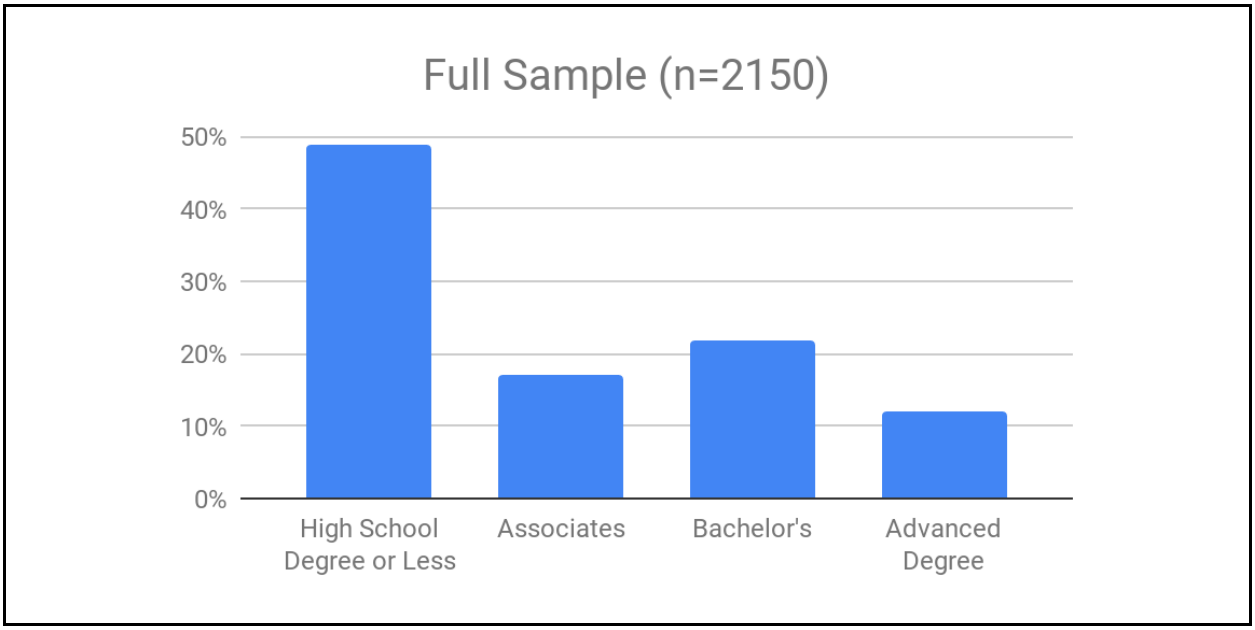


Figure 27: Question 19, Weighted Percentage Breakdown by Category (Education)

Question 20

Question 20 asked respondents to note their age at the time of survey response. The question did not vary between surveys.

Q20: Weighted Percentage Breakdown by Category (Age)

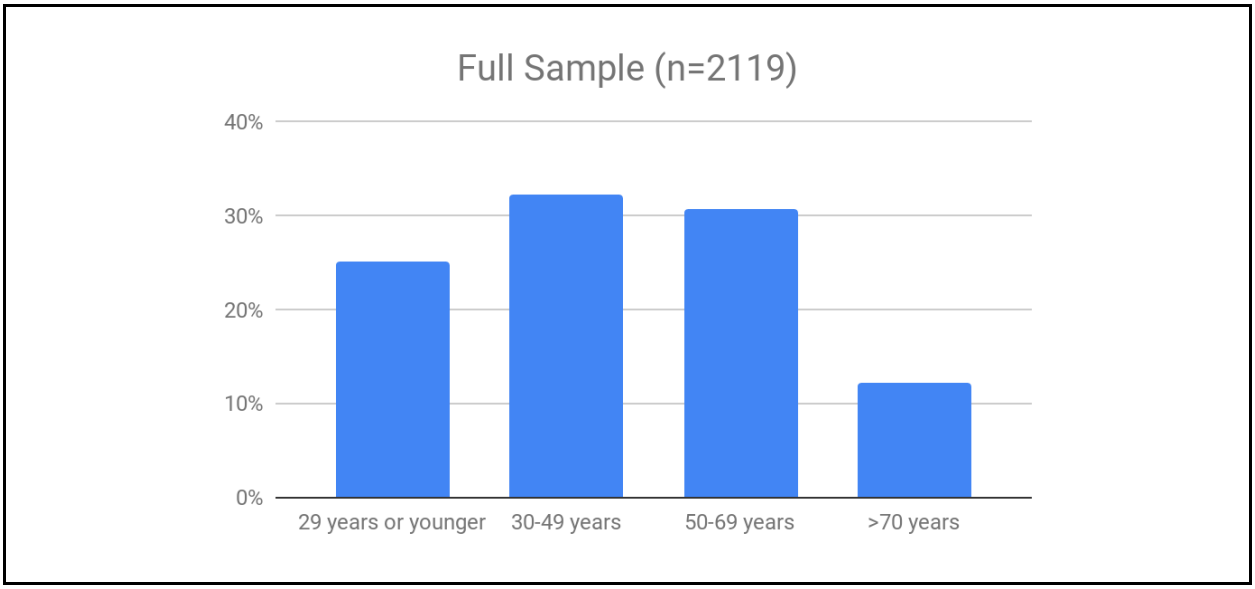


Figure 28: Question 20, Weighted Percentage Breakdown by Category (Age)

Question 21

Question 21 asked respondents to note their political preferences from the below options.

- I strongly prefer the Democrats.
- I prefer the Democrats.
- I am mostly independent, but lean towards the Democrats.
- I am independent, I have no preference for either party.
- I am mostly independent, but lean towards the Republicans
- I prefer the Republicans
- I strongly prefer the Republicans

The question did not vary between surveys.

Q21: Weighted Percentage Breakdown by Category (Political Preference)

