The 1986 Residential Occupant Survey

**D. L. Ivey
P. K. Alley**

April 1987

**Prepared for
the Bonneville Power Administration
under a Related Services Agreement
with the U.S. Department of Energy
Contract DE-AC06-76RLO 1830**

**Pacific Northwest Laboratory
Operated for the U.S. Department of Energy
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PACIFIC NORTHWEST LABORATORY
operated by
BATTELLE MEMORIAL INSTITUTE
for the
UNITED STATES DEPARTMENT OF ENERGY
under Contract DE-AC06-76RLO 1830

Printed in the United States of America
Available from
National Technical Information Service
United States Department of Commerce
5285 Port Royal Road
Springfield, Virginia 22161

NTIS Price Codes
Microfiche A01

Printed Copy

Pages	Price Codes
001-025	A02
026-050	A03
051-075	A04
076-100	A05
101-125	A06
126-150	A07
151-175	A08
176-200	A09
201-225	A010
226-250	A011
251-275	A012
276-300	A013

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SUMMARY

In 1986, Pacific Northwest Laboratory developed the Residential Occupant Survey-Spring '86, which was implemented by Market Trends of Bellevue, Washington. The overall purpose of the study was to collect demographic, attitudinal, and behavioral data related to the use and conservation of electricity in dwellings participating in the Bonneville Power Administration's End-Use Load and Conservation Assessment Program (ELCAP).

Information was collected on the respondents' perceptions of the energy efficiency of their dwelling, temperature the dwelling was kept when people were at home and awake during the last heating season, which rooms, if any, were not heated during the last heating season, number of times the dwelling was unoccupied for at least one week, number of times pets were let out of the dwelling per day, attitudes toward energy use and conservation and several socio-demographic variables such as age, sex, and total household income.

The results of the data analyses showed age to be an important factor for reported indoor temperature and perceived energy efficiency of the dwelling. The results also showed that almost 60% of the ELCAP occupants do not heat one or more rooms during the heating season, and almost 45% of the ELCAP dwellings were unoccupied for at least one week during the reporting period. In terms of the reported allocation of household income for household energy expenses, the results showed that the reported dollar amount spent for the expenses remained relatively constant over income levels.

The information collected in the 86ROS will be useful to a number of studies both currently and in the future. For example, much of the data is currently being used to update the Fundamental Residential Characteristics data set for ELCAP residences.

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1.D INTRODUCTION

To better understand how electricity is used by the residential sector of the Pacific Northwest, the Bonneville Power Administration (BPA) is sponsoring the End-Use Load and Conservation Assessment Program (ELCAP). The purpose of this project is to measure not only the amount of electricity used by residential consumers, but also the time and the purposes for its use. During the past few years information about the structural characteristics of the ELCAP dwellings, as well as the behavioral, attitudinal, and demographic characteristics of the occupants, has been collected using the Residential Occupant Survey-Mail (ROSM), the Residential Occupant Survey-Telephone (ROST) and the Residential Building Characteristics On-Site Inspection (RI). In support of this ongoing work, the BPA contracted with Pacific Northwest Laboratory (PNL) to develop and manage the Residential Occupant Survey-Spring '86 (86ROS). This survey was administered to dwellings in the BPA service area by Market Trends of Bellevue, Washington, during the spring of 1986.

The 86ROS survey had several objectives. The first was to update demographic and attitudinal data previously collected on the occupants of the ELCAP dwellings that had participated in the ROSM and/or the ROST. A second objective was to collect the same information on new occupants of ELCAP dwellings, where "new occupants" are those who moved into the ELCAP-metered dwelling after the administration of the ROST (summer, 1985). A third objective was to collect information that would be useful when combined with the metered data. For example, occupants were asked if they had any pets that are let out of the heated part of their home on a regular basis. If the response was affirmative, they were asked to estimate the number of times per day the pets are let out of the home. Since the opening of a door can result in a substantial heat loss, this information, when combined with the metered data, will be useful for developing energy-use profiles of the occupants.

The sample for the 86ROS consisted of two basic groups of dwellings: 1) metered dwellings in the ELCAP's Base Study and four Case Studies, and 2) the ELCAP metered dwellings also involved in the Residential Standards Demonstration Program (RSDP) Matched Homes study. Since most of these

dwellings also participated in the ROSM and the ROST studies, it will be possible to track demographic and attitudinal changes over time by comparing the findings of these previous studies with the 86ROS results.

This report provides information on the development and implementation of the 86ROS as well as selected descriptive results. Conclusions and recommendations are presented in Chapter 2.0. Chapter 3.0 contains a description of the survey design and its implementation. Results of the data analyses are presented in Chapter 4.0.

2.0 CONCLUSIONS AND RECOMMENDATIONS

The demographic, attitudinal, and behavioral data collected by the 86ROS provides useful information related to the use and conservation of electricity in dwellings participating in one of the ELCAP studies. For example, the results show a positive correlation between reported indoor temperature and the age of the oldest resident. The results also show that older respondents (66 years or more) were twice as likely as younger respondents to report that their dwelling was as energy efficient as it could be.

In regards to living space not being heated, the results showed that almost 60% of the ELCAP occupants do not heat one or more rooms during the heating season. Also, almost 45% of the ELCAP dwellings were unoccupied for at least one week during the reporting period of a year. With this information, analysts may be able to make appropriate adjustments when analyzing aggregated energy consumption figures.

The 86ROS was the first of the residential occupant surveys to ask occupants to estimate what percentage of their total household income was allocated to different expenditure categories. The household energy expenses category yielded an unexpected result. The actual dollar amount spent for household energy expenses remained relatively constant over income levels.

Besides the analyses done for this report, the data collected in the 86ROS will be used to update the Fundamental Residential Characteristics data set for the ELCAP residences (located within the ELCAP Characteristics Database). This data set is currently being developed from information selected by the ROSM, the ROST, and the RI. One major use of periodically-obtained survey information such as the 86ROS, the ROSM, and the ROST data is the ability to relate detailed electricity end-use patterns to socio-demographic characteristics of the household at different periods of time (when the household itself does not change by moving out). When new occupants move into an ELCAP metered dwelling, of course, the most recent periodic survey provides the only relevant set of information for the household in that dwelling.

The 86ROS data, when combined with previous survey information, allows for analysis of the drift over time of characteristics of the current ELCAP sample. Changes in statistical bias from the characteristics of the targeted sample can be examined in this analysis. Further, the potential biasing impacts of sample degradation through the loss of the ELCAP metered houses from the program should be investigated, leading to an estimate of the loss associated with further reductions in the sample. For these reasons, new surveys with a similar set of tracking questions should be designed and implemented. Future surveys would also allow an opportunity to develop new and different questions to elicit more detailed information about the occupants of the ELCAP dwellings.

3.0 SURVEY DESIGN AND IMPLEMENTATION

3.1 INTRODUCTION

This section of the report reviews the survey design process, the development of the survey sample frame, and the implementation of the survey. Problems encountered during implementation of the survey and actions taken to solve them are also discussed.

3.2 SURVEY DESIGN

The 86ROS survey was designed early in 1986 with assistance from staff at PNL and BPA. Because many of the survey participants had participated in the ROSM and the ROST surveys during the previous 13 months, the 86ROS survey was designed to be as unobtrusive and simple as possible. The survey was conducted by mail, instead of by telephone, and was limited to four pages.

There are two basic types of questions in the 86ROS. One type was designed to update demographic, attitudinal, and behavioral information previously collected on the occupants of the ELCAP dwellings. To track the occupants' responses over time, a subset of these types of questions was taken from the ROSM and the ROST. To ensure the reliability of responses between dwellings and over time, questions used from previous surveys were worded the same on the 86ROS.

