

"Perception of Gasoline Taxes and Driver Cost: Implications for Highway Finance"¹

Ronald C. Fisher

*Professor, Department of Economics
Michigan State University
fisherr1@msu.edu, (517) 355-0293*

Robert W. Wassmer

*Professor, Department of Public Policy and Administration
California State University, Sacramento 95819-6081
rwassme@csus.edu, (916) 278-6304*

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Abstract. *This research compares the actual magnitude of fuel taxes to the perceptions of these amounts. The issue is whether misperceptions about fuel taxes are contributing to voter perspectives about transportation finance and investment issues. A survey of likely Michigan voters shows that taxpayers greatly overestimate the amount they pay in fuel taxes. Half of the respondents (voters) overestimate the magnitude by at least a factor of five, and three-quarters overestimate the magnitude by at least a factor of three. Logistic regression analysis shows that voter (mis)perceptions regarding the magnitude of state fuel taxes do affect their views regarding highway revenue and investment proposals.*

¹ Please do not cite or quote without the authors' permission. The Michigan Infrastructure and Transportation Association provided the financial support necessary to conduct the poll that is the basis of this research. The Association took no role in designing or selecting the issues covered in this poll or the specific questions asked. The results or opinions expressed here do not necessarily represent the views of the Association.

I. Introduction

Three features of state and local government transportation policy are recently apparent: (1) changes in vehicle technology are making fuel taxes less attractive as a means of financing highway investment and use, (2) measures of road/bridge age and quality suggests substantial interest in increasing maintenance or replacement, and (3) transportation congestion continues to worsen. These three factors have driven subnational governments in the United States to consider both the need for additional revenue for transportation purposes, and the satisfaction of this need through alternatives to traditional use of fuel taxes. Surveys of public opinion suggest that the majority of the public favor increased transportation investment. Yet, at the same time, both the public and officials often oppose increases in fuel tax rates and there exists widespread skepticism and disagreement regarding an increased reliance on alternative revenue sources (including use-based fees).

Previous examinations support these fundamental facts of the state of transportation funding and infrastructure. In its report, the Minnesota Mileage-Based User Fee Policy Task Force noted that vehicles are increasingly using less gasoline or diesel fuel, and in addition, the number of non-petroleum-powered vehicles is rising and expected to continue. Consequently, the task force notes, "... fuel consumption – and associated fuel tax collections – has lagged the growth in vehicle miles traveled" (p. 4). In its report on transportation conditions for 2010, the Federal Highway Administration estimated that achieving all cost-beneficial investments in highways would require annual expenditure of \$170 billion through 2028, 86.6 percent more than actual spending in 2008 (p. 9). In its infrastructure report card for 2013, the American Society of Civil Engineers reported, "Forty-two percent of America's major urban highways are congested ... costing the U.S. economy \$101 billion in wasted fuel...." The issue, of course, is how to deal with these trends.

Casual observation also indicates that a taxpayer's beliefs regarding the magnitude of federal and state fuel taxes affects her opinions regarding the desirability of additional road investment. If a taxpayer typically overestimate their fuel tax amounts, or overestimate the amount of payments they would need to make under a system of per mile fees, then the opposition to spending more is less surprising. Thus, the issue tackled in this examination is whether misperceptions about fuel taxes are contributing to voter perspectives about transportation finance and investment issues. To do this, we first describe the reality of the magnitude (per month, per year, per mile) of fuel taxes and alternative mileage fees. A survey of Michigan voters then allows us to examine the perceptions of these same amounts. The influence of gas tax perceptions on opinions expressed regarding support for further transportation investment are then analyzed using variations of the regression analyses of Fisher (1985) and Slemrod (2006).

II. Previous Opinion Polls

A number of previous opinion polls examine individual attitudes toward transportation funding and fuel taxes. The national Reason-Rupe Poll, in 2011, found that only 6 percent identified the quality of the area of residence's transportation system as "excellent," and 49 percent believed that congestion has "gotten worse." Thus, 62 percent wanted government to "prioritize funding for roads and highways." However, the poll also reported that 77 percent opposed increasing the federal gasoline tax, although a majority favored targeting road and highway projects. For new highway construction, 58 percent favored funding by tolls and only 28 percent by tax increases.

