

ports of schedule incompatibilities by nearly two to one; among employed wives they are equal; among employed female single parents, reports of excessive work time are outnumbered by schedule incompatibility five to one—a complete reversal of the employed husbands' pattern. Thus, the ratio of reports of excessive work to those of schedule incompatibility varies markedly in these three

groups. Though employed wives are intermediate between employed husbands and employed female single parents in this comparison, there is another respect in which employed wives are distinctive. Over a quarter of them report work "spillover" in the form of adverse physical or psychological consequences of work, a higher proportion than any other group.

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Consumer Attitudes and Perceptions and Automobile Fuel Economy Standards

Daniel H. Hill and Martha S. Hill
Survey Research Center
The University of Michigan

The fuel economy standards mandated under Title V of the Vehicle Information and Cost Savings Act of 1974 constitute one of the first pieces of the national energy program to be put in place. These standards, which originally applied primarily to passenger vehicles, compel domestic manufacturers to meet increasingly stringent fuel economy standards or face substantial financial penalties. The target set forth in the act is a sales-weighted fleet average of 27.5 miles per gallon by the model year 1985. In effect, this goal forces domestic manufacturers to produce a European-style automobile. Whether or not the American consumer will accept such an automobile in the absence of European-style petroleum prices is a question yet to be answered.

The mere fact that manufacturers must be compelled to alter current vehicle characteristics in order to improve fuel economy indicates that the American consumer has a well-developed taste for large, heavy, relatively inefficient passenger cars. For Title V to be successful consumers must be willing to make some sacrifices. Because the standards apply only to certain classes of new vehicles, prospective automobile buyers have a number of alternatives to the fuel efficient passenger vehicles being offered by domestic manufacturers. These alternatives range from shifting to larger car classes than would otherwise be bought or to trucks, vans, or other nonpassenger vehicles, to delaying the purchase decision by holding on to existing fuel inefficient automobiles. The success of the program mandated under Title V depends crucially on which alternatives are chosen by the consumer. Thus, while the fuel economy standards are mandatory for manufacturers, their actual success depends to a certain extent on the willingness of consumers to make voluntary sacrifices.

The consumer's response to the type of vehicle being produced in order to comply with the fuel economy standards depends on his or her attitudes and perceptions about a large number of factors specific to the automobile itself and to the market in general. Over the years the Survey Research Center has collected a great deal of attitudinal and perceptual information on many of these factors. In the following pages we examine this information from the point of view of its implications toward the success of the fuel economy standards program.

Perceptions of the Need for Resource Conservation

The goals of the program are to increase the fuel economy of the American vehicle fleet so that our limited supplies of fossil fuels, in particular petroleum, will last until alternative sources of energy can be developed, or until alternative modes of transportation can evolve. Thus a basic premise of the program is that our supplies of petroleum are limited and, unless actions are taken now to curb our consumption of this energy source, the transition to alternative fuels or modes of transportation will be very painful to the American public. To some extent, the success of the program depends on whether U.S. consumers agree with and will respond to the basic goals of the program.

Some insights into the views and behavior of the American consuming public can be gathered from an analysis of the opinions of vehicle-owning households concerning the need for conservation of resources and the relation of those opinions to transportation behavior.

In both the fall of 1974 and the spring of 1977 representative samples of American primary adults¹ were asked the following question:

There has been talk about shortages of energy, food, and raw materials in this country. Do you think that in the coming years we will have plenty to meet our needs, a sufficient amount, or will we have to consume less?

Responses to this question indicated that in both years about two-thirds of these respondents believed that limits to resources are severe enough to require curtailment of future consumption. Only a small proportion, less than 10 percent, thought there would be plentiful supplies of energy, food, and raw materials, while nearly a quarter believed supplies would be just adequate. Between late 1974 and mid-1977 there was, however, a small but significant shift away from the opinion that resources would be inadequate to meet existing consumption demands (from 68 to 63 percent). The fact that in both years very few of the respondents (about 2 percent) said that they did not know indicates that most Americans had given some thought to the problems of shortages and could express an opinion.