To better understand residential consumers' electricity usage and conservation investment, two new questions were asked on the 86ROS, that had not been asked on the ROSM or the ROST. One question asked the occupants how many times per day pets are let out of the heated part of their home. This information can be matched with the electricity usage data for the specific occupants of an ELCAP dwelling to develop a more accurate profile of the energy usage for the dwelling.

The other new question asked the occupants to estimate what percentage of their total combined income for 1985 was allocated to various necessities and

living expenses. This information, especially the amount allocated to household energy, can be used in analyses when combined with information about the occupant's previous conservation investments.

3.3 SURVEY SAMPLE

The 86ROS was designed to survey only occupants of the ELCAP dwellings. The dwellings included in the 86ROS are either current participants in the ELCAP Base Study, in an ELCAP Case Study, or in the ELCAP metered sample of RSDP homes. The sampling frame for the 86ROS consisted of 429 ELCAP dwellings.

3.4 SURVEY IMPLEMENTATION

Market Trends, a research company located in Bellevue, Washington, was subcontracted to field the survey and to provide a data tape of survey responses. On April 23, 1986, surveys were sent to the 429 ELCAP dwellings. By May 15, 1986, 159, or 37%, of the surveys had been completed and returned to Market Trends. On May 16, 1986, the 270 households from the original sample list, who had not returned the survey from the first mailing were sent a second survey. An additional 197 surveys were returned to Market Trends. Overall, 356 of the 429 surveys were returned by June 18, 1986, giving an overall response rate of 83.0%.

Survey responses were entered by Market Trends data entry personnel using OPUS-1, a data entry and tabulation program. The computer program permits the user to specify field lengths and a range of acceptable responses for each variable. Data from the survey were entered at two different times by two different data entry personnel. An OPUS-1 verification program was run which tries to match the two data files. The verification program produced an output file that indicated where the data did not match between the two files for each survey. At this point the original survey was reviewed and the possible errors were corrected. This procedure was repeated until there was a complete match between the surveys on both files.

A stratified random sample of surveys was selected for the error analysis. To perform the analysis, a binomial distribution had to be assumed for the possibility of errors. In other words, it was assumed that the data entry

personnel were just as likely to make an error on one question as they were on another. Each survey contained 46 bits of information that needed to be entered. After comparing the sample of actual surveys to the data entered on the data tape, PNL found one error. Therefore, based on 36 surveys and 46 bits of information, an error rate of .06% was estimated. Upon investigation, the one error appeared to be an error of interpretation by the data entry personnel rather than an incorrect typing of a number. With such an extremely low error rate, it is appropriate to assume that the data entered from the survey is accurate for analysis purposes.

Very few problems were associated with the implementation of the 86ROS. Three surveys were returned to Market Trends marked "addressee unknown" or "no mail receptacle." Each was remailed in a smaller envelope to the same address, but again, all three were returned. The ELCAP Site Relations coordinator at PNL was then contacted with this information. Another survey was returned incompleated with a note stating that the occupant had died.

Several respondents added comments or questions to their survey. Most frequently the respondents were questioning why certain types of information were needed. This occurred quite frequently for the income and income allocation questions. An interesting comment provided in response to the income allocation question was "Ridiculous-Like most everyone else with teenagers and cost of living--we just plug up the holes and be thankful we're able to do so most of the time. You want percentages?" Needless to say, the respondent did not provide the information.

4.0 RESULTS

4.1 INTRODUCTION

This section of the report presents some initial results of data analyses conducted on the 86ROS findings. The intent of this discussion is to give a brief description of the current occupants in the ELCAP dwellings by presenting socio-demographic, behavioral, and attitudinal results. The results presented are based on self-reported information provided by the occupants and therefore may be biased.

4.2 SOCIO-DEMOGRAPHIC INFORMATION

Table 4.1 presents frequencies and percentages of several socio-demographic variables. Almost 50% of the respondents and second householders are between the ages of 25 and 46 years old, and approximately 71% of the respondents on the 86ROS were males.

The education level of the occupants of a dwelling can be an important factor not only in terms of understanding electricity usage in a dwelling but also for predicting which dwellings are most likely to invest in energy conservation measures in the future. To categorize the dwellings by education, the most formally educated adult occupant for whom the 86ROS contains data was used for each household. Over 50% of the ELCAP dwellings contain adult occupants who have graduated from high school, and may have some college or post-high school vocational education; approximately 45% of the dwellings contain an adult who has a college degree, or more education, and the remaining 5% contain adults who have not graduated from high school.

Approximately 55% of the ELCAP dwellings have children living at home under 18 years of age. Over 85% of the dwellings have an occupant between the ages of 17 and 66 years old, and 17% of the dwellings have an occupant 66 years old or older. The results show that for the ELCAP dwellings, two occupants was the most frequent size of household (40.2%). Less than 10% of the dwellings have only one occupant while approximately 52% of the dwellings have three or more occupants.

TABLE 4.1. 86ROS Socio-Demographic Information

	<u>Number of Dwellings</u>	<u>Percentage of Dwellings</u>
<u>Age of Respondent</u>		
- 25 years or less	2	0.6%
- 26-45 years	176	49.9%
- 46-65 years	115	32.6%
- 66 years or more	60	17.0%
<u>Age of Second Householder</u>		
- 25 years or less	18	5.2%
- 26-45 years	170	48.9%
- 46-65 years	93	26.7%
- 66 years or more	34	9.8%
<u>Age of Oldest Resident</u>		
- 25 years or less	2	0.6%
- 26-45 years	167	47.9%
- 46-65 years	121	34.7
- 66 years or more	59	16.9%
<u>Sex of Respondent</u>		
- Male	252	70.8%
- Female	102	28.7%
<u>Sex of Second Householder</u>		
- Male	77	21.6%
- Female	244	68.5%
<u>Education of Respondent</u>		
- Less than high school graduate	28	7.9%
- High school graduate through some college ^(a)	179	50.3%
- College degree or more	141	39.5%
<u>Education of Second Householder</u>		
- Less than high school graduate	21	5.9%
- High school graduate through some college ^(a)	209	58.7%
- College degree or more	84	23.6%

TABLE 4.1. (cont'd)

	<u>Number of Dwellings</u>	<u>Percentage of Dwellings</u>
<u>Education of Most Educated Householder</u>		
- Less than high school graduate	14	4.0%
- High school graduate through some college ^(a)	179	51.4%
- College degree or more	155	44.5%
<u>Age of the Occupants</u>		
- 5 years or less	79	22.2%
- 6-17 years old	117	32.9%
- 18-65 years old	307	86.2%
- 66 years or older	61	17.2%
<u>Number of Occupants</u>		
- 1	29	8.1%
- 2	143	40.2%
- 3	55	15.4%
- 4	76	21.3%
- 5 or more	53	15.0%
<u>Employed Full-Time</u>		
- Both full-time or 1 full-time--no second householder	112	31.9%
- Two householders/one full-time, one not	153	43.6%
- Both not full-time or one not full-time, no second householder	86	24.5%
<u>Total Household Income</u>		
- Less than \$16,000	51	14.4%
- \$16,000 - \$34,999	144	40.4%
- \$35,000 or more	132	37.1%

(a) "Some College" includes post high school vocational training.

The employment status of the occupants of a dwelling can be an important factor when attempting to predict energy use. Currently, 30% of the ELCAP dwellings have all adult occupants working full-time. Almost 44% of the households have one adult occupant working full-time while the other adult

occupant works part-time or not at all. Approximately 25% of the households have no adult occupants working full-time.