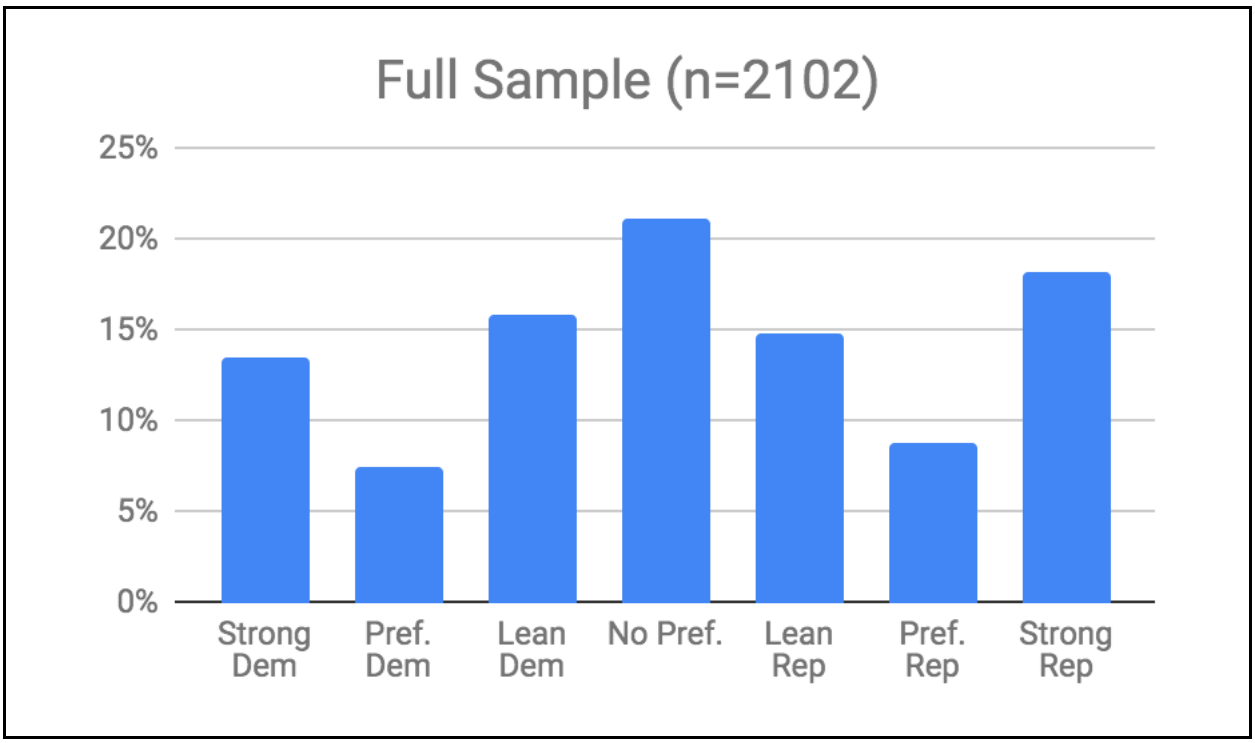


Figure 29: Question 21, Weighted Percentage Breakdown by Category (Political Preference)

Conclusion

Survey Findings

Several findings emerged regarding North Carolina residents' perceptions of transportation taxes and fees. Overall, North Carolinians support increasing transportation funding, North Carolinians are split over whether road funding should come from general taxes or usage-based fees, but the results suggest a preference for the gas tax; however, there also appears to be support for a diversity of funding sources, such as using motor vehicle and drivers' license fees and a highway use tax. A fee based on the amount of miles driven was supported by North Carolinians to contribute approximately 20% of funding for the state. Although much attention has been directed towards privacy concerns for vehicle miles driven fees, only a few percent of North Carolinians expressed these concerns in an open-ended question format. There also seemed to be very few major differences in preference and opinion between demographic groups. Despite popular opinion, this study showed that rural and urban North Carolinians share many common opinions when it comes to transportation funding in the state.

There were several instances where providing background information did have an impact on overall support. For example, preferences for general-based transportation taxes and fees were 14 percent greater when given the knowledge-based survey than when compared to the baseline survey response. Second, there also appears to be differences by demographic group regarding support for transportation funding increase. For example, those living in urban areas, males, those 50 years or older, those with a Bachelor's degree or higher, and self-identified Democrats tend to be more supportive of transportation funding increase, while those living in rural areas, females, those less than 50 years old, those with less than a Bachelor's degree, and self-identified Republicans tend to be less supportive. It is worth noting, however, that the effect sizes of these differences were small.

Findings Relevant for NCDOT

Several findings emerged that are relevant to NCDOT. For example, knowledge of the correct gas tax rate in North Carolina was correctly identified (combined federal and state) by 28 percent of respondents. However, little difference was observed between Survey B (with additional background on the federal and state gas tax) and Survey A (no background information provided). The results also suggest that while many did not know the correct gas tax rate, surprisingly most residents thought they paid a fair amount in transportation taxes and fees. This might suggest that additional research could be conducted to help NCDOT better communicate the correct amount of federal and state gas tax paid at the pump.

Secondly, a majority of North Carolina residents support a transportation funding increase: more than 55 percent of North Carolinians support an increase in transportation spending in the state. Furthermore, this is consistent for all demographic groups, with the exception of self-identified

Republicans and individuals with a Bachelor's degree or higher. Notably, only 9 percent of North Carolinians believe that the state should decrease the amount it spends on transportation.

Preference for which method North Carolinians prefer to pay for transportation is clear: 68 percent of North Carolinians preferred funding transportation in the state with the gas tax over the vehicle-miles driven fee. This preference was consistent among all demographic groups, with only slight increases in preferences for a miles driven fee among urban residents and people who drive fewer than 30 miles a day. When asked to explain their selection, respondents provided reasons related to fairness, logistics, environmental, or privacy. For those that preferred a miles driven fee, the overwhelming reason respondents provided was fairness.

Finally, respondents were asked to budget how much a transportation funding source (e.g., gas tax, motor vehicle and license fee, alternative fuel fee, tolls, general sales tax, property tax, vehicle miles driven fee) should contribute to transportation funding in the state. Despite given these choices, respondents on average still largely prefer that the gas tax contribute the most to transportation funding; however, some were open to diversifying the transportation funding sources somewhat.

Future Research Needs

During the course of this research, several opportunities for future investigation were identified. First, there were several examples where providing background information had an effect on the respondent; however, it was unclear exactly what effect that additional information provided. For example, preference for general-tax based funding was 14 percentage points higher for the information survey than the baseline version. The presence of this additional wording in this question changed how respondents reacted to this question. Additional research could be conducted, perhaps through targeted focus groups that better assesses how information communicated to the public affects support for transportation funding options.

This survey is the first of its kind in North Carolina: therefore, this presents an opportunity for this transportation funding survey to be re-administered in the future. There are several benefits to longitudinal surveys: they can be effective at determining patterns over time, they can ensure focus and validity, and they can prove highly accurate when observing changes over time. For example, Mineta Transportation Institute has conducted an 10 surveys over the past 10 years assessing Americans' opinions about federal tax options to support transportation. As a result of this effort, researchers are able to assess funding perception trends over time. Future surveys could help provide an overall perspective on how attitudes toward transportation funding by North Carolinians have changed.

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Appendix 1: Cross-Tabulation Tables

Question 1: Tabulation of Survey Results

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	Increase spending	595	49%
	Currently spends the right amount	412	37%
	Decrease spending	83	7%
	No Opinion	77	7%
	Survey A Total	1167	100%
Survey B	Increase spending	628	60%
	Currently spends the right amount	283	21%
	Decrease spending	86	11%
	No Opinion	81	8%
	Survey B Total	1078	100%
Combined	Increase spending	1223	55%
	Currently spends the right amount	695	29%
	Decrease spending	169	9%
	No Opinion	158	7%
	Combined Survey Total	2245	100%

Question 2: Tabulation of Survey Responses

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	0 to 19 cents	135	14%
	20 to 39 cents	404	28%
	40 to 64 cents	301	29%
	65 to 89 cents	89	6%
	90 to 100 cents	18	2%
	Don't know	218	21%
	Survey A Total	1165	100%
Survey B	0 to 19 cents	240	25%
	20 to 39 cents	373	40%
	40 to 64 cents	328	27%
	65 to 89 cents	66	6%
	90 to 100 cents	21	2%
	Don't know	1028	100%
	Survey B Total	240	25%
Combined	0 to 19 cents	438	20%
	20 to 39 cents	753	34%
	40 to 64 cents	618	28%
	65 to 89 cents	131	6%
	90 to 100 cents	41	2%
	Don't know	228	10%
	Combined Survey Total	2209	100%

Question 3: Tabulation of Survey Responses

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	Sources of revenue directly related to the use of the road (such as fees from gasoline, tolls, or based on the miles a vehicle is driven in one year)	732	61%
	Sources of revenue supported by the general public (such as general sales taxes, property tax, or vehicle property tax)	427	39%
	Survey A Total	1159	100%
Survey B	Sources of revenue directly related to the use of the road (such as fees from gasoline, tolls, or based on the miles a vehicle is driven in one year)	519	42%
	Sources of revenue supported by the general public (such as general sales taxes, property tax, or vehicle property tax)	544	58%
	Survey B Total	1063	100%
Combined	Sources of revenue directly related to the use of the road (such as fees from gasoline, tolls, or based on the miles a vehicle is driven in one year)	1251	52%
	Sources of revenue supported by the general public (such as general sales taxes, property tax, or vehicle property tax)	971	48%
	Combined Survey Total	2222	100%