Impact of Perceived Conservation Need on Gasoline Consumption

The mere fact that most American consumers are concerned about the adequacy of resources does not mean that they will make the sacrifices implied by the fuel economy program. Although we do not have much direct evidence of the impact of concern about the adequacy of resources on willingness to make sacrifices in the type of vehicle driven, we do have data on its impact on another factor related to gasoline consumption—the amount of driving actually done. If people are willing to make the quantitative sacrifice of driving less, then they may be willing to make qualitative sacrifices in vehicle size, weight, and performance in order to stretch energy supplies longer. To investigate this possibility, we examined the relationship between the likelihood of vehicle-owning households reporting reduced driving in the fall of 1974 and their opinions concerning the adequacy of resources (Table 1). Even though large proportions of vehicle owners expressed belief in a societal need for conservation, those with this belief were not significantly more likely to have reduced driving than those with lesser concern about the adequacy of resources. This was true in a simple bivariate sense (unadjusted proportion) and with the addition of several controls for demographic factors such as differences in family size and family income (adjusted proportion).²

As further evidence of the minimal impact of conservation consciousness on transportation behavior, we found that when a separate cross-section of households who had reduced their annual miles driven were specifically

asked why they were driving less, the overwhelming majority of responses were unrelated to energy considerations (Table 2). Less than 10 percent of the drivers mentioned energy considerations as a reason for reduced

Table 1. RELATIONSHIP BETWEEN HAVING REDUCED DRIVING DURING THE PAST YEAR AND PERCEPTIONS OF RESOURCE ADEQUACY^a

Perceptions as to Adequacy of Resources	N ^b	Weighted Percent	Proportion Having Reduced Driving	
			Unadjusted	Adjusted ^c
Plentiful supply	73	5.9	.549	.581
Sufficient supply	304	24.2	.545	.548
Inadequate supply; must consume less	835	67.9	.614	.609
DK; NA ^d	24	2.0	.673	.711
Eta ²			.0045	
Beta ²				.0039

^aResponses from primary adults in households with a vehicle, fourth quarter 1974. The overall (mean) proportion having reduced driving was .594, with a standard deviation of .491.

^bNumber of observations

^cOther variables in the multivariate analysis were family income, family size, respondent's sex and relationship to household head, education, age, marital status, household head's occupation, city size, number of vehicles owned, and whether household had reduced heat or electricity during the past year.

^dRespondents who answered "don't know" or from whom no response was ascertained.

Table 2. REASONS GIVEN FOR HAVING DRIVEN LESS^a

Reason	N ^b	First Mention Weighted Percent	Second Mention N	Second Mention Weighted Percent	Sum of 1st & 2nd Mentions (Percent)
Cost					
Cost of gasoline	134	26.0	25	4.9	30.9
Can't afford to drive as much	37	7.4	6	1.0	8.4
Expense of operating and maintaining a car	3	0.6	5	1.0	1.6
Energy Considerations					
Availability of gasoline	8	1.4	1	0.1	1.5
Other energy considerations	35	6.1	10	1.8	7.9
Shorter or Fewer Trips					
Not taking long trips	34	5.8	18	3.4	9.2
Living closer to destinations	49	8.1	8	1.2	9.3
Planning trips more carefully	4	0.9	4	0.7	1.6
Don't go places as much	20	3.9	9	1.6	5.5
Change in Transportation Mode					
No longer driving to work	11	1.8	5	0.9	2.7
Car pooling	9	1.5	4	0.5	2.0
Using mass transit more	4	0.5	—	—	0.5
Change in Employment Status					
Unemployed	21	3.7	2	0.4	4.1
Retired; family member left labor force	30	6.4	2	0.4	6.8
Other Personal Reasons					
(e.g., sick)	78	16.1	24	4.6	20.7
Other ^c	40	8.1	8	1.4	9.5
Don't know	2	0.5	—	—	0.5
Not ascertained	6	1.3	—	—	1.3
Total	525	100.0	131	24.1	124.1

^aThe question was "Why are you driving less now?", which followed the question concerning whether respondent was driving fewer miles per year compared with "a couple of years ago." Responses are from primary adults in households with a vehicle, second quarter 1975.

^bNumber of observations.

^cMiscellaneous responses not classified elsewhere.

¹By primary adults we mean husbands, wives, and single household heads aged 18 or older. This excludes minors and extra adults in a household such as aged parents and other adult relatives.

²Significant differences in proportions having reduced driving would be associated with Eta² and Beta² values more than twice those actually observed.

driving. A much more prevalent reason for reduced driving concerned the cost; 30 percent of the respondents mentioned the cost of gasoline as a reason for driving less.

Preferences for Vehicle Modifications to Improve Fuel Economy

As noted above, in order to comply with Title V, automobile manufacturers must implement engineering modifications which yield improved fuel efficiency. If consumers dislike the modifications they may not purchase the new vehicles. To date, manufacturers have concentrated on downsizing vehicles as a primary means of improving the fuel efficiency of their fleet; the last 5000 pound domestic passenger automobile rolled off the assembly lines in spring 1978 while several new minicompact models have recently been offered. The attitudinal evidence suggests ambivalence among consumers to such changes.