A relationship appears to exist between the age of the oldest occupant and the total household income, as is shown in Table 4.2. Between 40% and 50% of the dwellings with the oldest adults being 26 to 65 years old have a total household income of \$35,000 or more. There is a positive correlation between total household income and the education level of the most formally educated adult occupant. Approximately 57% of the households whose most formally educated adult has a college degree or more have a total household income of \$35,000 or more (see Table 4.3). These findings are not surprising since age

TABLE 4.2. Total Household Income by Age of the Residents

Total Household Income	Age of Residents ^(a)			
	25 Years or Less (n=2)	26-45 Years (n=161)	46-65 Years (n=108)	66 Years or More (n=54)
Less than \$16,000	0.0%	6.2	16.7	40.7%
\$16,000 to \$34,999	0.0%	46.6%	39.8%	44.4%
\$35,000 or More	0.0%	47.2%	43.5%	14.8%

(a) Dwellings were categorized by age according to the oldest adult resident for whom the 86ROS contains data.

TABLE 4.3. Total Household Income by Education Level

Total Household Income	Education Level ^(a)		
	Less Than High School Graduate (n=13)	High School Graduate Through Some College ^(b) (n=166)	College Degree or More (n=146)
Less than \$16,000	76.9%	20.5%	4.8%
\$16,000 to \$34,999	23.1%	50.6%	38.4%
\$35,000 or More	0.0%	28.9%	56.9%

(a) Dwellings were categorized by education according to the most formally educated adult resident for whom the 86ROS contains data.

(b) "Some college" includes post high school vocational training.

and education are usually related to income level. However, it does help to refine the picture of current ELCAP occupants.

4.3 BEHAVIORAL INFORMATION

Space heating loads during the winter months are strongly affected by how warm the dwellings are kept. Thus, occupants were asked what temperatures were maintained in the occupied space of their dwellings, while they were at home and awake, during the 1985/86 heating season. A potential problem may exist with the results and the interpretation of them, if the respondents reported the temperature setting their thermostats were set at, as opposed to the actual room temperature. The possible problem could be checked by comparing the self-reported temperatures with the actual room temperatures collected by the internal temperature sensors located in each ELCAP residence. The temperatures that people keep their dwellings may, in turn, be related to other factors such as income, age, or sex. The results in Table 4.4, for example, indicate a positive correlation between indoor temperature and the age of the oldest resident. (Table 4.1 shows the frequencies and percentages for the socio-demographic variables used in this section.)

As a way to partially validate the indoor temperatures the occupants reported, Table 4.5 shows the reported temperatures and the respondent's attitudes toward being comfortable when the temperature in their home was 68°F or

TABLE 4.4. Temperature the Dwellings are Kept When the Household is Home and Awake by Age of the Residents

Temperature	Age of Residents ^(a)			
	25 Years or Less (n=2)	26-45 Years (n=167)	46-65 Years (n=121)	66 Years or More (n=59)
Less than 65°	0.0%	7.8%	4.1%	0.0%
65°-69°	50.0%	47.9%	28.9%	30.5%
70°-74°	50.0%	37.1%	59.5%	57.6%
75° or more	0.0%	7.2%	7.4%	11.9%

(a) Dwellings were categorized by age according to the oldest adult resident for whom the 86ROS contains data.

TABLE 4.5. Temperature the Dwellings are Kept When the Household is Home and Awake by Respondent's Attitude Toward the Statement "In the winter, I find it difficult to be comfortable when the temperature in my home is 68°F or less."

<u>Temperature</u>	<u>Strongly Disagree or Disagree (n=97)</u>	<u>Neutral (n=69)</u>	<u>Strongly Agree or Agree (n=183)</u>
Less than 65°F	11.3%	7.3%	1.1%
65°-69°	67.0%	53.6%	17.5%
70°-74°	21.7%	39.1%	66.1%
75° or more	0.0%	0.0%	15.3%

less. As expected, occupants who kept the indoor temperature of their dwellings above 68°F reported difficulty in being comfortable when the temperature in their home was 68°F or less.

Another factor that affects the energy consumption in a dwelling is whether the occupants choose to not heat some of the rooms in their dwellings during the months when heating is necessary. The frequencies and percentages of rooms not heated are shown in Table 4.6. Almost 60% of the current ELCAP occupants reported not heating at least one room in their dwelling during the heating season. Not heating one or more bedrooms (65.1%) was the most frequent

TABLE 4.6. Dwellings with Unheated Rooms (n=205)

<u>Unheated Rooms</u>	<u>Number of Dwellings</u>	<u>Percentage of Dwellings</u>
Bedroom	134	65.4%
Bathroom	57	27.8%
Other small room	35	17.1%
Den/study	17	8.3%
Other large room	15	7.3%
Family/recreation room	12	5.9%
Dining room	4	2.0%
Living room	4	2.0%
Kitchen without eating area	3	1.5%
Kitchen with eating area	2	1.0%

choice of room type, followed by bathrooms (28.0%). Of those occupants that do not heat some of their rooms during the heating season, less than 2% of them close off the dining room, living room, or the kitchen (with or without an eating area).

It is also important to know if the dwelling was unoccupied for any durations of time. If a dwelling was unoccupied for several weeks during the year, the aggregated energy consumption of the dwelling for that year would effect the development of forecasting models for energy conservation. By knowing how long the dwelling was unoccupied during a given year the results can be adjusted. The 86ROS survey asked the respondents to indicate any periods of at least one week, since May 1, 1985, when they did not use any of their appliances, heating or cooling equipment, or other large equipment. Almost 45% of the dwellings were unoccupied for at least one week during the reporting period. Of those dwellings, over 50% were unoccupied for one week, approximately 20% were unoccupied for two weeks, 18% for three weeks, and 8% for four weeks or more (see Table 4.7).

As previously mentioned, one of the objectives of the 86ROS survey was to collect information that would help to better develop energy usage profiles when combined with the metered data. Since the opening of a door in a heated part of the dwelling can result in a substantial amount of heat loss, the respondents were asked whether they had any pets that were regularly let out of the heated part of their home and, if so, how frequently. Approximately 42% of the current occupants do not have pets and another 5% have pets but do not let them out of the home on a regular basis. Of those residents that let their

TABLE 4.7. Dwellings that were Unoccupied for at Least One Week (n=156)

<u>Number of Weeks Unoccupied</u>	<u>Number of Dwellings</u>	<u>Percentage of Responses</u>
One	82	52.6%
Two	33	21.2%
Three	28	17.9%
Four or More	13	8.3%

pets out on a regular basis, over 50% do so 1 to 4 times per day. Letting pets out 5 to 10 times per day was the next most frequent category (35.6%), as shown in Table 4.8.

4.4 ATTITUDINAL INFORMATION

An occupant's perception of the energy efficiency of their dwelling can be an important variable when segmenting the population into those most likely to invest in energy conservation measures. For example, if an occupant feels his home is about as energy efficient as it can be, then expectations for future conservation investment in the dwelling would likely be low. It may be more appropriate to target marketing efforts to occupants who had positive attitudes toward conservation investments and felt that moderate or major conservation improvements could be made. This, of course, will be affected by other factors such as total household income. Therefore, to focus marketing efforts for conservation investments, it is important to look not only at the occupants' perception of the energy efficiency of their dwelling but how these perceptions vary according to several other demographic, attitudinal, and behavioral variables.

A relationship appears to exist between the respondents' perception of their dwellings' energy efficiency and the respondent's age. Respondents 66 years old or more were more than two times as likely as younger respondents to state that their dwellings were as energy efficient as they could be (see Table 4.9.) (Table 4.1 shows the frequencies and percentages for the socio-demographic variables used in this section.)