Question 4: Tabulation of Survey Responses (Fuel used)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	Most Preferred	485	34%
	Second Most Preferred	361	37%
	Least Preferred	316	29%
	Survey A Total	1162	100%
Survey B	Most Preferred	451	38%
	Second Most Preferred	347	33%
	Least Preferred	269	29%
	Survey B Total	1067	100%
Combined	Most Preferred	936	36%
	Second Most Preferred	708	35%
	Least Preferred	585	29%
	Combined Survey Total	2229	100%

Question 4: Tabulation of Survey Responses (Miles Driven)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	Most Preferred	301	33%
	Second Most Preferred	409	35%
	Least Preferred	450	32%
	Survey A Total	1160	100%
Survey B	Most Preferred	280	27%
	Second Most Preferred	341	34%
	Least Preferred	446	39%
	Survey B Total	1067	100%
Combined	Most Preferred	581	30%
	Second Most Preferred	750	34%
	Least Preferred	896	36%
	Combined Survey Total	2227	100%

Question 4: Tabulation of Survey Responses (Vehicle weight)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	Most Preferred	376	33%
	Second Most Preferred	388	28%
	Least Preferred	395	39%
	Survey A Survey Total	1159	100%
Survey B	Most Preferred	337	35%
	Second Most Preferred	378	33%
	Least Preferred	352	32%
	Survey B Survey Total	1067	100%
Combined	Most Preferred	713	34%
	Second Most Preferred	766	30%
	Least Preferred	747	36%
	Combined Survey Total	2226	100%

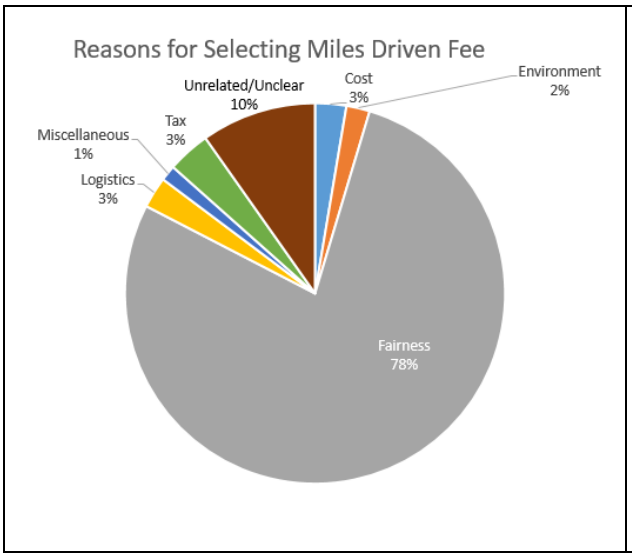
Question 5: Tabulation of Survey Responses (Gas Tax Cost)

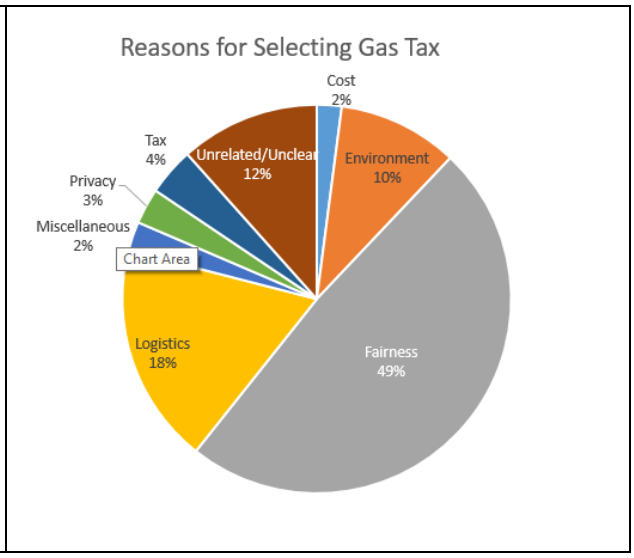
Survey Type	Variable Options	Response (%)	Weighted (%)
Survey A	$300 per year is too inexpensive for driving for 15,000 miles on roads in NC.	136	5%
	$300 per year is a fair price for driving for 15,000 miles on roads in NC.	631	54%
	$300 per year is too expensive for driving for 15,000 miles on roads in NC.	392	40%
	Survey A Survey Total	1159	100%
Survey B	$300 per year is too inexpensive for driving for 15,000 miles on roads in NC.	147	11%
	$300 per year is a fair price for driving for 15,000 miles on roads in NC.	591	47%
	$300 per year is too expensive for driving for 15,000 miles on roads in NC.	328	42%
	Survey B Survey Total	1066	100%
Combined	$300 per year is too inexpensive for driving for 15,000 miles on roads in NC.	283	8%
	$300 per year is a fair price for driving for 15,000 miles on roads in NC.	1222	50%
	$300 per year is too expensive for driving for 15,000 miles on roads in NC.	720	41%
	Combined Survey Total	2225	100%

Question 6: Tabulation of Survey Responses (Fee vs. Tax)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	A fee based on miles driven	320	33%
	A tax paid by gasoline purchases	835	67%
	Survey A Total	1155	100%
Survey B	A fee based on miles driven	346	31%
	A tax paid by gasoline purchases	713	69%
	Survey B Total	1059	100%
Combined	A fee based on miles driven	666	32%
	A tax paid by gasoline purchases	1548	68%
	Combined Survey Total	2214	100%

Question 7: Tabulation of Survey Responses





Question 8: Tabulation of Survey Responses (Alternative Fuel Fee)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	0 percent allocation (Currently the case)	373	27%
	1 to 5 percent allocation	153	19%
	6-10 percent allocation	209	19%
	11-15 percent allocation	71	7%
	16-25 percent allocation	165	17%
	26-100 percent allocation	85	10%
	Survey A Total	1056	100%
Survey B	0 percent allocation (Currently the case)	404	41%
	1 to 5 percent allocation	189	24%
	6-10 percent allocation	147	14%
	11-15 percent allocation	48	4%
	16-25 percent allocation	97	11%
	26-100 percent allocation	42	5%
	Survey B Total	927	100%
Combined	0 percent allocation (Currently the case)	777	34%
	1 to 5 percent allocation	342	21%
	6-10 percent allocation	356	17%
	11-15 percent allocation	119	6%
	16-25 percent allocation	262	14%
	26-100 percent allocation	127	8%
	Combined Survey Total	1983	100%

Question 8: Tabulation of Survey Responses (Gas Tax)

Survey Type	Variable Options	Response (%)	Weighted (%)
Survey A	0 percent allocation	71	5%
	1 to 5 percent allocation	79	13%
	6-10 percent allocation	123	13%
	11-15 percent allocation	61	8%
	16-25 percent allocation	247	20%
	26-100 percent allocation (Currently the case)	479	40%
	Survey A Total	1060	100%
Survey B	0 percent allocation	58	5%
	1 to 5 percent allocation	8	3%
	6-10 percent allocation	24	3%
	11-15 percent allocation	23	1%
	16-25 percent allocation	117	14%
	26-100 percent allocation (Currently the case)	747	75%
	Survey B Total	977	100%
Combined	0 percent allocation	129	5%
	1 to 5 percent allocation	87	8%
	6-10 percent allocation	147	8%
	11-15 percent allocation	84	5%
	16-25 percent allocation	364	17%
	26-100 percent allocation (Currently the case)	1226	57%
	Combined Survey Total	2037	100%

