

A Research Note on:

HOUSEHOLD ENERGY EXPENDITURES: HAVE OLDER AMERICANS CHANGED THEIR ATTITUDES?

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ABSTRACT

This paper is based on information from a study examining energy policies in the western United States. It describes how older Americans, in a two-year period, changed their attitudes regarding energy conservation. It also reports how those changing attitudes are reflected in household expenditure patterns. The findings indicate that future cutbacks for energy conservation purposes may be made in the older Americans' behavior rather than in the physical structure of their homes.

INTRODUCTION

Energy conservation behavior by household members within the western United States has received considerable attention (Makela, Chatelain, Dillman and Tripple, 1982). Previous research, however, has not focused on the conservation behavior of the elderly population. According to Warriner (1981), the unique factors influencing older Americans in the amount of energy consumed include their housing, economic status, medical costs, health concerns and the influence of geographic location. As a group, older Americans in the western United States have different characteristics from elderly individuals living in other areas in regard to their housing and lifestyle patterns (Ritchie, McDougall and Claxton, 1981). Even within the western United States, there is considerable diversity in energy-conservation behavior among elderly consumers (Iams and Royce, 1984; Brandt and Guthrie, 1984). Given the current percentage of older Americans living and a projected increase in this age group in the future (Schulz, 1984), their energy consumption patterns deserve attention.

The Office of Technological Assessment (1979) reports that most older Americans are at a minimal level in their consumption of energy. The impact of rising energy costs on elderly consumers has already resulted in lower electricity consumption (Rosson and Sweitzer, 1981). Twenty-five percent of older Americans believe they cannot reduce their energy consumption further (Iams and Royce, 1984).

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According to Tierney (1982), elderly individuals are easily affected by fluctuations in hot and cold temperatures. Gladhart and Roosa (1982) find that individuals needing higher winter temperatures and lower summer temperatures-- such as the elderly-- find it difficult to accept lower levels of energy usage because their comfort levels would be adversely affected. For elderly individuals, comfortable indoor temperatures are a necessity.

Elderly consumers already spend a large proportion of their incomes on energy-related housing costs. For example, in 1979, about 23 percent of older mortgage-free home owners spent at least one-fourth of their incomes on home-energy expenses compared to only nine percent of similar home owners who were younger. This difference is due primarily to the lower incomes of older home owners and the high maintenance and fuel costs associated with their older homes (Fowles, 1983). Bauer and Badenhop (1984) find that families past the retirement age have an average energy budget that is almost twice the amount of other families. In another study, Warriner (1981) finds that elderly consumers pay proportionately more for electricity relative to their incomes. They have fewer appliances and smaller households on the average. However, they pay a larger proportion of their income for such needs as lighting, refrigeration, water heating, and cooking.

Forty-seven percent of older Americans live in housing built prior to 1950 (Office of Technological Assessment, 1979). Many of these older homes are in serious need of energy retrofitting. Because of the low incomes of many elderly occupants, however, the costs of retrofitting may be too great. Walden and Meeks (1982) find that older Americans are considerably less likely to make capital housing expenditures because they perceive lower benefits from those expenditures than do other age groups. In addition, many older Americans indicate that they do not have the physical strength to add energy-saving features that qualify for tax credits.

Each of these studies presents important information about older Americans and energy issues. Have older Americans changed their attitudes regarding their ability to conserve energy? If a change has occurred, is it reflected in the expenditure patterns of older Americans?

METHODS

Mail questionnaires were used to obtain information from individuals living in the western United States in 1981 and in 1983. A rural-urban stratified random sample of approximately 1500 households in each of eight states was used. The eight states included Arizona, Colorado, Idaho, Nevada, Oregon, Utah, Washington, and Wyoming. The surveys were administered simultaneously in each state using the Total Design Method (Dillman, 1978).

In 1981, completed questionnaires were obtained from 57.8 percent of the households surveyed (Makela et al., 1982). Of these households, 67 percent responded to the 1983 follow-up study. The 1983 questionnaire also was administered to a new independent sample of households selected in the same manner as the 1981 sample. The new independent sample was used as a control group to check for any bias in the re-surveyed group that may have been caused by the 1981 questionnaire. Completed questionnaires were obtained from 57 percent of the independent sample.

It was important that the same person who completed the questionnaire in 1981 be the same individual who completed the questionnaire in 1983. Variables used for matching respondents for the re-surveyed sample were questionnaire

identification number, sex, housing structure, and move-in date. If the respondents did not match on this set of criteria, their returns were eliminated from the study.