TABLE 4.8. Number of Times a Day Pets are Let Out of the Heated Part of the Dwelling (n=188)

<u>Number of Times Pets are Let Out</u>	<u>Number of Dwellings</u>	<u>Percentage of Dwellings</u>
1-4 times per day	100	53.2%
5-10 times per day	67	35.6%
11 times or more per day	15	8.0%
Pets use a pet door or crawl space	6	3.2%

TABLE 4.9. Perceived Energy Efficiency of Occupants Home by Respondent's Age

<u>Perceived Energy Efficiency</u>	<u>Respondent's Age</u>			
	<u>25 Years or Less (n=2)</u>	<u>26-45 Years (n=170)</u>	<u>46-65 Years (n=111)</u>	<u>66 Years or More (n=59)</u>
As efficient as it can be	0.0%	11.18%	15.32%	33.90%
A little improvement can be made	0.0%	49.41%	43.24%	38.98%
A moderate amount of improvement can be made	100.0%	28.24%	29.73%	27.12%
A lot of improvement can be made	0.0%	11.18%	11.71%	0.0%

No clear relationship is apparent between the respondent's perception of his/her dwelling's energy efficiency and his/her level of education. The majority of respondents in each category of education felt that "a little improvement" was the choice that best described the energy efficiency of their dwelling. Table 4.10 shows how the respondent's perception of dwelling energy efficiency corresponds to education level.

TABLE 4.10. Perceived Energy Efficiency of Occupant's Home by Respondent's Level of Education

<u>Perceived Energy Efficiency</u>	<u>Less Than High School Graduate (n=26)</u>	<u>High School Graduate Through Some College^(a) (n=173)</u>	<u>College Degree or More (n=139)</u>
As efficient as it can be	34.6%	16.8%	13.0%
A little improvement can be made	38.5%	40.5%	51.8%
A moderate amount of improvement can be made	15.4%	32.4%	27.3%
A lot of improvement can be made	11.5%	10.4%	7.9%

(a) "Some college" includes post-high school vocational training.

As with education, no clear relationship is apparent between the employment status of the dwellings' occupants and the respondents' perceptions of the energy efficiency of the dwelling. (See Table 4.11.) It may be interesting to note that occupants of dwellings with no adult occupants employed full-time were most likely to state that their home is about as energy efficient as it could be. This finding may be partially explained if these occupants are retired and have already made energy improvements to their home. Otherwise employment status did not seem to affect the respondent's perceptions.

A relationship appears to exist between the respondents' perceived energy efficiency of their dwellings and the total household income, as can be seen in Table 4.12. Households with incomes of \$35,000 or more were somewhat more likely to state that their dwellings were as energy efficient as they could be or only a little improvement could be made than households with smaller incomes. Table 4.13 shows the breakdown between the respondents' perceptions of the energy efficiency of their dwellings and the temperature the dwellings are kept when the household is home and awake. Approximately 60% of the

TABLE 4.11. Perceived Energy Efficiency of Dwelling by Employment Status of Occupants

Perceived Energy Efficiency	Employment Status		
	Both Full-Time or One Full-Time-- No Second Householder (n=107)	Two Householders/ One Full-Time, One Not (n=150)	Both Not Full- Time or One Not Full-Time No Second (n=83)
As efficient as can be	13.1%	12.7%	27.7%
A little improve- ment can be made	45.8%	47.3%	41.0%
A moderate amount of improvement can be made	33.6%	27.3%	25.3%
A lot of improve- ment can be made	7.5%	12.7%	6.0%

TABLE 4.12. Perceived Energy Efficiency of Occupant's Home by Total Household Income

Perceived Energy Efficiency	Total Household Income		
	Less Than \$16,000 (n=49)	\$16,000 to \$34,999 (n=140)	\$35,000 or more (n=129)
As efficient as it can be	26.5%	12.1%	15.5%
A little improvement can be made	30.6%	40.7%	53.5%
A moderate amount of improvement can be made	34.7%	35.0%	23.3%
A lot of improvement can be made	8.2%	12.1%	7.8%

TABLE 4.13. Perceived Energy Efficient of Occupant's Home by Temperature the Dwellings are Kept When the Household is Home and Awake

Perceived Energy Efficiency	Temperature			
	Less Than 65°F (n=18)	65-69°F (n=128)	70-74°F (n=167)	75°F or More (n=28)
As efficient as it can be	16.7%	15.6%	16.8%	14.3%
A little improvement can be made	44.4%	46.9%	43.7%	50.0%
A moderate amount of improvement can be made	33.3%	28.1%	29.9%	28.6%
A lot of improvement can be made	5.6%	9.4%	9.6%	7.1%

dwellings at each of the temperature categories had respondents report that their dwellings were as energy efficient as they could be or a little improvement could be made.

Respondents were asked on the 86ROS to specify what percentage of their total 1985 household income was allocated to each of several different categories. One category was household energy, which could include the cost of utility bills and money spent on conservation improvements. Table 4.14 compared the respondents' perceptions of the energy efficiency of their dwellings to the

TABLE 4.14. Perceived Energy Efficiency of Occupant's Home by Amount of 1985 Total Household Income Allocated to Household Energy Expenses

<u>Perceived Energy Efficiency</u>	<u>Allocations to Household Energy Expenses</u>				
	0% (n=6)	1%-10% (n=159)	11%-20% (n=74)	21%-30% (n=16)	31% or More (n=7)
As efficient as it can be	16.7%	14.5%	10.8%	18.8%	57.1%
A little improvement can be made	50.0%	45.3%	41.9%	43.8%	14.3%
A moderate amount of improvement can be made	33.3%	28.9%	32.4%	32.3%	28.6%
A lot of improvement can be made	0.0%	11.3%	14.9%	6.3%	0.0%

percentage of income that was allocated by the respondents to household energy expenses. Those occupants that allocated 31% or more of their total household income to household energy expenses were the most likely group to report that their dwellings were about as energy efficient as they could be; however, if this category is combined with those that felt a little improvement could be made, the distinction between the different allocation amounts decreases.

Another way to estimate the likelihood of occupants investing in any energy conservation measures is to compare their perceptions of the dwelling's energy efficiency by their attitudes toward making their dwellings more energy efficient. The results of this comparison, as shown in Table 4.15, indicate that those who feel a moderate amount or a lot of improvement could be done to their dwellings also felt that it is hard for them to get around to making their dwellings more energy efficient. Considering these results it would be interesting to delve further into the reason(s) why the occupants find it hard to get around to making their homes more energy efficient. This information could be useful when developing energy conservation marketing programs.

To better understand energy usage patterns, it is important to look at the occupants' attitudes toward conservation and energy usage. This information, combined with demographic and behavioral results, can give a broader and more detailed picture of energy usage profiles. Occupants' attitudes can affect

TABLE 4.15. Perceived Energy Efficiency of Occupant's Home by Respondents Attitude Toward the Statement "It's hard for me to get around to making my home more energy efficient"

<u>Perceived Energy Efficiency</u>	<u>Strongly Disagree or Disagree (n=122)</u>	<u>Neutral (n=95)</u>	<u>Strongly Agree or Agree (n=117)</u>
As efficient as can be	24.8%	8.4%	12.8%
A little improvement can be made	51.6%	51.6%	35.0%
A moderate amount of improvement can be made	19.7%	29.5%	38.5%
A lot of improvement can be made	4.1%	10.5%	13.7%

motivation to participate in conservation practices or to invest in conservation measures. Therefore, eight attitude statements concerning energy usage and conservation practices were included on the 86ROS. Each of these attitude statements has been broken down by the respondent's age, sex, and education level as well as the total household income for 1985.

The highest levels of agreement for the statement, "In the winter, I find it difficult to be comfortable when the temperature in my home is 68°F or less" came from those respondents 66 years or older, those having less than a high school education, and those with a total household income of less than \$16,000. (See Table 4.16.) Almost 70% of those respondents with less than a high school education agreed with the statement, "Reducing the temperature of the water heater from 140°F to 120°F saves enough energy to make it worth doing". (See Table 4.17.) Only 50% of those who had graduated from high school and may have had some additional education, and 58% of those with a college degree were likely to agree that turning the water temperature down was worthwhile.