An April 2013 Gallup Poll for the United States found that 66 percent opposed increases in state gasoline taxes even if the funds were to improve roads, bridges, and public transportation. In analyzing those results, the Gallup researcher suggested a likely relationship between a responder's opposition to a gas tax and concern over the magnitude of gasoline prices

in general (suggested by responses to other questions). This suggests that individuals may be confusing gasoline prices overall with the component due to fuel taxes. Furthermore, several polls in New Jersey in 2014 similarly found that 65 percent of respondents were opposed to increasing the state gasoline tax. Even after being informed that the state's tax rate was the third lowest among all the states (although not identifying the amount), 60 percent remained opposed. Duncan and colleagues (2014) report the results of a 2013 nationally representative survey concerning individual attitudes about the use of a mileage-based user fee as an alternative to gasoline excise taxes. They find that only between 21 and 13 percent of the poll's participants support a mileage-based fee for transportation funding. Greater support occurs if odometer readings form the basis of the fee, while more technological-based measurements resulted in less support. However, in any of these previous surveys, respondents received no information on the magnitude of the gas tax they currently face (rates or amounts), nor were they surveyed about what respondents thought those amounts were.

As Boyer (2010) notes, an exception to not informing poll respondents of the magnitude of existing gas taxes occurred in a 2008 survey of Michigan residents in which an early willingness-to-pay question indicated that the state's excise tax was \$0.19 per gallon. Still, a majority of respondents indicated a willingness to pay of zero in additional excise tax to improve roads in Michigan, even though respondents from the populated urban area of southeast Michigan overwhelming identified road quality as "fair" or "poor."

III. Tax Perceptions and Behavior

Previous research on other tax issues has shown that inaccurate perceptions about the amount or distribution of taxes may influence voters to support positions that are not in their self-interest. Long ago, Schmoelders (1959) argued that perceptions were important for public finance issues, what he called "fiscal psychology." For instance, Fisher (1985) found that political positions,

rather than individual economic circumstances, explained responses to survey questions about simultaneous increases in taxes and public expenditures. Responses to this question were generally inconsistent with what would be expected based on net fiscal residuals as usually thought important by economists. Instead, measures of the respondent's political party, region, and race explained much of the variation in support for various expansions of government activity.

Sheffrin (1994) summarized studies showing that taxpayers often underestimate both average and marginal income tax rates. Slemrod (2006) found that misconceptions about tax incidence were important in explaining public support for a flat-rate income tax and the general sales tax. Specifically, many individuals believed that high-income individuals would pay more with a sales tax or a flat-rate income tax, than they do with the current progressive federal income tax. Such misperceptions stem from a less than full comprehension of the degree of tax avoidance and tax evasion, among other factors.

Most recently, Chetty and his various coauthors have explored the implications of behavioral economics for public finance. Individuals may not respond to some types of incentives, including those through taxation or public programs, partly because they may not be aware of the incentive effects. Pursuing their own self-interest, they do not take the time and effort to consider the possibility of these effects to their own behavior. For instance, Chetty, Looney, and Kroft (2009) find that the method of sales tax collection (whether the tax is included in the price or applied at the register) has important implications for how consumers respond. Similarly, Goldin and Homonoff (2013) find that only low-income consumers change behavior in response to cigarette taxes levied at sale, whereas all consumers respond to taxes included in the price. These results have direct application to transportation finance, particularly the

difference between gasoline excise taxes imbedded in retail gasoline prices as opposed to direct user fees.

IV. The Michigan Poll

We contracted with Epic-MRA, a private professional polling firm located in Lansing, Michigan, to add our questions about highway use and perceptions of highway finance to one of the firm's regular statewide opinion polls. Thus, our questions were a subset of the full set of questions asked in this general poll, which also included a number of questions about political races in the state. Conducted in August 2014, the poll is a telephone survey of 600 likely voters, using a random-dial technique to produce a poll sample representative of the state.²

Two results from the Michigan poll stand out. First, the contrast between favoring additional highway investment and opposing additional financing seen in numerous previous surveys also is evident in this poll. Table 1 offers the results for three questions concerning highway expenditure preferences. There is strong support for improving highway quality and some support for greater quantity through additional investment, as 89 percent of respondents favor more spending on road maintenance and 41 percent favor more spending on construction of new roads. On the other hand, 43 percent of survey participants responded "nothing" when asked how much they were willing to pay for additional road investment. However, a majority (52 percent) was at least willing to pay some additional amount to fund road investment, although the median amount was less than \$5 per month. Respondents also opposed toll roads (49 percent against, although there are currently no toll roads in Michigan) and the use of an electronic device to measure miles for a mileage-based fee (68 percent opposed). Thus, similar

²In early 2015, the California Field Poll will ask this same set of questions as part of an award we received from the California State University based Field Faculty Fellowship.

with the earlier poll results previously described, voters overwhelmingly support additional spending, but not additional or new funding to the same degree.