Question 8: Tabulation of Survey Responses (General Sales Tax)

Survey Type	Variable Options	Response (%)	Weighted (%)
Survey A	0 percent allocation (Currently the case)	487	38%
	1 to 5 percent allocation	206	29%
	6-10 percent allocation	212	18%
	11-15 percent allocation	43	6%
	16-25 percent allocation	67	6%
	26-100 percent allocation	38	4%
	Survey A Total	1053	100%
Survey B	0 percent allocation (Currently the case)	700	69%
	1 to 5 percent allocation	143	18%
	6-10 percent allocation	70	7%
	11-15 percent allocation	12	0%
	16-25 percent allocation	19	1%
	26-100 percent allocation	19	4%
	Survey B Total	963	100%
Combined	0 percent allocation (Currently the case)	1187	53%
	1 to 5 percent allocation	349	24%
	6-10 percent allocation	282	13%
	11-15 percent allocation	55	3%
	16-25 percent allocation	86	4%
	26-100 percent allocation	57	4%
	Combined Survey Total	2016	100%

Question 8: Tabulation of Survey Responses (Highway Use Tax)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	0 percent allocation	282	22%
	1 to 5 percent allocation	138	15%
	6-10 percent allocation	274	26%
	11-15 percent allocation	91	11%
	16-25 percent allocation (Currently the case)	194	20%
	26-100 percent allocation	72	6%
	Survey A Total	1051	100%
Survey B	0 percent allocation	167	13%
	1 to 5 percent allocation	50	4%
	6-10 percent allocation	151	17%
	11-15 percent allocation	115	14%
	16-25 percent allocation (Currently the case)	447	48%
	26-100 percent allocation	37	4%
	Survey B Total	167	100%
Combined	0 percent allocation	449	18%
	1 to 5 percent allocation	188	10%
	6-10 percent allocation	425	21%
	11-15 percent allocation	206	13%
	16-25 percent allocation (Currently the case)	641	34%
	26-100 percent allocation	109	5%
	Combined Survey Total	2018	100%

Question 8: Tabulation of Survey Responses (Motor Vehicle & Driver License Fees)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	0 percent allocation	261	19%
	1 to 5 percent allocation	175	20%
	6-10 percent allocation	304	24%
	11-15 percent allocation	91	11%
	16-25 percent allocation (Currently the case)	163	19%
	26-100 percent allocation	55	7%
	Survey A Total	1049	100%
Survey B	0 percent allocation	124	11%
	1 to 5 percent allocation	43	3%
	6-10 percent allocation	103	11%
	11-15 percent allocation	84	12%
	16-25 percent allocation (Currently the case)	517	51%
	26-100 percent allocation	93	13%
	Survey B Total	964	100%
Combined	0 percent allocation	385	15%
	1 to 5 percent allocation	218	12%
	6-10 percent allocation	407	17%
	11-15 percent allocation	175	12%
	16-25 percent allocation (Currently the case)	680	35%
	26-100 percent allocation	148	10%
	Combined Survey Total	2013	100%

Question 8: Tabulation of Survey Responses (Property Tax)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	0 percent allocation (Currently the case)	572	44%
	1 to 5 percent allocation	173	23%
	6-10 percent allocation	192	21%
	11-15 percent allocation	44	4%
	16-25 percent allocation	53	6%
	26-100 percent allocation	20	1%
	Survey A Total	1054	100%
Survey B	0 percent allocation (Currently the case)	786	68%
	1 to 5 percent allocation	86	16%
	6-10 percent allocation	48	9%
	11-15 percent allocation	15	3%
	16-25 percent allocation	17	2%
	26-100 percent allocation	12	2%
	Survey B Total	964	100%
Combined	0 percent allocation (Currently the case)	1358	56%
	1 to 5 percent allocation	259	19%
	6-10 percent allocation	240	15%
	11-15 percent allocation	59	4%
	16-25 percent allocation	70	4%
	26-100 percent allocation	32	2%
	Combined Survey Total	2018	100%

Question 8: Tabulation of Survey Responses (Tolls)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	0 percent allocation (Currently the case)	324	27%
	1 to 5 percent allocation	116	14%
	6-10 percent allocation	210	20%
	11-15 percent allocation	72	9%
	16-25 percent allocation	174	14%
	26-100 percent allocation	162	15%
	Survey A Total	1058	100%
Survey B	0 percent allocation (Currently the case)	469	48%
	1 to 5 percent allocation	209	21%
	6-10 percent allocation	118	14%
	11-15 percent allocation	27	4%
	16-25 percent allocation	58	6%
	26-100 percent allocation	46	7%
	Survey B Total	927	100%
Combined	0 percent allocation (Currently the case)	793	38%
	1 to 5 percent allocation	325	18%
	6-10 percent allocation	328	17%
	11-15 percent allocation	99	7%
	16-25 percent allocation	232	10%
	26-100 percent allocation	208	11%
	Combined Survey Total	1985	100%

Question 8: Tabulation of Survey Responses (Vehicle Miles Driven User Fee)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	0 percent allocation (Currently the case)	490	40%
	1 to 5 percent allocation	105	13%
	6-10 percent allocation	129	14%
	11-15 percent allocation	58	5%
	16-25 percent allocation	123	14%
	26-100 percent allocation	147	14%
	Survey A Total	1052	100%
Survey B	0 percent allocation (Currently the case)	629	65%
	1 to 5 percent allocation	75	13%
	6-10 percent allocation	72	7%
	11-15 percent allocation	43	4%
	16-25 percent allocation	72	7%
	26-100 percent allocation	76	4%
	Survey B Total	967	100%
Combined	0 percent allocation (Currently the case)	1119	52%
	1 to 5 percent allocation	180	13%
	6-10 percent allocation	201	10%
	11-15 percent allocation	101	4%
	16-25 percent allocation	195	11%
	26-100 percent allocation	223	9%
	Combined Survey Total	2019	100%

Question 9: Tabulation of Survey Responses (Electric Paying Less)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	I support Hybrid vehicle drivers paying less to use the roads	431	41%
	I oppose Hybrid vehicle drivers paying less to use the roads	702	59%
	Survey A Total	1133	100%
Survey B	I support Hybrid vehicle drivers paying less to use the roads	314	34%
	I oppose Hybrid vehicle drivers paying less to use the roads	723	66%
	Survey B Total	1037	100%
Combined	I support Hybrid vehicle drivers paying less to use the roads	745	38%
	I oppose Hybrid vehicle drivers paying less to use the roads	1425	62%
	Combined Survey Total	2170	100%

Question 10: Tabulation of Survey Responses (Road Tolls)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	Yes, in NC only	172	14%
	Yes, in another state only	277	19%
	Yes, in NC and another state	252	24%
	No	437	43%
	Survey A Total	926	100%
Survey B	Yes, in NC only	163	15%
	Yes, in another state only	231	24%
	Yes, in NC and another state	229	17%
	No	419	45%
	Survey B Total	1042	100%
Combined	Yes, in NC only	335	14%
	Yes, in another state only	508	22%
	Yes, in NC and another state	481	20%
	No	856	44%
	Combined Survey Total	2180	100%