Total household income was the primary variable to differentiate respondents for the statement, "The main reason to conserve energy is to save money". Table 4.18 demonstrates that the likelihood of agreeing with the statement was negatively correlated with level of household income. Almost 70% of the respondents with incomes less than \$16,000 agreed with the statement, while

TABLE 4.16. The 86ROS Demographic Information by Respondents' Attitudes Toward the Statement "In the winter I find it difficult to be comfortable when the temperature in my home is 68°F or less"

	<u>Strongly Disagree or Disagree</u>	<u>Neutral</u>	<u>Strongly Agree or Agree</u>
Age of Respondent			
- 25 years or less (n=2)	50.0%	0.0%	50.0%
- 26-45 years (n=175)	34.9%	22.3%	42.9%
- 46-65 years (n=115)	20.9%	18.3%	60.9%
- 66 years or more (n=59)	17.0%	15.3%	67.8%
Sex of Respondent			
- Male (n=250)	28.0%	20.0%	52.0%
- Female (n=102)	26.5%	18.6%	54.9%
Education of Respondent			
- Less than high school graduate (n=27)	18.5%	14.8%	66.7%
- High school graduate through some college ^(a) (n=178)	22.5%	20.2%	57.3%
- College degree or more (n=141)	35.5%	19.2%	45.4%
Total Household Income			
- Less than \$16,000 (n=50)	22.0%	14.0%	64.0%
- \$16,000-\$34,999 (n=143)	26.6%	23.1%	50.4%
- \$35,000 or more (n=132)	30.3%	17.4%	52.3%

(a) "Some college" includes post high school vocational training.

approximately 58% of those with an income of \$16,000 to \$34,999 and 50% with an income of \$35,000 or more agreed with the statement.

The age of the respondent had a large effect on the responses to the attitude statement, "During the winter, when no one will be home for 2 hours or more, turning the temperature down is worthwhile." Respondents were much less likely to feel that it is worthwhile to turn the temperature down as their age increased (see Table 4.19). Almost 60% of those 26 to 45 years old agreed with the statement, while 52% of those 46 to 65 years old agreed, and 45% of those 66 years or older agreed.

TABLE 4.17. The 86ROS Demographic Information by Respondents' Attitudes Toward the Statement "Reducing the temperature of the water heater from 140°F to 120°F saves enough energy to make it worth doing"

	<u>Strongly Disagree or Disagree</u>	<u>Neutral</u>	<u>Strongly Agree or Agree</u>
Age of Respondent			
- 25 years or less (n=2)	0.0%	100.0%	0.0%
- 26-45 years (n=175)	16.0%	30.3%	53.7%
- 46-65 years (n=111)	18.9%	22.5%	58.6%
- 66 years or more (n=56)	23.2%	28.6%	48.2%
Sex of Respondent			
- Male (n=246)	18.3%	26.4%	55.3%
- Female (n=99)	17.2%	31.3%	51.5%
Education of Respondent			
- Less than high school graduate (n=26)	15.4%	15.4%	69.2%
- High school graduate through some college ^(a) (n=177)	18.1%	31.6%	50.3%
- College degree or more (n=137)	19.0%	23.4%	57.7%
Total Household Income			
- Less than \$16,000 (n=49)	18.4%	24.5%	57.1%
- \$16,000-\$34,999 (n=140)	15.7%	28.6%	55.7%
- \$35,000 or more (n=130)	18.5%	29.2%	52.3%

(a) "Some college" includes post high school vocational training.

Responses to the statement "It's hard for me to get around to making my home more energy efficient" varied by the age and education level of the respondent as well as the total household income. (See Table 4.20.) The respondents that tended to disagree were 45 years or less, had graduated from high school and may have had some college, and had an income of \$35,000 or more.

Age and education of the respondent and total household income also varied for the statement, "People have a right to use as much energy as they want and

TABLE 4.18. The 86ROS Demographic Information by Respondents' Attitudes Toward the Statement "The main reason to conserve energy is to save money"

	<u>Strongly Disagree or Disagree</u>	<u>Neutral</u>	<u>Strongly Agree or Agree</u>
Age of Respondent			
- 25 years or less (n=2)	0.0%	0.0%	100.0%
- 26-45 years (n=176)	12.5%	32.4%	55.15%
- 46-65 years (n=115)	19.1%	19.1%	61.7%
- 66 years or more (n=57)	15.8%	31.6%	52.6%
Sex of Respondent			
- Male (n=250)	14.8%	27.2%	58.0%
- Female (n=101)	15.8%	29.7%	54.5%
Education of Respondent			
- Less than high school graduate (n=26)	19.2%	19.2%	61.5%
- High school graduate through some college (a) (n=178)	14.6%	32.0%	53.4%
- College degree or more (n=141)	13.5%	26.2%	60.3%
Total Household Income			
- Less than \$16,000 (n=48)	8.3%	22.9%	68.8%
- \$16,000-\$34,999 (n=144)	16.7%	25.7%	57.6%
- \$35,000 or more (n=132)	16.7%	33.3%	50.0%

(a) "Some college" includes post high school vocational training.

can pay for." (See Table 4.21.) Those most in agreement were 66 years or older, had less than a high school education and had an income of less than \$16,000.

The price of an appliance seemed more important than its energy savings to respondents 66 years or older and to males. (See Table 4.22.) This finding is in response to the statement, "The price I first pay for the appliance is more important to me than the energy savings."

Almost 60% of the respondents 66 years or older agreed with the statement "To conserve enough energy to make a difference in my bills I would have to change my lifestyle." (See Table 4.23.) This is also the same segment of

TABLE 4.19. The 86ROS Demographic Information by Respondents' Attitudes Toward the Statement "During the winter, when no one will be home for 2 hours or more, turning the temperature down is worthwhile"

	<u>Strongly Disagree or Disagree</u>	<u>Neutral</u>	<u>Strongly Agree or Agree</u>
Age of Respondent			
- 25 years or less (n=2)	0.0%	100.0%	0.0%
- 26-45 years (n=175)	24.0%	17.1%	58.9%
- 46-65 years (n=114)	30.7%	17.5%	51.8%
- 66 years or more (n=56)	44.6%	10.7%	44.6%
Sex of Respondent			
- Male (n=247)	30.4%	17.0%	52.6%
- Female (n=101)	26.7%	16.8%	56.4%
Education of Respondent			
- Less than high school graduate (n=26)	30.8%	15.9%	53.9%
- High school graduate through some college ^(a) (n=176)	28.4%	18.8%	52.8%
- College degree or more (n=140)	15.7%	54.3%	30.0%
Total Household Income			
- Less than \$16,000 (n=49)	32.7%	20.4%	46.9%
- \$16,000-\$34,999 (n=141)	27.0%	17.7%	55.3%
- \$35,000 or more (n=131)	29.8%	15.3%	55.0%

(a) "Some college" includes post high school vocational training.

respondents that were more likely to state that it is difficult to get around to making their home more energy efficient. Those respondents with less than a high school degree were also more likely to feel that they would have to change their lifestyle to conserve enough energy to make a difference in their bills. Again, these results may be related to household income levels.