Second, taxpayers greatly overestimate the amount they pay in fuel taxes. The Michigan fuel excise tax is \$0.19 per gallon of gasoline (\$0.15 diesel). If a typical driver travels 12,000 to 13,000 miles per year at 21.5 miles per gallon, the excise tax cost is about \$9 to \$10 per month (\$108 to \$120 per year). Adding the \$0.184 federal excise tax, the amount essentially doubles (less than \$20 per month). Figure 1 illustrates the monthly state excise tax cost in Michigan for various combinations of miles traveled and vehicle fuel efficiency. For the “worst case” possibility—someone traveling 20,000 miles per year in a vehicle that gets only 15 miles per gallon—the monthly tax cost is about \$21.

The survey also asked respondents to “Consider the average or typical driver in Michigan, who might be different than you. How much would you estimate that the average driver in Michigan pays in state gasoline tax each month? Fifty percent of respondents thought the tax was \$50 per month or more, as shown in Table 2, and three-quarters thought the tax amount was at least \$30 or more. Thus, half of respondents (voters) overestimate the magnitude by at least a factor of five, and three-quarters overestimate the magnitude by at least a factor of three. Several aspects might explain why voters overestimate the typical excise tax amount, including (1) an overestimate of Michigan excise tax rate, (2) an overestimate of miles driven (or underestimate of mpg), (3) a misinterpretation of the question to include the federal excise tax and the state sales tax, and/or (4) a confusion of the degree of fuel tax with the price of gasoline.³

The survey results suggest that a major reason for the misperception regarding the excise tax amount is that voters overestimate the excise tax rate. When asked “What would you

³ The Center for Economic Analysis (2014) offers a brief report examining the relative magnitude of Michigan gas taxes based upon only the excise tax on gasoline, or if a state taxes gasoline under its general sales tax, or if other taxes on gasoline are included.

estimate the amount of the combined state and federal government gasoline excise tax per gallon in Michigan?” only 19 percent of respondents selected the correct answer (between \$0.25 and \$0.50 which includes the correct amount of \$0.374). Nearly half of the respondents thought the tax rate was 50 percent or greater. A majority of survey respondents (59 percent) also thought that the Michigan excise tax rate was higher than that in other states, when in fact it is less than the median of all states. On the other hand, it does not seem that the survey respondents overestimate miles driven. When asked to estimate the number of miles driven per year, the median response was “between 10,000 and 15,000 miles,” which is consistent with observed behavior.

Even if respondents misinterpreted the question and included other taxes in addition to the state excise tax, voters’ perception of the amount of motor fuel excise tax is seriously flawed. Combining the state and federal excise taxes implies a monthly cost of about \$20. Combining the state excise tax and state sales tax that is collected on gasoline sales in Michigan also implies a monthly cost of about \$20. However, 75 percent responded that the cost was at least \$30. Combining all three taxes implies a monthly cost of about \$30, but 50 percent of participants thought the tax amount was at least \$50. Misunderstanding the question does not seem to explain the overestimate of the amount of the tax.

The Michigan survey results show clearly that taxpayers/voters do not have an accurate understanding of the magnitude of state and federal fuel taxes. We turn now to regression analyses of the influence of this misperception of taxes toward willingness to pay additional dollars toward highway maintenance.

V. Regression Analysis of Willingness to Pay for Road Improvement

In this section, we expand our analysis of data on the opinion of Michigan residents regarding their willingness to pay to improve the condition of Michigan roads using logistic regression.

Specifically we concentrate on the poll question of:

How much more would you be willing to pay per month in any form (gas taxes, other taxes, toll charges, etc.) than you are currently paying to improve Michigan roads?

The allowed responses to this question, and the percentage of the 600 responses that answered in each category, are contained in Table 1. To put these responses in perspective, in 2013, Michigan spent about \$1.9B (or about \$25 per month, per adult) on road maintenance through the Michigan Transportation Fund.⁴ The upper category of “more than \$20” thus represents at least a doubling of this expenditure. Given that a 2008 report of The Michigan Transportation Funding Task Force⁵ recommended an annual expenditure level of \$6.1B (or about 3.2 times the amount spent in 2013), the option of doubling the expenditure to “more than \$20” would not even cover this recommendation.

From the poll responses to the above question, we created two dummy variables used as the dependent variables in a logistic regression analysis. The first is equal to one if the poll respondent said “nothing,” and equal to zero if the respondent offered any other response besides “undecided/refused.” The second is equal to one if “more than \$20” offered as the response, and equal to zero if any other response besides “undecided/refused” selected. Thus, we have chosen to account for the two extreme responses to this particular question.