Although the downsizing of automobiles is one of the most viable means of improving fuel economy, in 1976 most consumers expressed a preference for changing car engines rather than downsizing as a means of improving the fuel efficiency of new cars. Early in 1976 the following question was asked of a representative sample of American households who owned a vehicle:

There are various things the auto manufacturers could do to improve the gasoline mileage that new cars get. They could make cars *shorter and lighter*, they could make cars with *fewer options*, or they could make cars with *less powerful engines and acceleration*. For your purposes, which would you rather have them do?

Of these alternatives, reducing engine power and vehicle acceleration was the most popular method for increasing fuel efficiency. More than half the sample (61 percent) gave this response as a means of improving fuel efficiency whereas less than one-fifth wanted cars to be reduced in size and weight, and about the same proportion wanted to reduce the number of options offered.

The wording of this question tends to force respondents who want changes in engines to say they want less powerful engines. In fact, indications are that what most consumers really want are more efficient engines. When questions are phrased in such a manner as to suggest that compliance with Title V *could* come about by improved engine efficiency, consumers jump at the opportunity to voice their approval. The following question was asked in the spring of 1976:

Recently the federal government passed a new law that says that the average new car made in 1985 will have to get 27 miles to the gallon of gasoline, which is ten miles per gallon more than the average new car gets today. How do you think auto manufacturers will do this—by making new cars shorter and lighter, or by making engines more efficient?

More than 60 percent of vehicle-owning households said that compliance would involve improvements in engine efficiency. Only 12 percent thought that reducing vehicle size alone would be the source of the improved fuel efficiency needed in meeting the standards.

Most consumers apparently hoped that manufacturers would be able to improve engine efficiency so that fuel

economy could be increased without sacrificing performance or size. It would seem that consumers view the energy that is emitted from the exhaust pipe as pure waste, while that which is dissipated as a result of having large, heavy cars is not seen as wasteful. If forced to give up something in order to meet the fuel economy standards, consumers seem to have a preference for giving up engine performance as opposed to vehicle size.

Consumers' Reactions to the Idea of Downsizing Domestic Cars

Since downsizing is, in fact, one of the most expedient means of improving fuel economy,³ it is important to understand more specifically how American consumers react to the idea of domestic cars becoming shorter and lighter. Survey data for 1976 and early 1977 indicate that, although vehicle-owning households were doubtful that downsizing would result in substantial fuel economy improvements, a slim majority of them approved of the shorter and lighter cars being offered by domestic manufacturers. In late 1976, when asked, "Now thinking about all sizes of domestic cars, do you think making cars shorter and lighter is a good idea, or a bad idea, or what?", 54 percent of the consumers sampled said that they thought it was a good idea and only 21 percent said it was a bad idea; the remaining 26 percent were largely undecided and could see both good and bad aspects to downsizing.

³With engine displacements decreased so as to maintain equal overall performance, a 10 percent reduction in vehicle weight can improve fuel economy by 8 percent.

Table 3. REASONS FOR THINKING THAT MAKING CARS SHORTER AND LIGHTER IS A GOOD IDEA^a

Reason	First Mention		Second Mention		Sum of 1st & 2nd Mentions (Percent)
	N ^b	Weighted Percent	N	Weighted Percent	
Price					
Mileage	210	37.4	50	9.6	47.0
Other price factors	88	13.1	58	9.9	23.0
Performance					
Handling	25	5.9	25	4.1	10.0
Other performance factors	6	1.0	5	1.1	2.1
Safety/Quality/Service	17	3.7	16	2.8	6.5
Size/Weight					
General size	42	7.3	12	2.2	9.5
Parking	46	9.8	32	6.6	16.4
Other size/weight factors	20	3.2	11	1.5	4.7
Ecology/Conservation					
Energy crisis; availability of fuel	32	6.2	16	2.8	9.0
Other ecology/-conservation factors	35	5.5	19	3.0	8.5
Other ^c	19	3.4	8	1.2	4.6
Don't know	1	0.1	—	—	0.1
Not ascertained	16	3.3	—	—	3.3
Total	547	100.0	252	45.1	145.1

^aThe question was "Why do you say so?", which followed the question asking whether respondent thought making cars shorter and lighter was a good or bad idea. Responses are from primary adults in households with a vehicle, fourth quarter 1976.

^bNumber of observations.