4.5 ALLOCATION OF TOTAL HOUSEHOLD INCOME

On past surveys respondents have always been asked what their total household income was for a particular year. It was decided to go beyond this and ask the respondents to estimate what percentages of their total household

TABLE 4.20. The 86RDS Demographic Information by Respondents' Attitudes Toward the Statement "It's hard for me to get around to making my home more energy efficient"

	<u>Strongly Disagree or Disagree</u>	<u>Neutral</u>	<u>Strongly Agree or Agree</u>
Age of Respondent			
- 25 years or less (n=2)	100.0%	0.0%	0.0%
- 26-45 years (n=173)	41.0%	27.8%	31.2%
- 46-65 years (n=112)	32.1%	31.3%	36.6%
- 66 years or more (n=54)	29.6%	24.1%	46.3%
Sex of Respondent			
- Male (n=243)	38.3%	25.9%	35.8%
- Female (n=99)	31.3%	34.3%	34.3%
Education of Respondent			
- Less than high school graduate (n=23)	30.4%	26.1%	43.5%
- High school graduate through some college ^(a) (n=175)	53.7%	29.7%	36.6%
- College degree or more (n=138)	40.6%	26.8%	32.6%
Total Household Income			
- Less than \$16,000 (n=47)	23.4%	31.9%	44.7%
- \$16,000-\$34,999 (n=139)	33.1%	30.2%	36.7%
- \$35,000 or more (n=130)	49.1%	37.4%	31.5%

(a) "Some college" includes post high school vocational training.

income they allocated to different categories of goods and services.

Table 4.24 shows the different categories with their associated descriptive statistics (mean, standard deviation, median, minimum value, and maximum value). When looking at mean percentages of allocation, housing was the largest expenditure with an average value of 20.2% of household income. This was closely followed by food with an average expenditure of 17.6%. What is most interesting in terms of this report is that household energy expenses were reported as the third largest expense for the ELCAP dwellings with an average allocation of 11.8% of their total household income.

TABLE 4.21. The 86ROS Demographic Information by Respondents' Attitudes Toward the Statement "People have a right to use as much energy as they want and can pay for"

	Strongly Disagree or Disagree	Neutral	Strongly Agree or Agree
Age of Respondent			
- 25 years or less (n=2)	50.0%	50.0%	0.0%
- 26-45 years (n=175)	54.3%	22.3%	23.4%
- 46-65 years (n=115)	61.7%	20.9%	17.4%
- 66 years or more (n=57)	45.6%	14.0%	40.4%
Sex of Respondent			
- Male (n=249)	52.2%	22.5%	25.3%
- Female (n=101)	63.4%	15.8%	20.8%
Education of Respondent			
- Less than high school graduate (n=26)	46.2%	11.5%	42.3%
- High school graduate through some college ^(a) (n=178)	54.5%	20.8%	24.7%
- College degree or more (n=140)	59.3%	22.9%	17.9%
Total Household Income			
- Less than \$16,000 (n=48)	41.7%	18.8%	39.6%
- \$16,000-\$34,999 (n=143)	57.3%	20.3%	22.4%
- \$35,000 or more (n=132)	60.6%	22.0%	17.4%

(a) "Some college" includes post high school vocational training.

Table 4.25 illustrates the relationship between the reported allocation of total household income among expenditure categories and the level of household income. Reported actual dollar amount spent on each expenditure category can be roughly estimated by multiplying the mean percent allocated for a particular category by the income level. By doing this it is possible to see whether reported actual dollar amounts change for an expenditure category over household income levels. For example, even though the percent of income for household energy decreases by approximately 50% over the income levels, the estimated dollar amount spent remains relatively constant.

TABLE 4.22. The 86ROS Demographic Information by Respondents' Attitudes Toward the Statement "The price I first pay for the appliance is more important to me than the energy savings"

	<u>Strongly Disagree or Disagree</u>	<u>Neutral</u>	<u>Strongly Agree or Agree</u>
Age of Respondent			
- 25 years or less (n=2)	100.0%	0.0%	0.0%
- 26-45 years (n=176)	53.4%	26.1%	20.5%
- 46-65 years (n=115)	60.9%	19.1%	20.0%
- 66 years or more (n=58)	43.1%	27.6%	29.3%
Sex of Respondent			
- Male (n=251)	55.8%	20.3%	23.9%
- Female (n=101)	50.5%	33.7%	15.8%
Education of Respondent			
- Less than high school graduate (n=27)	63.0%	14.8%	22.2%
- High school graduate through some college (a) (n=178)	53.9%	27.0%	19.1%
- College degree or more (n=141)	54.6%	22.0%	23.4%
Total Household Income			
- Less than \$16,000 (n=49)	51.0%	22.5%	26.5%
- \$16,000-\$34,999 (n=144)	59.0%	24.3%	16.7%
- \$35,000 or more (n=132)	53.0%	23.5%	23.5%

(a) "Some college" includes post high school vocational training.

TABLE 4.23. The 86ROS Demographic Information by Respondents' Attitudes Toward the Statement "To conserve enough energy to make a difference in my bills I would have to change my lifestyle"

	<u>Strongly Disagree or Disagree</u>	<u>Neutral</u>	<u>Strongly Agree or Agree</u>
Age of Respondent			
- 25 years or less (n=2)	50.0%	0.0%	50.0%
- 26-45 years (n=176)	41.5%	23.9%	34.7%
- 46-65 years (n=115)	47.0%	25.2%	27.8%
- 66 years or more (n=58)	25.9%	15.5%	58.6%
Sex of Respondent			
- Male (n=251)	41.8%	22.7%	35.5%
- Female (n=101)	39.6%	21.8%	38.6%
Education of Respondent			
- Less than high school graduate (n=27)	29.6%	25.9%	44.4%
- High school graduate through some college ^(a) (n=179)	40.2%	24.6%	35.2%
- College degree or more (n=140)	45.0%	18.6%	36.4%
Total Household Income			
- Less than \$16,000 (n=50)	42.0%	20.0%	38.0%
- \$16,000-\$34,999 (n=143)	41.3%	22.4%	36.4%
- \$35,000 or more (n=132)	40.9%	22.7%	36.4%

(a) "Some college" includes post high school vocational training.

TABLE 4.24. Reported Allocation of 1985 Total Household Income (n=268)

Expenditures	Mean	Standard Deviation	Median	Minimum Value	Maximum Value
Transportation	7.7%	7.3%	5.6%	0%	40.0%
Housing	20.2%	13.0%	20.0%	0%	75.0%
Household Durables	3.9%	4.2%	2.0%	0%	20.0%
Household Energy	11.8%	7.9%	10.0%	0%	50.0%
Food	17.7%	9.9%	15.0%	0%	60.0%
Clothing	6.3%	4.3%	5.0%	0%	22.0%
Recreation/Entertainment	7.1%	5.2%	5.0%	0%	32.0%
Medical	5.8%	5.4%	5.0%	0%	32.0%
Savings	9.2%	9.9%	5.0%	0%	55.0%
Other	10.2%	13.1%	5.0%	0%	55.0%

TABLE 4.25. Reported Allocation of 1985 Total Household Income by Total Household Income

Expenditures	Total Household Income					
	Less than \$16,000		\$16,000-\$34,999		\$35,000 or more	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Transportation	8.0%	9.1	8.0%	7.2	6.9%	6.0
Housing	15.2	12.9	22.0	13.8	19.5	11.5
Household Durables	2.3	4.2	4.2	4.4	4.2	4.0
Household Energy	18.2	11.1	12.5	7.4	9.1	5.5
Food	23.1	13.0	18.9	9.8	14.7	7.7
Clothing	6.2	4.8	6.1	4.2	6.7	4.4
Recreation/Entertainment	4.1	4.4	7.0	5.0	8.1	5.2
Medical	10.9	8.3	5.5	4.8	4.5	3.9
Savings	6.8	10.2	7.1	8.3	12.1	10.7
Other	5.3	10.3	8.4	11.9	14.1	14.2

APPENDIX A
SURVEY INSTRUMENT

Pacific Northwest Laboratory is currently in the process of updating their records on all the residents currently participating in the ELCAP studies. As an ELCAP participant, they would appreciate you taking a moment of your time to fill out the enclosed survey and return it in the enclosed self-addressed stamped envelope. All information from this survey will be kept strictly confidential.

Q-1. Please circle the number of the statement that best describes how you feel about the energy efficiency of your home?