Question 11: Tabulation of Survey Responses (Days per Week)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	Zero	11	1%
	One	13	1%
	Two	33	2%
	Three	95	6%
	Four	82	9%
	Five	183	20%
	Six	169	16%
	Seven	548	45%
	Survey A Total	1134	100%
Survey B	Zero	10	1%
	One	13	4%
	Two	29	3%
	Three	90	8%
	Four	67	6%
	Five	157	15%
	Six	172	18%
	Seven	500	46%
	Survey B Total	1038	100%
Combined	Zero	21	1%
	One	26	2%
	Two	62	3%
	Three	185	7%
	Four	149	7%
	Five	340	17%
	Six	341	17%
	Seven	1048	45%
	Combined Survey Total	2172	100%

Question 11: Tabulation of Survey Responses (Miles per Day)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	0 to 14 miles	206	14%
	15 to 29 miles	338	31%
	30 to 44 miles	215	16%
	45 to 59 miles	125	12%
	60 or more miles	231	27%
	Survey A Total	1115	100%
Survey B	0 to 14 miles	199	17%
	15 to 29 miles	294	29%
	30 to 44 miles	215	17%
	45 to 59 miles	128	17%
	60 or more miles	177	21%
	Survey B Total	1013	100%
Combined	0 to 14 miles	405	15%
	15 to 29 miles	632	30%
	30 to 44 miles	430	16%
	45 to 59 miles	253	15%
	60 or more miles	408	24%
	Combined Survey Total	2128	100%

Question 11: Tabulation of Survey Responses (Minutes per Day)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	0 to 24 minutes	219	18%
	25 to 49 minutes	398	33%
	50 to 74 minutes	247	25%
	75 to 99 minutes	78	6%
	100 to 124 minutes	94	9%
	125 or more minutes	70	9%
	Survey A Total	1106	100%
Survey B	0 to 24 minutes	200	16%
	25 to 49 minutes	337	30%
	50 to 74 minutes	253	28%
	75 to 99 minutes	83	8%
	100 to 124 minutes	72	8%
	125 or more minutes	67	11%
	Survey B Total	1012	100%
Combined	0 to 24 minutes	419	17%
	25 to 49 minutes	735	32%
	50 to 74 minutes	500	27%
	75 to 99 minutes	161	7%
	100 to 124 minutes	166	8%
	125 or more minutes	137	10%
	Combined Survey Total	2118	100%

Question 12: Tabulation of Survey Responses (Car Usage for Work)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	Yes, most of the time	242	19%
	Yes, but just some of the time	102	11%
	No	793	70%
	Survey A Total	1137	100%
Survey B	Yes, most of the time	238	32%
	Yes, but just some of the time	101	8%
	No	702	60%
	Survey B Total	1041	100%
Combined	Yes, most of the time	480	26%
	Yes, but just some of the time	203	9%
	No	1495	65%
	Combined Survey Total	2178	100%

Question 13: Tabulation of Survey Responses (Number of Occupants)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	One	186	17%
	Two	548	39%
	Three	172	20%
	Four	130	11%
	Five or more	90	13%
	Survey A Total	1126	100%
Survey B	One	159	17%
	Two	521	40%
	Three	169	18%
	Four	104	15%
	Five or more	77	10%
	Survey B Total	1030	100%
Combined	One	345	17%
	Two	1069	40%
	Three	341	19%
	Four	234	13%
	Five or more	167	11%
	Combined Survey Total	2156	100%

Question 14: Tabulation of Survey Responses (Number of Cars)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	Zero	3	1%
	One	204	23%
	Two	464	36%
	Three	275	24%
	Four	122	8%
	Five or more	63	7%
	Survey A Total	1131	100%
Survey B	Zero	3	1%
	One	175	21%
	Two	439	42%
	Three	254	22%
	Four	107	10%
	Five or more	56	3%
	Survey B Total	1034	100%
Combined	Zero	6	1%
	One	379	22%
	Two	903	39%
	Three	529	23%
	Four	229	9%
	Five or more	119	5%
	Combined Survey Total	2165	100%

Question 15: Tabulation of Survey Responses (Car Type)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	Gas	1051	93%
	Diesel	15	2%
	Hybrid	52	2%
	Electric	11	1%
	Other	2	0%
	I don't use a vehicle/not applicable	6	1%
	Survey A Total	1137	100%
Survey B	Gas	969	96%
	Diesel	21	2%
	Hybrid	38	2%
	Electric	4	0%
	Other	2	0%
	I don't use a vehicle/not applicable	5	1%
	Survey B Total	1039	100%
Combined	Gas	2020	94%
	Diesel	36	2%
	Hybrid	90	2%
	Electric	15	1%
	Other	4	0.5%
	I don't use a vehicle/not applicable	11	1%
	Combined Survey Total	2176	100%

Question 17: Tabulation of Survey Results (Miles Traveled)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	0 to 5,999 miles	217	23%
	6,000 to 11,999 miles	321	29%
	12,000 to 17,999 miles	355	29%
	18,000 to 23,999 miles	104	8%
	24,000 to 29,999 miles	44	4%
	30,000 or more miles	62	7%
	Survey A Total	1103	100%
Information Effects	0 to 5,999 miles	186	22%
	6,000 to 11,999 miles	310	30%
	12,000 to 17,999 miles	298	24%
	18,000 to 23,999 miles	96	6%
	24,000 to 29,999 miles	51	7%
	30,000 or more miles	55	11%
	Survey B Total	996	100%
Combined	0 to 5,999 miles	403	22%
	6,000 to 11,999 miles	631	30%
	12,000 to 17,999 miles	653	27%
	18,000 to 23,999 miles	200	7%
	24,000 to 29,999 miles	95	5%
	30,000 or more miles	117	9%
	Combined Survey Total	2099	100%

Question 18: Tabulation of Survey Results (Gender)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	Male	569	47%
	Female	548	52%
	Prefer to self-describe	15	1%
	Survey A Total	1132	100%
Survey B	Male	523	50%
	Female	490	49%
	Prefer to self-describe	13	1%
	Survey B Total	1026	100%
Combined	Male	1092	48%
	Female	1038	51%
	Prefer to self-describe	28	1%
	Combined Survey Total	2158	100

Question 19: Tabulation of Survey Results (Education)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	No schooling completed	6	1%
	High school graduate/diploma or equivalent (GED)	183	50%
	Associate degree/trade/technical/vocational training	275	16%
	Bachelor's degree	345	20%
	Advanced degree (Master's/Professional/PhD)	316	13%
	Survey A Total	1125	100%
Survey B	No schooling completed	9	3%
	High school graduate/diploma or equivalent (GED)	151	45%
	Associate degree/trade/technical/vocational training	264	18%
	Bachelor's degree	338	23%
	Advanced degree (Master's/Professional/PhD)	263	11%
	Survey B Total	1025	100%
Combined	No schooling completed	15	2%
	High school graduate/diploma or equivalent (GED)	334	47%
	Associate degree/trade/technical/vocational training	539	17%
	Bachelor's degree	683	22%
	Advanced degree (Master's/Professional/PhD)	579	12%
	Combined Survey Total	2150	100%

Question 20: Tabulation of Survey Results (Age)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	Less than 20 years old	0	.
	20 to 29 years old	30	22%
	30 to 49 years old	211	33%
	50 to 69 years old	638	33%
	70 years old or older	232	12%
	Survey A Total	1111	100%
Survey B	Less than 20 years old	1	2%
	20 to 29 years old	37	26%
	30 to 49 years old	196	31%
	50 to 69 years old	571	29%
	70 years old or older	203	12%
	Survey B Total	1008	100%
Combined	Less than 20 years old	1	1%
	20 to 29 years old	67	24%
	30 to 49 years old	407	32%
	50 to 69 years old	1209	31%
	70 years old or older	435	12%
	Combined Survey Total	2119	100%

Question 21: Tabulation of Survey Results (Political Preference)