We specifically wish to test whether a poll respondent’s *Knowledge of the Magnitude of Gas Tax*, and *Opinion on Who Would Pay for a Gas Tax Increase* exert a separate and distinctive influence on the two extreme representations of *Willingness to Pay for Road Improvements*. We

⁴See the January 2013 edition of *Michigan’s County Road Agencies: Driving Our Economy Forward*, published by the County Road Association, for the figure of \$1.9 B spent in FY 2012 from the Michigan Transportation Fund (p. 5). Given a 2013 population of approximately 7.7 M adults (greater than age 18) in Michigan, this is equivalent to about \$250 spent on road improvement per adult in Michigan, or about \$21 per month.

⁵See *Transportation Solutions: A Report on Michigan’s Transportation Needs and Funding Alternatives* (p. x).

accomplish this through Logistic regression analysis where we control for other factors expected to influence a poll respondent's opinion on the question asked given the available data collected in the poll. The following represents our basic regression model:

$$\begin{aligned} \text{Willingness to Pay for Road Improvements} = \\ f(\text{Knowledge of Gas Tax, Pay for a Gas Tax Increase, Personal Characteristics,} \\ \text{Own Demand for Auto Use, Economy's Transport Need, Government's} \\ \text{Role}). \end{aligned}$$

We represent the six broad categories expected to influence willingness to pay for road improvements as:

$$\text{Knowledge of Gas Tax} = f(\text{MIGasTaxLower, MIGasTaxHigher, GasTax5075,} \\ \text{GasTax75100, GasTaxMore100}),$$

$$\text{Pay for a Gas Tax Increase} = f(\text{ConsumerPaysAll}),$$

$$\text{Personal Characteristics} = f(\text{Male, AgeOver65, Children, Income75100K,} \\ \text{Income100150K, IncomeOver150K, SomeCollege, CollegeGrad, GradSchool}),$$

$$\text{Own Demand for Auto Use} = f(\text{Drive5-10KMiles, Drive10-15KMiles, Drive15-} \\ \text{20KMiles, DriveMore20KMiles}),$$

$$\text{Economy's Transport Need} = f(\text{CountyPopDen, Detroit, CentralCity, Suburb,} \\ \text{SmallTown, EconStillWorse, EconBottomedOut}),$$

$$\text{Government's Role} = f(\text{TeaPartySupport}).$$

Table 3 includes specifics for the two dependent variables and each of the explanatory variables chosen to represent a causal factor. Table 4 includes the results of the two Logistic regression results using dependent variables set equal to one for no support for paying for road improvement and equal to one for the greatest support offered in the poll for paying for road improvement.

To derive an interpretable meaning of a statistically significant Odds Ratios reported in Table 4, subtract one from its value and multiply by 100. This represents the expected increase in the probability that the dependent variable equals one, instead of zero, when the explanatory

variable changes by one unit. In the case of dummy explanatory variables, this means the individual takes on the characteristic represented by the dummy as opposed to that in the base case. For example, consider the statistically significant odds ratio of 4.315 recorded in the PayZeroRoadImprove regression for the explanatory variable GasTaxMore100. This explanatory variable equals one if the respondent believes that the total per gallon gas tax in Michigan is greater than \$1.00. Subtracting one from this odds ratio, and multiplying by 100, yields 331.5, which represents an approximate 330 percent increase in the probability that a respondent would state they are willing to pay nothing for road improvements (over any of the other responses) if they believe the combined state and federal gas tax in Michigan is this high. To put this value in perspective, Figures 2 and 3 represent the relative influences found to exert a statistically significant influence in each regression.

A quick scan of Figure 2 shows that the greatest measured influence of whether a poll respondent states they would pay nothing for road improvement, as compared to be willing to pay any amount, is their belief that that the per gallon state and federal gasoline tax is greater than \$1.00 (it is in fact \$0.374). People who believe this, as opposed to those who believe the federal and state per-gallon gas tax in Michigan is less than \$0.50 (as it is), are about 330% more likely to not support any more expenditure for road improvements. As perhaps expected, the elderly and those who support the minimal-government agenda of the Tea Party are also more likely to be against any further government expenditure for road improvements. Respondents, who have higher education, and those living in a more population dense county, are less likely to hold this position, however. The presence of children in a household reduces by nearly 300% the likelihood of an individual choosing no further public spending on road improvement, which is likely due to the greater constraint that children puts on the budgets of such households. Alternatively, this children present finding could be the result of parents desiring that

government instead spend more on alternative items that more directly benefit them like public education.