1. My home is about as energy efficient as it can be
2. A little improvement can be made
3. Moderate improvement can be made
4. A lot of improvement can be made
5. Do not know

Q-2. What temperature did you keep the main occupied space of your home when people were at home and awake during the last heating season?

_____ Degrees Fahrenheit

Q-3. Are there any rooms in your home that are not heated during most months when heating is necessary? (Please check the appropriate blank below.)

_____ No
_____ Yes

If yes, please indicate how many of each of the following rooms are not heated: (Put your answers in the appropriate blanks below.)

_____ Bedrooms
_____ Bathrooms
_____ Den, Study, Library, Sewing Room
_____ Dining Room
_____ Family Room or Recreation Rooms
_____ Kitchens with eating areas
_____ Kitchens without eating areas
_____ Living Room
_____ Other small room (80 sq. ft. or less)
_____ Other large room (more than 80 sq. ft.)

Q-4. In order to help us better understand how you use energy in your home, would you please tell us how many times, since May 1, 1985, there have been periods of at least one week when you did not use any of your appliances, heating or cooling equipment, or any other large equipment, because you were away on vacation, on business, were hospitalized or for some other reason. (Put your answer in the appropriate blank below.)

_____ Never was away from home for at least one week
_____ Number of times away from home for at least one week

Q-5. On the average, how many times a day are pets let out of the heated part of your home? (Please put your answer in the appropriate blank below.)

- _____ There are no house pets
- _____ No pets are let out of the home on a daily basis
- _____ Pets are let out 1-4 times per day
- _____ Pets are let out 5-10 times per day
- _____ Pets are let out 11 times or more per day
- _____ Pets go out through a pet door or pet crawlspace

Q-6. For each of the following statements, please indicate how strongly you agree or disagree with the statement. (Circle the number that best describes your feelings.)

	Strongly Agree					Strongly Disagree				
(a) In the winter, I find it difficult to be comfortable when the temperature in my home is 68 F or less	1	2	3	4	5					
(b) Reducing the temperature of the water heater from 140 F to 120 F saves enough energy to make it worth doing.....	1	2	3	4	5					
(c) The main reason to conserve energy is to save money.....	1	2	3	4	5					
(d) During the winter, when no one will be home for 2 hours or more, turning the temperature down is worthwhile.....	1	2	3	4	5					
(e) It's hard for me to get around to making my home more energy efficient.....	1	2	3	4	5					
(f) People have a right to use as much energy as they want and can pay for.....	1	2	3	4	5					
(g) The price I first pay for the appliance is more important to me than the energy savings.....	1	2	3	4	5					
(h) To conserve enough energy to make a difference in my bills I would have to change my lifestyle.....	1	2	3	4	5					

Q-7. How many people live in your household, including yourself?
(Please count all members who lived in your household for at least 6 of the past 12 months whether or not they are related to you.)

_____ Number of people under 6 years old in household
_____ Number of people 6 through 17 years old in household
_____ Number of people 18 through 65 years old in household
_____ Number of people over 66 years old in household

Q-8. What is your age and the age of the second householder?
(Please check the appropriate blanks below.)

Respondent	Second Householder
_____ Under 18 years	_____ No second householder
_____ 18 to 25 years	_____ Under 18 years
_____ 26 to 35 years	_____ 18 to 25 years
_____ 36 to 45 years	_____ 26 to 35 years
_____ 46 to 55 years	_____ 36 to 45 years
_____ 56 to 65 years	_____ 46 to 55 years
_____ 66 years and older	_____ 56 to 65 years
	_____ 66 years and older

Q-9. What is your sex and the sex of the second householder?
(Please check the appropriate blanks below.)

Respondent	Second Householder
_____ Male	_____ No second householder
_____ Female	_____ Male
	_____ Female

Q-10. Are you and the second householder employed full-time?
(Please check the appropriate blanks below.)

Respondent	Second Householder
_____ Yes	_____ No second householder
_____ No	_____ Yes
	_____ No

Q-11. What is the last grade or year of school completed by yourself and the second householder? (Please check the appropriate blanks below.)

Respondent	Second Householder
☐ Never attended	☐ No second householder
☐ Some elementary school	☐ Never attended
☐ Completed elementary school	☐ Some elementary school
☐ Some high school	☐ Completed elementary school
☐ Completed high school	☐ Some high school
☐ Completed trade/	☐ Completed high school
vocational school	☐ Completed trade/
☐ Some college	vocational school
☐ Completed college	☐ Some college
☐ Some post-graduate	☐ Completed college
☐ Completed post-graduate	☐ Some post-graduate
	☐ Completed post-graduate

Q-12. Please circle the number which best describes the total combined income before taxes for your household for 1985. (Include money from social security, welfare, unemployment, bonds, dividends, lotteries, etc.)

1. Under \$8,000
2. \$8,000 to \$15,999
3. \$16,000 to \$24,999
4. \$25,000 to \$34,999
5. \$35,000 to \$59,999
6. \$60,000 and over
7. Do not know

Q-13. Please estimate what percent of your total combined income for 1985 was allocated to each of the categories listed below. (The estimates should sum to 100%.)

☐	Transportation (car/lease payments)
☐	Housing (mortgage, rent)
☐	Household Durables (furniture, stove, washers, etc.)
☐	Household Energy (electricity, automobile gas/oil)
☐	Food
☐	Clothing
☐	Recreation/Entertainment (fishing, bowling, movies, etc.)
☐	Medical
☐	Savings
☐	Other (Please specify _____)
☐	100%

Thank you very much for taking time to fill out this survey:

APPENDIX B

SURVEY FREQUENCIES

SAS

ROS86 STATISTICS: QUESTION #1

PLEASE CIRCLE THE NUMBER OF THE STATEMENT THAT BEST DESCRIBES
HOW YOU FEEL ABOUT THE ENERGY EFFICIENCY OF YOUR HOME?

	ROS86V1	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
ENERGY EFFICIENT	1	57	16.0	57	16.0
LITTLE IMPROVEMENT	2	156	43.8	213	59.8
MODERATE IMPROVEMENT	3	100	28.1	313	87.9
A LOT OF IMPROVEMENT	4	32	9.0	345	96.9
DO NOT KNOW	5	4	1.1	349	98.0
MISSING	9	7	2.0	356	100.0

ROS86 STATISTICS: QUESTION #2

WHAT TEMPERATURE DID YOU KEEP THE MAIN OCCUPIED SPACE OF YOUR
HOME WHEN PEOPLE WERE AT HOME AND AWAKE DURING THE LAST
HEATING SEASON?

	ROS86V2	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
TEMPERATURES					
	60	8	2.2	8	2.2
	62	8	2.2	16	4.5
	63	2	0.6	18	5.1
	65	27	7.6	45	12.6
	66	5	1.4	50	14.0
	67	8	2.2	58	16.3
	68	80	22.5	138	38.8
	69	14	3.9	152	42.7
	70	113	31.7	265	74.4
	71	8	2.2	273	76.7
	72	36	10.1	309	86.8
	73	8	2.2	317	89.0
	74	6	1.7	323	90.7
	75	20	5.6	343	96.3
	76	1	0.3	344	96.6
	78	3	0.8	347	97.5
	80	4	1.1	351	98.6
	99	5	1.4	356	100.0

SAS

ROS86 STATISTICS: QUESTION #3

ARE THERE ANY ROOMS IN YOUR HOME THAT ARE NOT HEATED DURING MOST MONTHS WHEN HEATING IS NECESSARY?

	ROS86V3	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
NO	0	150	42.1	150	42.1
YES	1	205	57.6	355	99.7
MISSING	2	1	0.3	356	100.0

ROS86 STATISTICS: QUESTION #3A

IF YES(TO QUESTION #3), PLEASE INDICATE HOW MANY BEDROOMS ARE NOT HEATED?