Survey Type	Variable Options	Response (#)	Weighted (%)
Survey A	I strongly prefer the Democrats	191	13%
	I prefer the Democrats	91	7%
	I am mostly independent but lean Democrat	140	17%
	I have no preference for either party	202	24%
	I am mostly independent but lean Republican	169	14%
	I prefer the Republicans	124	7%
	I strongly prefer the Republicans	189	17%
	Survey A Total	1106	100%
Survey B	I strongly prefer the Democrats	131	14%
	I prefer the Democrats	81	8%
	I am mostly independent but lean Democrat	121	14%
	I have no preference for either party	158	18%
	I am mostly independent but lean Republican	175	16%
	I prefer the Republicans	119	11%
	I strongly prefer the Republicans	211	19%
	Survey B Total	996	100%
Combined	I strongly prefer the Democrats	322	14%
	I prefer the Democrats	172	8%
	I am mostly independent but lean Democrat	261	16%
	I have no preference for either party	360	21%
	I am mostly independent but lean Republican	344	15%
	I prefer the Republicans	243	9%
	I strongly prefer the Republicans	400	18%
	Combined Survey Total	2102	100%

Appendix 2: Survey Instrument

Survey A: Baseline

ITRE Institute for Transportation Research and Education

NC STATE UNIVERSITY

Dear North Carolina resident,

We are researchers at North Carolina State University asking for your participation in a short survey to better understand how North Carolina residents feel about transportation funding.

Your household was randomly selected; if you choose to participate, your answers will be recorded anonymously. You are not required to answer our questions or if you start, you can stop at any time. The risks of participation are the same as those experienced in everyday life, and although you will not be compensated for participating, you could benefit by learning more about your own views about transportation issues.

There are two ways to complete the survey.

- Option 1: Visit https://go.ncsu.edu/2019H and complete the survey online.
- Option 2: Complete and return the enclosed survey in the next few days. A postage-paid self-addressed return envelope has been provided for your convenience.

A joint activity of North Carolina universities

North Carolina State's Institute for Transportation Research and Education and a survey research company, ETC Institute, will collect all data. Your responses to the survey will remain anonymous.

NC A&T State University
NC Central University
NC State University
UNC Chapel Hill
Duke University

By completing and returning this survey, you affirm that you are at least 18 years old and that you give your consent for the research team to use your answers in this study. If you have already completed this survey, please do not complete again. To ensure the confidentiality of your responses, please do not indicate a return address on the envelope.

If you have any concerns or questions about your rights as a participant in this research, please contact me by email at *Daniel_Findley@ncsu.edu* or on the phone at 919-515-8564. You can also contact me to request a copy of the final aggregated results of the survey.

Thank you for your participation in this important process.

To randomize the person who completes this survey, we would like for the person who currently lives in this household who is 18 or older—including yourself—who has had the most recent birthday to complete the survey.

Sincerely,

Daniel J Findley, Program Manager - Economic Analysis and Policy Assessment
Institute for Transportation Research and Education, North Carolina State University
919.515.8564
Daniel_Findley@ncsu.edu

Thank you for participating. For most questions, provide a single answer that represents your preference for North Carolina (NC). Once or twice, however, you might be asked to rank your preferences. In addition, you will be asked what you know about transportation, but please DO NOT search for answers or ask for help because our research depends on recording what people usually think is true.

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1. What comes closest to your view regarding government spending on roads in NC? NC needs to:

_____ (1) Increase spending _____ (2) Keep spending current amount _____ (3) Decrease spending _____ (4) No Opinion

2. To help pay for roads, you pay both federal and state taxes whenever you buy gas. What do you think the gas tax is in NC, per gallon, including federal and state taxes? Is it somewhere between:

_____ (1) 0 to 19 cents _____ (3) 40 to 64 cents _____ (5) 90 to 100 cents
_____ (2) 20 to 39 cents _____ (4) 65 to 89 cents _____ (6) Don't Know

3. Which of the following sources of road funding do you prefer for NC?

_____ (1) Sources of revenue directly related to the use of the road (such as a tax on gasoline purchases or fees paid to use toll roads or based on the total number of miles driven in one year)
_____ (2) Sources of revenue supported by the general public (such as general sales taxes, property tax, or vehicle property tax)

4. How should drivers pay for roads in NC? Rank the following options from 1 to 3, where "1" stands for the option you prefer the most and "3" stands for the option you prefer the least.

	Rank (Indicate "1" as most preferred to "3" as least preferred)
Pay by the amount of fuel used	
Pay by the amount of miles driven	
Pay by the weight of your vehicle	

5. An average NC vehicle owner who travels 15,000 miles in one year would pay approximately $400 in gas tax. Choose which statement you agree with most:

_____ (1) $400 per year is too inexpensive for driving for 15,000 miles on roads in NC.
_____ (2) $400 per year is a fair price for driving for 15,000 miles on roads in NC.
_____ (3) $400 per year is too expensive for driving for 15,000 miles on roads in NC.

6. If you had to choose, which of the following options do you believe NC should most rely on for future funding of the state's road projects?

_____ (1) A fee based on miles driven _____ (2) A tax paid on gasoline purchases

7. For the previous question, please explain why you selected the answer you chose: _____

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8. To the right are common types of taxes and fees. Imagine you decided the budget for which taxes and fees are used to pay for NC roads. How much should each of these potential revenue sources contribute to NC roads? Your answers can range from 0% to 100%, but the total contribution cannot exceed 100%.

	Your Allocation of Percentage
Alternative Fuel Fee (electric, hybrid, etc.)	
Gas Tax	
General Sales Tax	
Highway Use Tax (tax on vehicle purchases)	
Motor Vehicle and Driver License Fees	
Property Tax	
Tolls	
Vehicle Miles Driven User Fee	
Total	100%

9. Hybrid vehicles are typically more fuel efficient than gasoline-powered vehicles. For this reason, drivers of a hybrid vehicle pay lower taxes for their use of the roadway because they travel further per each gallon of gas purchased. Choose which statement you agree with most:

_____ (1) I support Hybrid vehicle drivers paying less to use the roads
_____ (2) I oppose Hybrid vehicle drivers paying less to use the roads

10. Have you paid a toll to drive on a road during the last twelve months?

_____ (1) Yes, in NC only
_____ (2) Yes, in another state only
_____ (3) Yes, in NC and another state
_____ (4) No

11. Some people drive a lot, some not very often or at all. We are interested in knowing more about your driving habits. If one of the following questions isn't applicable to you, you can just skip it.

On average, about how many days a week do you drive a vehicle (circle one)? 1 2 3 4 5 6 7

About how many *miles in total* do you drive each day? _____

About how many *minutes in total* do you drive each day? _____

12. Do you have a job that regularly requires you to use your own car, not including routine commuting to and from work?

_____ (1) Yes, most of the time _____ (2) Yes, but just some of the time _____ (3) No

13. How many people are in your household (include anyone spending more than half their time in your house)? _____

14. How many vehicles are in your household (include any vehicles that are at your house more than half the time)? _____

15. Which fuel category best describes the vehicle you use most frequently?

_____ (1) Gas
_____ (2) Diesel
_____ (3) Hybrid
_____ (4) Electric
_____ (5) Other:_____
_____ (6) I don't use a vehicle/not applicable *(Skip to Question 19)*

16. What is the make, model, and model year of the vehicle you use most frequently?

Make: _____ Model: _____ Model Year: _____

17. For the vehicle you used most frequently, about how many miles did you drive in the past 12 months? _____

18. Please indicate your gender: ____ (1) Male ____ (2) Female ____ (3) Prefer to self-describe: _____

19. What is the highest degree or level of school you have completed?

____ (1) Less than high school graduate/diploma or equivalent
____ (2) High school graduate/diploma or equivalent (GED)
____ (3) Associate degree/trade/technical/vocational training
____ (4) Bachelor's degree
____ (5) Advanced degree (Master's/Professional/PhD)

20. What year were you born? _____

21. Below is a scale showing people who say they strongly prefer Democrats on one end, people who say they strongly prefer Republicans on the other, and with independents in the middle. Where would you place yourself on this scale?