The characteristics found to influence a poll respondent's opinion that they would support government collecting an additional \$20 per month from them for road improvement, as opposed to any lesser amount, are also not a surprise. Those that: (1) report higher incomes, (2) drive more both in estimated miles and because they live in a small town, and (3) live at higher population density, are all more likely to support such an increase. The calculated responsiveness of this support to income, in fact, is rather outstanding. Someone coming from a household with a combined yearly income of over \$150,000 is over 2,300% more likely to choose the maximum expenditure amount offered on the survey over all other amounts, than someone coming from a household with a combined income of less than \$75,000 (the excluded category). While someone, who drives more than 20,000 miles a year, as compared to the excluded category of those who drive less than 5,000 miles per year, is over 1,300% more likely to support this expenditure amount. Interestingly, a poll respondent who thought Michigan's economy is still getting worse, as compared to the excluded category that it has leveled off, is nearly 390% more likely to support a higher expenditure on road improvement. Perhaps this correlative finding is driven by the opinion that an improvement in infrastructure spending is necessary to help jump-start the economy.

Turning to the derived influence that the perception of the existing gas tax exerted on the desire for this high-end of additional road improvement funds offered in the Michigan poll, there is much to consider. Those who believe that the gasoline tax rate in Michigan is lower than in other states are over 500% more likely to choose the need for the highest expenditure level. If they also believe that the consumer will pay for the entire per-gallon gasoline tax hike in the form of an equivalent rise in per-gallon gasoline price, they are about 70% less likely to support

this transportation expenditure increase. This is in comparison to the excluded category of respondents that believe the producer pays all or shares a portion of the tax with the consumer through a reduction in pump price. Furthermore, a poll respondent who perceived the total per-gallon gas tax in Michigan to be greater than \$1.00, or those that perceived it to be between \$0.50 and \$0.75, were respectively about 80% and 90% less likely to support this high-end expenditure increase for road improvement than those who correctly perceived this tax to be less than \$0.50.

V. Conclusion

Taxpayers in Michigan do not have a good understanding of the magnitude of state and federal fuel taxes. Half of respondents (voters) overestimate the magnitude by at least a factor of five, and three-quarters overestimate the magnitude by at least a factor of three. Moreover, voter (mis)perception about the magnitude of state fuel taxes affects their views regarding highway revenue and investment proposals. Voters who substantially overestimate the magnitude of state gasoline taxes are willing to pay much smaller amounts (including zero) for additional highway investment.

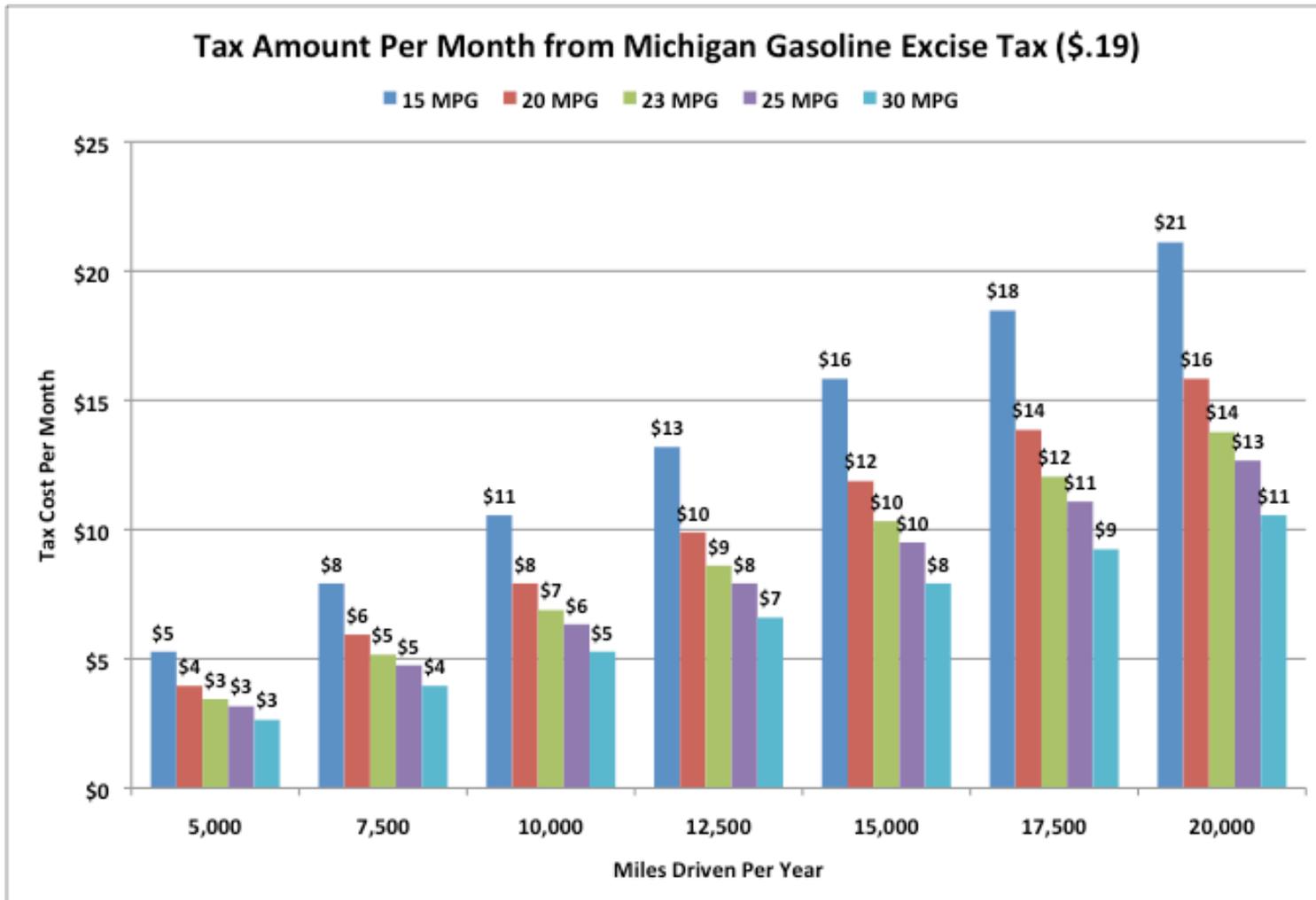
These results suggest that surveys of voter preferences regarding fuel tax increases or additional highway investment might be misleading to the extent that a misunderstanding of the existing taxes influences poll responses. Therefore, a reasonable policy implication from this research is that proposals to generate additional revenue for highway investment are likely to have more success if accompanied by a public education campaign concerning the magnitude of current revenue sources.