In both 1981 and 1983, the respondents were asked questions about their ability to reduce energy consumption, how efficient they estimated their homes to be, and the impact that energy costs had on their household expenditure patterns. A correlated t-test was used to search for changes in these responses from 1981 to 1983.

Description of the Respondents

Data for this paper were obtained from the complete questionnaires of respondents who were 65 years-of-age or older beginning in 1981. The number of re-surveyed respondents was 326 and the number of respondents in the control group was 392.

The average age of the respondents was 73.1 years. Men accounted for 65 percent of the sample. Sixty-five percent of the respondents were married. High school graduates accounted for 25.7 percent of the respondents. Over 43 percent of the respondents had some type of post-secondary training. Nearly half of the respondents had incomes between \$10,000 and \$30,000, while 91 percent were fully retired.

Ninety-two percent of the respondents owned their homes. The single-family, detached house accounted for 77 percent of the housing, while mobile homes made up another 15 percent of the dwellings in the survey. Sixty-two percent of the respondents had their mortgages paid in full. Forty-two percent of the dwellings occupied by the respondents were built before 1950. Thirty-three percent of the respondents' dwellings were constructed between 1950 and 1969, while 25 percent of the residences were built after 1969.

RESULTS

Ability to Reduce Consumption

The respondents were asked: "If you were asked to reduce your energy consumption during the entire year by one-fourth--that is, 25 percent less than you now consume--do you feel you could do it? Response categories ranged from "Definitely yes" to "Definitely no".

Table 1 shows that there is a significant ($p < 0.001$) change of opinion of older Americans toward their ability to reduce their energy consumption from 1981 to 1983. Frequency distributions of the data show that the number of respondents who indicated that they could not reduce their consumption decreased by ten percent. Those respondents who state that they can reduce their energy consumption increased by 16.9 percent. Respondents replying "I don't know." decreased by 6.9 percent. Similar responses appear in the 1983 control group.

Energy Efficiency of the Home

The respondents were asked: "How do you feel about the energy efficiency of your present home?" The responses were "efficient as can be", "a little improvement can be made", "some improvement can be made", and "a lot of improvement can be made."

When the correlated t-test is applied, it indicates that the change is significant at the 0.05 level (see Table 2). In both years, the majority of the respondents state that a little or some improvement can be made--about 64 percent and 60 percent for 1981 and 1983 respectively. There is a 4.0 percent increase for the response "energy efficient as can be". The 1983 control group shows similar response rates.

Table 1. Correlated t-Test for 1981 and 1983 attitude ratings of older Americans about ability to reduce energy usage by 25 percent next year

	df	1981		1983		t
		Mean	SD	Mean	SD	
Reduction of energy usage	259	1.15	0.07	1.22	0.08	-4.60*
		n=260				

* Significant at the 0.001 level

Table 2. Correlated t-Test for 1981 and 1983 attitude ratings of older Americans regarding energy efficiency of own home

	df	1981		1983		t
		Mean	SD	Mean	SD	
Energy efficiency of home	319	2.18	0.94	2.06	0.93	2.32*
		N=320				

*Significant at the 0.05 level

Household Expenditures

Households in the 1970s and 1980s have faced an historically unique situation. During this inflationary time period, incomes lagged behind increases in the cost of living. Concurrently, the per-unit cost of energy increased faster than could be offset by decreased energy use. Total utility bills continued to rise (Makela et al., 1982). To ascertain the adjustments in expenditure patterns of older Americans related to energy costs, the respondents were asked the extent of their cutbacks in 11 areas of household expenditures. The 11 areas were: Groceries, meals out, driving the car (or other vehicle), health care, vacations, recreation, education, housing (rent, mortgage or upkeep), purchases, money put into savings, and clothes. A four-point scale ranging from "none" to "a lot" was used in obtaining respondents' answers. Table 3 shows the results.