_____ (1)	_____ (2)	_____ (3)	_____ (4)	_____ (5)	_____ (6)	_____ (7)
I strongly prefer the Democrats	I prefer the Democrats	I am mostly independent but lean toward the Democrats	I am independent, I have no preference for either party	I am mostly independent but lean toward the Republicans	I prefer the Republicans	I strongly prefer the Republicans

Your responses will remain completely anonymous. The information on the right will ONLY be used to help identify areas with special interests. Thank you.

This concludes the survey – Thank you for your time!

Please return your survey in the enclosed return-reply envelope addressed to: ETC Institute, 725 W. Frontier Circle, Olathe, KS 66061

Survey B: Information Effects

ITRE Institute for Transportation Research and Education

NC STATE UNIVERSITY

Dear North Carolina resident,

We are researchers at North Carolina State University asking for your participating in a short survey to better understand how North Carolina residents feel about transportation funding.

Your household was randomly selected; if you choose to participate, your answers will be recorded anonymously. You are not required to answer our questions or if you start, you can stop at any time. The risks of participation are the same as those experienced in everyday life, and although you will not be compensated for participating, you could benefit by learning more about your own views about transportation issues.

There are two ways to complete the survey.

- Option 1: Visit *[Add URL]* and complete the survey online.
- Option 2: Complete and return the enclosed survey in the next few days. A postage-paid self-addressed return envelope has been provided for your convenience.

A joint activity of North Carolina universities

North Carolina State's Institute for Transportation Research and Education and a survey research company, ETC Institute, will collect all data. Your responses to the survey will remain anonymous.

NC A&T State University
NC Central University
NC State University
UNC Chapel Hill
Duke University

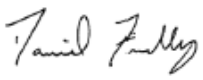
By completing and returning this survey, you affirm that you are at least 18 years old and that you give your consent for the research team to use your answers in this study. If you have already completed this survey, please do not complete again. To ensure the confidentiality of your responses, please do not indicate a return address on the envelope.

If you have any concerns or questions about your rights as a participant in this research, please contact me by email at *Daniel_Findley@ncsu.edu* or on the phone at 919-515-8564. You can also contact me to request a copy of the final aggregated results of the survey.

Thank you for your participation in this important process.

To randomize the person who completes this survey, we would like for the person who currently lives in this household who is 18 or older—including yourself—who has had the most recent birthday to complete the survey.

Sincerely,



Daniel J Findley, Program Manager - Economic Analysis and Policy Assessment
Institute for Transportation Research and Education, North Carolina State University
919.515.8564
Daniel_Findley@ncsu.edu

Thank you for participating. For most questions, provide a single answer that represents your preference for North Carolina (NC). Once or twice, however, you might be asked to rank your preferences. In addition, you will be asked what you know about transportation, but please DO NOT search for answers or ask for help because our research depends on recording what people usually think is true.

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1. Transportation funding in NC has failed to keep up with the growing demand, resulting in increasingly deteriorated and congested roads. The amount of available funds has been decreasing primarily because a tax on gas generates most of the funds to pay for roads but newer vehicles are more fuel efficient so drivers don't need to buy as much gas. What comes closest to your view regarding government spending on roads in NC? NC needs to:

_____ (1) Increase spending _____ (2) Currently spends the right amount _____ (3) Decrease spending _____ (4) No Opinion

2. To help pay for roads you pay both federal and state taxes whenever you buy gas. What do you think the gas tax is in NC, in cents per gallon, including federal and state taxes?

_____ cents

3. Some people say that drivers who use the roads more should pay a greater share of the costs of building and maintaining them. This means taxing gas or miles driven, including toll roads. Others say that everyone should contribute more or less equally since everyone benefits from good roads. This means relying more on general taxes, such as the sales tax when you buy goods and services, plus property taxes. Which of the following sources of road funding do you prefer for NC?

_____ (1) Sources of revenue directly related to the use of the road (such as a tax on gasoline purchases or fees paid to use toll roads or based on the total number of miles driven in one year)

_____ (2) Sources of revenue supported by the general public (such as general sales taxes, property tax, or vehicle property tax)

4. How should drivers pay for roads in NC? Rank the following options from 1 to 3, where "1" stands for the option you prefer the most and "3" stands for the option you prefer the least.

	Rank (Indicate "1" as most preferred to "3" as least preferred)
Pay by the amount of fuel used	
Pay by the amount of miles driven	
Pay by the weight of your vehicle	

5. An average NC vehicle owner pays approximately $6,500 per year to own and operate a vehicle. If the vehicle owner travels 15,000 miles in one year, they would pay approximately $400 in gas tax. Choose which statement you agree with most:

_____ (1) $400 per year is too inexpensive for driving for 15,000 miles on roads in NC.

_____ (2) $400 per year is a fair price for driving for 15,000 miles on roads in NC.

_____ (3) $400 per year is too expensive for driving for 15,000 miles on roads in NC.

6. If you had to choose, which of the following options do you believe NC should most rely on for future funding of the state's road projects?

_____ (1) A fee based on miles driven _____ (2) A tax paid on gasoline purchases

7. For the previous question, please explain why you selected the answer you chose: _____

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8. To the right are common types of taxes and fees, and how much they contribute to roads in NC. Imagine you decided the budget for which taxes and fees are used to pay for NC roads. How much should each of these potential revenue sources contribute to NC roads? Your answers can range from 0% to 100%, but the total contribution cannot exceed 100%.

	Current Percent Contribution to Fund NC Roads	Your Allocation of Percentage
Alternative Fuel Fee (electric, hybrid, etc.)	Less than 0.1%	
Gas Tax	55%	
General Sales Tax	0%	
Highway Use Tax (tax on vehicle purchases)	20%	
Motor Vehicle and Driver License Fees	25%	
Property Tax	0%	
Tolls	Less than 0.1%	
Vehicle Miles Driven User Fee	0%	
Total	100%	100%

9. Hybrid vehicles are typically more fuel efficient than gasoline-powered vehicles. For this reason, drivers of a hybrid vehicle pay lower taxes for their use of the roadway because they travel further per each gallon of gas purchased. Similarly, drivers of electric vehicles do not pay any gas tax – however, they do pay $130 each year for their use of the roads. Choose which statement you agree with most:

_____ (1) I support Hybrid vehicle drivers paying less to use the roads
_____ (2) I oppose Hybrid vehicle drivers paying less to use the roads

10. Have you paid a toll to drive on a road during the last twelve months?

_____ (1) Yes, in NC only
_____ (2) Yes, in another state only
_____ (3) Yes, in NC and another state
_____ (4) No

11. Some people drive a lot, some not very often or at all. We are interested in knowing more about your driving habits. If one of the following questions isn't applicable to you, you can just skip it.