Our continuing research agenda on this topic includes conducting this same survey in California in early 2105 and a further examination of a number of other issues using both the Michigan and California data. We are specifically interested in a further empirical examination

of the individual characteristics (age, education, income, geographic location, etc.) related to tax, miles driven, and toll misperceptions.

After the California survey is completed, not only will a comparison of perceptions in the two states be possible, but also a better analysis of the factors contributing to those perceptions. The two states have different infrastructure quantity and quality as well as different tax structures and rates. Obviously, population and road mileage are very different between the states. On the other hand, vehicle-miles of travel per licensed driver and road quality measures are remarkably similar. These distinctions will permit comparison of the factors exerting an influence on factual perceptions and policy opinions in the two states.

Figure 1



**Table 1: Road Expenditure Preferences
(Michigan Epic-MRA Poll, August 2014)**

Given the amount of roads that exist in Michigan and their condition, should the state and local governments be spending more or less on maintenance of existing roads than they do currently?

89%	More
2%	Less
7%	About the same
2%	Undecided/Refused

Given the amount of roads that exist in Michigan and their condition, should the state and local governments be spending more or less on construction of new roads than they do currently?

41%	More
38%	Less
15%	About the same
6%	Undecided/Refused

How much more would you be willing to pay per month in any form (gas taxes, other taxes, toll charges, etc.) than you are currently paying to improve Michigan's roads?

43%	Nothing
16%	Up to \$5
17%	Between \$5 and \$10
12%	Between \$10 and \$20
8%	More than \$20
4%	Undecided/Refused

**Table 2: Michigan Gasoline Tax Perceptions
(Epic-MRA Poll, August 2014)**

Consider the average or typical driver in Michigan, who might be different than you. How much would you estimate that the average driver in Michigan pays in state gasoline tax each month?

29%	More than \$50
21%	About \$50
24%	About \$30
6%	About \$10
1%	About \$5
19%	Undecided/Refused

What would you estimate amount of the combined MI state and federal government gasoline excise tax per gallon?

11%	Between \$.10 and \$.25
19%	Between \$.25 and \$.50
16%	Between \$.50 and \$.75
14%	Between \$.75 and \$1.00
18%	More than \$1.00
22%	Undecided/Refused

Estimate the number of miles you drove last year.