Table 3. Older Americans' expenditure patterns related to energy costs. Percentage changes in patterns, 1981-1983 (n matched by age and house, unweighted percentages by responses)

Expenditure Patterns	Survey Year	n*	No Cutbacks	Cutbacks	Percentage Change
Groceries	1981	281	33.1%	66.9%	23.2%
	1983		56.2	43.7	
Driving a car	1981	290	10.7	89.3	16.6
	1983		27.2	72.8	
Vacations	1981	291	21.0	79.0	15.5
	1983		36.4	63.6	
Meals out	1981	292	25.3	74.7	14.4
	1983		39.7	60.3	
Housing	1981	271	52.0	48.0	14.1
	1983		66.1	33.9	
Recreation	1981	292	23.3	76.7	14.0
	1983		37.3	62.7	
Purchase of appliances/furnishings	1981	287	33.1	66.9	13.9
	1983		47.0	53.0	
Clothes	1981	295	28.1	71.9	12.5
	1983		40.7	59.3	
Savings	1981	296	27.0	73.0	7.4
	1983		34.5	65.5	
Education	1981	255	75.7	24.3	6.7
	1983		82.4	17.6	
Health care	1981	286	64.1	35.9	4.6
	1983		68.9	31.1	

*n varies due to missing cases

Correlated t-test analysis is used on the 11 items regarding energy expenditure patterns of older Americans. The results appear in Table 4. For health care, the results are not significant. Education is significant, however, at the 0.05 level. The remaining nine items are significant at the 0.001 level, four of which involved transportation (eating out, driving a car, taking a vacation, and participating in recreation). Purchasing activities involving groceries, appliances/furnishings and clothing had highly significant results. Finally, savings activities were found to have enough change in reduced cutbacks to also produce significant results.

CONCLUSIONS

The purpose of this study is to determine if older Americans living in the western United States had (in a two-year period) changed their attitudes regarding their ability to conserve energy. Changes that occurred are reflected in the expenditure patterns of older Americans.

Table 4. Correlated t-test for 1981 and 1983 expenditure patterns of older Americans related to energy costs

Energy Expenditures	df	M 1981	SD	M 1983	SD	t
Groceries	280	2.21	1.02	1.75	0.96	7.81**
Meals out	291	2.75	1.21	2.30	1.21	6.08**
Driving a car	289	2.97	0.95	2.48	1.10	7.35**
Health care	285	1.71	1.03	1.59	0.96	1.87
Vacations	290	2.83	1.41	2.35	1.21	6.97**
Recreation	291	2.67	1.13	2.34	1.19	4.75**
Education	254	1.48	0.93	1.35	0.84	1.98*
Purchases of appliances/furnishings	286	2.41	1.16	2.06	1.15	5.08**
Savings	295	2.62	1.17	2.35	1.16	3.70**
Clothes	294	2.52	1.12	2.21	1.15	4.81**

*Significant at the 0.05 level

**Significant at the 0.001 level

The results of this study indicate that, from 1981 to 1983, the number of older Americans in the western United States who believe they can cut their energy consumption by 25 percent increased significantly. Where did they reduce this consumption? It is not by retrofitting their homes. There is an increase in the number of respondents who think their homes are as energy efficient as they can be. Such a response indicates that the physical structure itself cannot be made more efficient and that energy cutbacks cannot be made in that area. It is possible, however, that the 25 percent reduction can occur in household activities.

An examination of expenditure patterns related to energy costs provides some support for this idea and some explanation of the findings. The data indicate that not all 11 expenditure items examined are part of a continued budget cutback. This may indicate that, by 1983, older Americans had made all the cutbacks they could and, therefore, additional cutbacks could not be made in 1983. Another more likely possibility is that older Americans were no longer cutting back on expenditures, but actually were increasing their energy usage and their expenditures.

As the energy crisis was more immediate in 1981 and inflation was still high, older Americans had to cut expenses. Then, as the crisis seemingly abated and the general economic inflation rate began to drop, older Americans did not feel the pressure to reduce expenditures to adjust to energy costs. Energy usage among older Americans could have increased from 1981 to 1983 as they became accustomed to increased energy prices. If this pattern did occur, then older

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Americans would state that they could cutback their energy use by 25 percent should another energy crisis develop.

With the exception of the reduction in the number of expenditure cutbacks for groceries, the greatest changes occur in out-of-home activities; driving the car, eating out, taking vacations and participating in recreational activities. The opportunity to purchase more energy-efficient cars or other travel alternatives may not have been reflected in the responses of older Americans. Also, the reduction in the cost of gasoline from 1981 to 1983 may have influenced the amount spent for driving, thus increasing resources available for other expenditures. The data do not give insight into these latter events.

Further research on older Americans who display changing attitudes and behavior regarding energy issues may reveal other interesting patterns of crisis modification. Are older Americans indicating that they are reluctant to invest any more into the retrofitting their homes? Do they perceive that they will not reap substantial benefits from further energy-saving efforts? Have they truly made expenditure cutbacks to their perceived limit? Or have the recent, dramatic increases in health care costs replaced energy costs as a problem? These questions and other need attention as future studies about older Americans are conducted and analyzed.

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