On average, about how many days a week do you drive a vehicle (circle one)? 1 2 3 4 5 6 7

About how many *miles in total* do you drive each day? _____

About how many *minutes in total* do you drive each day? _____

12. Do you have a job that regularly requires you to use your own car, not including routine commuting to and from work?

_____ (1) Yes, most of the time _____ (2) Yes, but just some of the time _____ (3) No

13. How many people are in your household (include anyone spending more than half their time in your house)? _____

14. How many vehicles are in your household (include any vehicles that are at your house more than half the time)? _____

15. Which fuel category best describes the vehicle you use most frequently?

_____ (1) Gas
_____ (2) Diesel
_____ (3) Hybrid
_____ (4) Electric
_____ (5) Other:_____
_____ (6) I don't use a vehicle/not applicable *(Skip to Question 19)*

16. What is the make, model, and model year of the vehicle you use most frequently?

Make: _____ Model: _____ Model Year: _____

17. For the vehicle you used most frequently, about how many miles did you drive in the past 12 months? _____

18. Please indicate your gender: ____ (1) Male ____ (2) Female ____ (3) Prefer to self-describe: _____

19. What is the highest degree or level of school you have completed?

____ (1) Less than high school graduate/diploma or equivalent
____ (2) High school graduate/diploma or equivalent (GED)
____ (3) Associate degree/trade/technical/vocational training
____ (4) Bachelor's degree
____ (5) Advanced degree (Master's/Professional/PhD)

20. What year were you born? _____

21. Below is a scale showing people who say they strongly prefer Democrats on one end, people who say they strongly prefer Republicans on the other, and with independents in the middle. Where would you place yourself on this scale?

_____ (1)	_____ (2)	_____ (3)	_____ (4)	_____ (5)	_____ (6)	_____ (7)
I strongly prefer the Democrats	I prefer the Democrats	I am mostly independent but lean toward the Democrats	I am independent, I have no preference for either party	I am mostly independent but lean toward the Republicans	I prefer the Republicans	I strongly prefer the Republicans

Your responses will remain completely anonymous. The information on the right will ONLY be used to help identify areas with special interests. Thank you.

This concludes the survey – Thank you for your time!

Please return your survey in the enclosed return-reply envelope addressed to: ETC Institute, 725 W. Frontier Circle, Olathe, KS 66061

Appendix 3: Weighting by NC County (Table 1 of 3)

County	Share of NC Population	Unweighted Percentage	Weighted Percentage
Alamance County	1.6%	1.4%	1.6%
Alexander County	0.4%	0.3%	0.4%
Alleghany County	0.1%	0.2%	0.1%
Anson County	0.2%	0.1%	0.2%
Ashe County	0.3%	0.5%	0.3%
Avery County	0.2%	0.2%	0.2%
Beaufort County	0.5%	0.6%	0.5%
Bertie County	0.2%	0.2%	0.2%
Bladen County	0.3%	0.0%	0.0%
Brunswick County	1.3%	1.6%	1.3%
Buncombe County	2.5%	2.4%	2.5%
Burke County	0.9%	0.2%	0.9%
Cabarrus County	2.0%	2.8%	2.1%
Caldwell County	0.8%	0.7%	0.8%
Camden County	0.1%	0.2%	0.1%
Carteret County	0.7%	1.5%	0.7%
Caswell County	0.2%	0.0%	0.0%
Catawba County	1.5%	1.4%	1.5%
Chatham County	0.7%	0.7%	0.7%
Cherokee County	0.3%	0.2%	0.3%
Chowan County	0.1%	0.2%	0.1%
Clay County	0.1%	0.1%	0.1%
Cleveland County	0.9%	0.7%	0.9%
Columbus County	0.5%	0.3%	0.5%
Craven County	1.0%	1.2%	1.0%
Cumberland County	3.2%	3.5%	3.2%
Currituck County	0.3%	0.5%	0.3%
Dare County	0.4%	0.3%	0.4%
Davidson County	1.6%	1.3%	1.6%
Davie County	0.4%	1.3%	0.4%
Duplin County	0.6%	0.5%	0.6%
Durham County	3.1%	2.9%	3.1%
Edgecombe County	0.5%	0.1%	0.5%
Forsyth County	3.7%	5.2%	3.7%
Franklin County	0.7%	0.5%	0.7%
Gaston County	2.1%	1.3%	2.2%

Appendix 3: Weighting by NC County (Table 2 of 3)

County	Share of NC Population	Unweighted Percentage	Weighted Percentage
Gates County	0.1%	0.1%	0.1%
Graham County	0.1%	0.2%	0.1%
Granville County	0.6%	0.7%	0.6%
Greene County	0.2%	0.1%	0.2%
Guilford County	5.1%	4.9%	5.2%
Halifax County	0.5%	0.2%	0.5%
Harnett County	1.3%	1.1%	1.3%
Haywood County	0.6%	0.5%	0.6%
Henderson County	1.1%	1.1%	1.1%
Hertford County	0.2%	0.3%	0.2%
Hoke County	0.5%	0.3%	0.5%
Hyde County	0.1%	0.0%	0.0%
Iredell County	1.7%	1.9%	1.7%
Jackson County	0.4%	0.3%	0.4%
Johnston County	2.0%	2.3%	2.0%
Jones County	0.1%	0.2%	0.1%
Lee County	0.6%	0.3%	0.6%
Lenoir County	0.5%	0.6%	0.5%
Lincoln County	0.8%	0.5%	0.8%
Macon County	0.3%	0.2%	0.3%
Madison County	0.2%	0.1%	0.2%
Martin County	0.2%	0.2%	0.2%
McDowell County	0.4%	0.1%	0.4%
Mecklenburg County	10.5%	10.3%	10.6%
Mitchell County	0.1%	0.0%	0.0%
Montgomery County	0.3%	0.1%	0.3%
Moore County	1.0%	1.0%	1.0%
Nash County	0.9%	0.6%	0.9%
New Hanover County	2.2%	2.3%	2.3%
Northampton County	0.2%	0.2%	0.2%
Onslow County	1.9%	2.4%	1.9%
Orange County	1.4%	1.5%	1.4%
Pamlico County	0.1%	0.1%	0.1%
Pasquotank County	0.4%	0.6%	0.4%
Pender County	0.6%	0.7%	0.6%
Perquimans County	0.1%	0.1%	0.1%

Appendix 3: Weighting by NC County (Table 3 of 3)

County	Share of NC Population	Unweighted Percentage	Weighted Percentage
Person County	0.4%	0.3%	0.4%
Pitt County	1.7%	1.2%	1.7%
Polk County	0.2%	0.2%	0.2%
Randolph County	1.4%	1.3%	1.4%
Richmond County	0.4%	0.3%	0.4%
Robeson County	1.3%	0.4%	1.3%
Rockingham County	0.9%	0.5%	0.9%
Rowan County	1.4%	1.4%	1.4%
Rutherford County	0.6%	0.4%	0.6%
Sampson County	0.6%	0.9%	0.6%
Scotland County	0.3%	0.3%	0.3%
Stanly County	0.6%	0.7%	0.6%
Stokes County	0.4%	0.7%	0.4%
Surry County	0.7%	0.9%	0.7%
Swain County	0.1%	0.1%	0.1%
Transylvania County	0.3%	0.3%	0.3%
Tyrrell County	0.0%	0.0%	0.0%
Union County	2.3%	2.6%	2.3%
Vance County	0.4%	0.3%	0.4%
Wake County	10.5%	14.1%	10.6%
Warren County	0.2%	0.0%	0.0%
Washington County	0.1%	0.1%	0.1%
Watauga County	0.5%	0.2%	0.5%
Wayne County	1.2%	0.6%	1.2%
Wilkes County	0.7%	0.5%	0.7%
Wilson County	0.8%	0.2%	0.8%
Yadkin County	0.4%	0.9%	0.4%
Yancey County	0.2%	0.1%	0.2%