^cMiscellaneous responses not classified elsewhere.

The reasons given for either favoring or opposing downsizing indicate perceptions of an economy/safety tradeoff associated with vehicle size and weight. The major reason given for approval of downsizing was economy—both expected fuel savings and other cost savings (Table 3). Improved gas mileage was the first thing that came to mind for 37.4 percent of those who thought making cars shorter and lighter was a good idea. An additional 9.6 percent of the people who approved of shorter and lighter cars mentioned gas mileage as a second reason, making a total of 47 percent of those favoring downsizing doing so at least in part because it would improve gas mileage. Other price factors such as lower initial purchase price were mentioned by almost one-quarter of those favoring downsizing. The dominant reason given by consumers who did not favor downsizing was that they believed that smaller cars were not as safe as traditional-size passenger cars. As Table 4 indicates, 47.2 percent of the consumers who thought making cars shorter and lighter was a bad idea mentioned safety as a reason. (Interestingly enough, more recent data indicate that the use of seatbelts is a strong predictor of stance on downsizing, but it is the drivers who *rarely* wear their seatbelts who are most likely to oppose downsizing.)

These data suggest that consumers' subjective valuations of the merits of economy and safety dominate their feelings about downsizing. However, differing opinions concerning the relative merits of downsized and traditional-size cars with respect to handling also seem to play some role. A substantial proportion of consumers indicated that they liked the idea of smaller and lighter cars because they believed these cars would handle better. (Parking ease was also a plus for smaller cars.) However, an equally large proportion of consumers indicated that they opposed downsizing because they believed it would result in deteriorated handling performance. Thus it appears that consumers differ substantially in their notions of what constitutes good handling performance in a car, just as they seem to differ in their subjective valuations of the importance of economy and safety.

In a multivariate analysis of factors associated with stance on downsizing, we found that the proportion of consumers favoring downsizing was higher among the highest education categories, for people in white collar occupations, and for those people who expected significant increases in gasoline prices. This last conclusion is consistent with the observed volatility of the small car market whenever gasoline prices change rapidly. Immediately after the 1973-74 oil embargo, and apparently now in the aftermath of the Iranian oil crises, sales of small fuel-efficient vehicles increased rapidly while sales of large cars and of trucks and vans weakened. During the intervening period, when real gasoline prices were rising only slowly, the pattern of sales reversed.

Table 4. REASONS FOR THINKING THAT MAKING CARS SHORTER AND LIGHTER IS A BAD IDEA^a

Reason	First Mention		Second Mention		Sum of 1st & 2nd Mentions (Percent)
	N ^b	Weighted Percent	N	Weighted Percent	
Price	10	5.6	6	3.6	9.2
Performance					
Handling; way it drives	29	13.9	10	5.4	19.3
Comfort; (soft) ride	8	2.4	10	4.9	7.3
Other performance factors	—	—	1	0.3	0.3
Safety/Quality/Service					
General safety, including safety related to weight of car	83	41.5	12	5.7	47.2
Quality	17	6.6	2	1.0	7.6
Other safety/-quality/service factors	—	—	1	0.4	0.4
Size/Weight					
General size	15	6.9	4	1.5	8.4
Weight	18	11.0	8	3.8	14.8
Other size/weight factors	9	3.2	3	1.2	4.4
Other ^c	9	5.4	—	—	5.4
Not Ascertained	8	3.3	—	—	3.3
Total	206	100.0	57	27.8	127.8

^aThe question was "Why do you say so?", which followed the question asking whether respondent thought making cars shorter and lighter was a good or bad idea. Responses are from primary adults in households with a vehicle, fourth quarter 1976.

^bNumber of observations.

^cMiscellaneous responses not classified elsewhere.

Summary and Conclusions

As we noted in our introduction, the success of the economy standards program mandated by Federal legislation depends to a large extent on the willingness of the consuming public to make voluntary sacrifices in the size of passenger automobiles they buy. If driving behavior is any indication of their willingness to make such sacrifices for altruistic reasons, then the program is likely to have serious problems: people who report reductions in driving attribute these reductions to fuel-price-related issues and not at all to the need to conserve energy. Their consciousness of limited resources has no effect on their reported driving behavior. Price perceptions, particularly gasoline price perceptions, seem to play a much more important role in both their reported driving behavior and their stance on downsizing as a means by which manufacturers can meet the fuel economy standards. Thus it seems unlikely that consumers will accept the type of vehicle being offered by manufacturers in order to meet the fuel economy standards *unless* they believe that gasoline prices are going to rise radically.