16%	Less than 5,000 miles
26%	Between 5,000 and 10,000 miles
26%	Between 10,000 and 15,000 miles
14%	Between 15,000 and 20,000 miles
17%	More than 20,000 miles
1%	Undecided/Refused

**Table 3: Variable Description and Descriptive Statistics
(231 Observations, Most Dummy Variables)**

<i>Variable Category/Name</i>	<i>Description</i>	<i>Mean</i>
<i>Dependent</i>		
PayZeroRoadImprove	Equals 1 if willing to pay nothing in any form for road improvements	0.36
PayMore20RoadImprove	Equals 1 if willing to pay more than \$20 per month in any form for road improvements	0.12
<i>Knowledge of Gas Tax</i>		
MIGasTaxLower	Equals 1 if believes total per-gallon gas tax in MI is lower than in other states	0.09
MIGasTaxHigher	Equals 1 if believes total per-gallon gas tax in MI is higher than in other states	0.69
GasTax5075	Equals 1 if believes total per gallon gas tax in MI is between \$0.50 and \$0.75	0.22
GasTax75100	Equals 1 if believes total per gallon gas tax in MI is between \$0.75 and \$1.00	0.20
GasTaxMore100	Equals 1 if believes total per gallon gas tax in MI is greater than \$1.00	0.20
<i>Pay for a Gas Tax Increase</i>		
ConsumerPaysAll	Equals 1 if believes that after state imposes a \$0.10 per-gallon tax, price per-gallon of gasoline rises by \$0.10 ⁶	0.73
<i>Personal Characteristics</i>		
Male	Equals 1 if identified as male by interviewer	0.54
AgeOver65	Equals 1 if over age 65 based upon date of birth given	0.25
Children	Equals 1 if answered yes to whether children less than age 18 residing in household	0.34
Income75100K	Equals 1 if told interviewer to stop at the \$75 to \$100K when asked what yearly income is of all in household	0.17
Income100150K	Equals 1 if told interviewer to stop at the \$100 to \$150K when asked what yearly income is of all in household	0.16
IncomeOver150K	Equals 1 if told interviewer to stop at over \$150K when asked what yearly income is of all in household	0.07
SomeCollege	Equals 1 if reported some college attendance but not a bachelor's degree	0.23
CollegeGrad	Equals 1 if reported having earned a bachelor's degree	0.33
GradSchool	Equals 1 if reported some post-bachelorette college attendance or degree	0.22
<i>Own Demand for Auto Use</i>		

⁶ The recent work of Marion and Muehlegger (2011) indicates that in most cases the economic incidence of a gas tax does entirely fall upon the consumer with the exception being in states that allow greater heterogeneity in gasoline content requirements.

Drive5-10KMiles	Equals 1 if estimated auto miles drove last year between 5 and 10K miles	0.29
Drive10-15KMiles	Equals 1 if estimated auto miles drove last year between 10 and 15K miles	0.26
Drive15-20KMiles	Equals 1 if estimated auto miles drove last year between 15 and 20K miles	0.12
DriveOver20KMiles	Equals 1 if estimated auto miles drove last year greater than 20K miles	0.19
<i>Economy's Transport Need</i>		
CountyPopDen	Population density in 2013 of the county that respondent reported as residing in	1,009
Detroit	Equals 1 if City of Detroit reported as place of residence	0.05
CentralCity	Equals 1 if respondent chose central city as place of residence (rural area is base)	0.13
Suburb	Equals 1 if respondent chose suburb in urban area as place of residence (rural area is base)	0.39
SmallTown	Equals 1 if respondent chose small town outside of urban area as place of residence (rural area is base)	0.21
EconStillWorse	Equals 1 if they believe that the MI economy has not bottomed out and will still get worse	0.12
EconBottomedOut	Equals 1 if they believe that the MI economy has already bottomed out and is starting to improve	0.27
<i>Government's Role</i>		
TeaPartySupport	Equals 1 if chose strongly or somewhat supports the Tea Party Movement (strongly or somewhat opposes is base)	0.41

**Table 4: Logistic Regression Results
(231 Observations, Odds Ratio Reported)**

<i>Explanatory Variable</i>	Dependent Variable	
	PayZeroRoadImprove	PayMore20RoadImprove
Knowledge of Gas Tax		
MIGasTaxLower	0.698	6.068*
MIGasTaxHigher	1.257	2.147
GasTax5075	0.987	0.084**
GasTax75100	1.783	0.481
GasTaxMore100	4.315***	0.222*
Pay for a Gas Tax Increase		
ConsumerPaysAll	1.408	0.293**
Personal Characteristics		
Male	0.721	1.191
AgeOver65	3.395***	0.710
Children	3.958***	
Income75100K	0.707	3.956**
Income100150K	0.692	12.233***
IncomeOver150K	1.024	24.726***
SomeCollege	0.888	0.103**
CollegeGrad	0.631	0.269
GradSchool	0.358**	0.150**
Own Demand for Auto Use		
Drive5-10KMiles	2.178	3.232
Drive10-15KMiles	1.609	4.261*
Drive15-20KMiles	1.108	7.884**
DriveOver20KMiles	1.909	14.236***
Economy's Transport Need		
CountyPopDen	0.999**	1.001***
Detroit	1.536	0.323
CentralCity	1.522	0.834
Suburb	0.831	1.841
SmallTown	0.560	7.027*
EconStillWorse	0.445	4.895**
EconBottomedOut	1.792	1.018
Government's Role		
TeaPartySupport	2.723***	0.712
<i>Pseudo R-Squared</i>	0.203	0.350

Statistical significance, in a two-tailed test, at *** greater than 99% confidence, at ** 95 to 99% confidence, and * at 90 to 95% confidence.

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Figure 2: Relative Influence of Explanatory Variables on Poll Respondents Choice of Paying Nothing for Road Improvement (Relative to all Other Options)

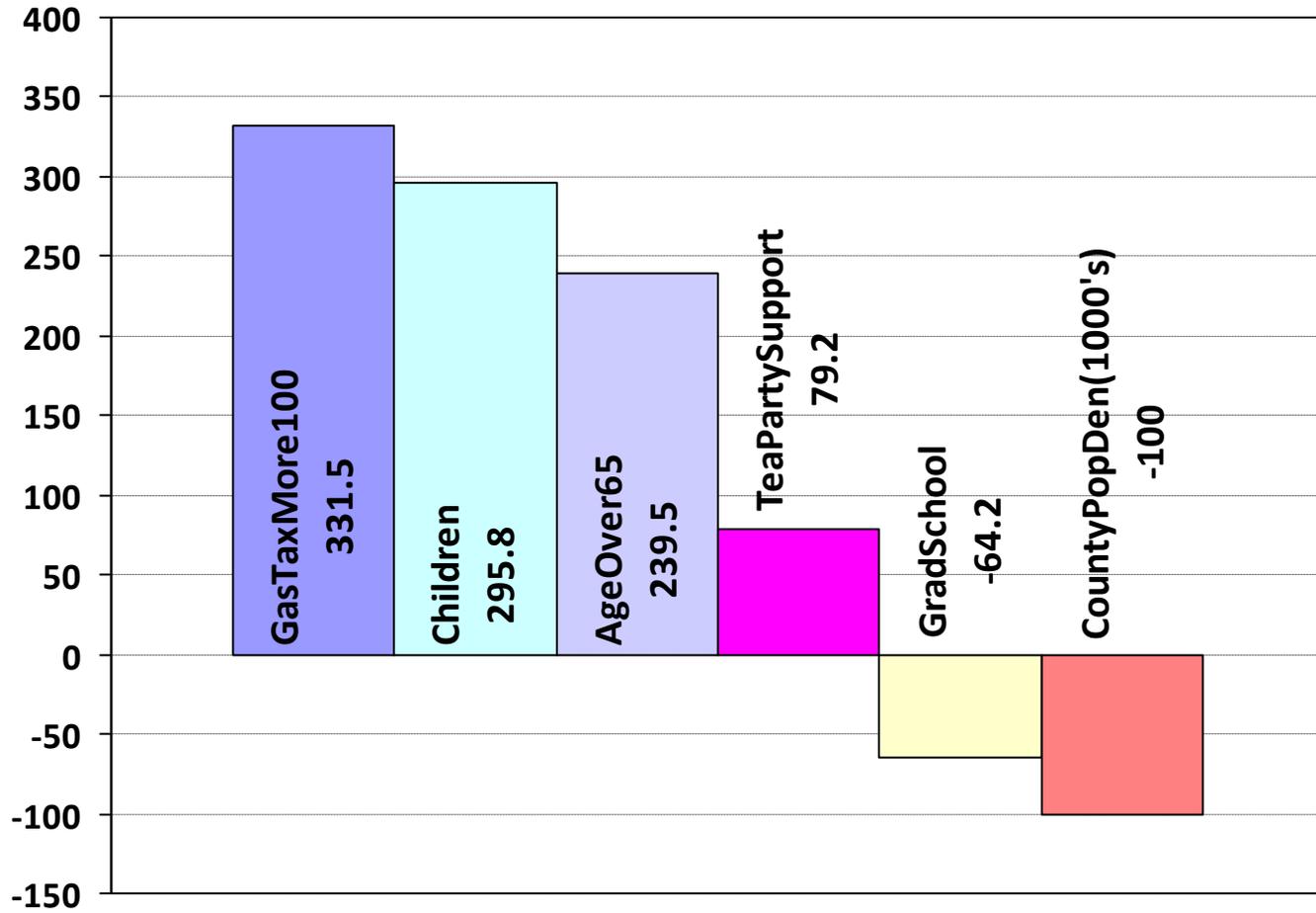


Figure 3: Relative Influence of Explanatory Variables on Poll Respondents Choice of Paying More than \$20 More per Month for Road Improvement (Relative to all Other Options)