	ROS86V4	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
NOT APPLICABLE	-97	151	42.4	151	42.4
# OF ROOMS	0	40	11.2	191	53.7
"	1	53	14.9	244	68.5
"	2	69	19.4	313	87.9
"	3	10	2.8	323	90.7
"	4	2	0.6	325	91.3
NON-RESPONSE	9	31	8.7	356	100.0

ROS86 STATISTICS: QUESTION #3B

IF YES(TO QUESTION #3), PLEASE INDICATE HOW MANY BATHROOMS ARE NOT HEATED?

	ROS86V5	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
NOT APPLICABLE	-97	151	42.4	151	42.4
# OF ROOMS	0	132	37.1	283	79.5
"	1	47	13.2	330	92.7
"	2	10	2.8	340	95.5
NON-RESPONSE	9	16	4.5	356	100.0

ROS86 STATISTICS: QUESTION #3C

IF YES(TO QUESTION #3), PLEASE INDICATE HOW MANY DENS, STUDYS, LIBRARYS OR SEWING ROOMS ARE NOT HEATED?

	ROS86V6	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
NOT APPLICABLE	-97	151	42.4	151	42.4
# OF ROOMS	0	175	49.2	326	91.6
"	1	17	4.8	343	96.3
NON-RESPONSE	9	13	3.7	356	100.0

SAS

ROS86 STATISTICS: QUESTION #3D

IF YES(TO QUESTION #3), PLEASE INDICATE HOW MANY DINING ROOMS
ARE NOT HEATED?

	ROS86V7	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
NOT APPLICABLE	-97	151	42.4	151	42.4
# OF ROOMS	0	195	54.0	346	97.2
"	1	4	1.1	350	98.3
NON-RESPONSE	9	6	1.7	356	100.0

ROS86 STATISTICS: QUESTION #3E

IF YES(TO QUESTION #3), PLEASE INDICATE HOW MANY FAMILY OR RECREATION
ROOMS ARE NOT HEATED?

	ROS86V8	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
NOT APPLICABLE	-97	151	42.4	151	42.4
# OF ROOMS	0	128	32.8	339	95.2
"	1	12	3.4	351	98.6
NON-RESPONSE	9	5	1.4	356	100.0

ROS86 STATISTICS: QUESTION #3F

IF YES(TO QUESTION #3), PLEASE INDICATE HOW MANY KITCHENS WITH
EATING AREAS ARE NOT HEATED?

	ROS86V9	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
NOT APPLICABLE	-97	151	42.4	151	42.4
# OF ROOMS	0	198	55.6	349	98.0
"	1	2	0.6	351	98.6
NON-RESPONSE	9	5	1.4	356	100.0

ROS86 STATISTICS: QUESTION #3G

IF YES(TO QUESTION #3), PLEASE INDICATE HOW MANY KITCHENS WITHOUT
EATING AREAS ARE NOT HEATED?

	ROS86V10	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
NOT APPLICABLE	-97	151	42.4	151	42.4
# OF ROOMS	0	197	55.3	348	97.8
"	1	3	0.8	351	98.6
NON-RESPONSE	9	5	1.4	356	100.0

SAS

ROS86 STATISTICS: QUESTION #3H

IF YES(TO QUESTION #3), PLEASE INDICATE HOW MANY LIVING ROOMS ARE NOT HEATED?

	ROS86V11	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
NOT APPLICABLE	-97	151	42.4	151	42.4
# OF ROOMS	0	197	55.3	348	97.8
"	1	4	1.1	352	98.9
NON-RESPONSE	9	4	1.1	356	100.0

ROS86 STATISTICS: QUESTION #3I

IF YES(TO QUESTION #3), PLEASE INDICATE HOW MANY OTHER SMALL ROOMS ARE NOT HEATED?

	ROS86V12	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
NOT APPLICABLE	-97	151	42.4	151	42.4
# OF ROOMS	0	152	42.7	303	85.1
"	1	27	7.6	330	92.7
"	2	7	2.0	337	94.7
"	3	1	0.3	338	94.9
NON-RESPONSE	9	18	5.1	356	100.0

ROS86 STATISTICS: QUESTION #3J

IF YES(TO QUESTION #3), PLEASE INDICATE HOW MANY OTHER LARGE ROOMS ARE NOT HEATED?

	ROS86V13	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
NOT APPLICABLE	-97	151	42.4	151	42.4
# OF ROOMS	0	174	48.9	325	91.3
"	1	14	3.9	339	95.2
"	2	1	0.3	340	95.5
NON-RESPONSE	9	16	4.5	356	100.0

SAS

ROS86 STATISTICS: QUESTION #4

IN ORDER TO HELP US BETTER UNDERSTAND HOW YOU USE ENERGY IN YOUR HOME, WOULD YOU PLEASE TELL US HOW MANY TIMES, SINCE MAY 1, 1985, THERE HAVE BEEN PERIODS OF AT LEAST ONE WEEK WHEN YOU DID NOT USE ANY OF YOUR APPLIANCES, HEATING OR COOLING EQUIPMENT, OR ANY OTHER LARGE EQUIPMENT, BECAUSE YOU WERE AWAY ON VACATION, ON BUSINESS, WERE HOSPITALIZED OR FOR SOME OTHER REASON?

	ROS86V14	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
NEVER AWAY	0	198	55.6	198	55.6
# OF TIMES AWAY	1	82	23.0	280	78.7
"	2	33	9.3	313	87.9
"	3	28	7.9	341	95.8
"	4	7	2.0	348	97.8
"	5	4	1.1	352	98.9
"	6	1	0.3	353	99.2
"	7	1	0.3	354	99.4
MISSING	99	2	0.6	356	100.0

ROS86 STATISTICS: QUESTION #5

ON THE AVERAGE, HOW MANY TIMES A DAY ARE PETS LET OUT OF THE HEATED PART OF YOUR HOME?

	ROS86V15	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
NO HOUSE PETS	1	148	41.6	148	41.6
ON DAILY BASIS	2	17	4.8	165	46.3
1-4 TIMES A DAY	3	100	28.1	265	74.4
5-10 TIMES A DAY	4	67	18.8	332	93.3
11 TIMES OR MORE	5	15	4.2	347	97.5
OUT THRU PET DOOR	6	6	1.7	353	99.2
MISSING	9	3	0.8	356	100.0

ROS86 STATISTICS: QUESTION #6A

IN THE WINTER, I FIND IT DIFFICULT TO BE COMFORTABLE WHEN THE TEMPERATURE IN MY HOME IS 68 F OR LESS.

	ROS86V16	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
STRONGLY AGREE	1	109	30.6	109	30.6
AGREE	2	79	22.2	188	52.8
NEUTRAL	3	69	19.4	257	72.2
DISAGREE	4	56	15.7	313	87.9
STRONGLY DISAGREE	5	41	11.5	354	99.4
MISSING	9	2	0.6	356	100.0

SAS

ROS86 STATISTICS: QUESTION #6B

REDUCING THE TEMPERATURE OF THE WATER HEATER FROM 140 F TO 120 F
SAVES ENOUGH ENERGY TO MAKE IT WORTH DOING.

	ROS86V17	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
STRONGLY AGREE	1	102	28.7	102	28.7
AGREE	2	86	24.2	188	52.8
NEUTRAL	3	57	27.2	285	80.1
DISAGREE	4	34	9.6	319	89.6
STRONGLY DISAGREE	5	28	7.9	347	97.5
MISSING	9	9	2.5	356	100.0

ROS86 STATISTICS: QUESTION #6C

THE MAIN REASON TO CONSERVE ENERGY IS TO SAVE MONEY.

	ROS86V18	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
STRONGLY AGREE	1	127	35.7	127	35.7
AGREE	2	73	20.5	200	56.2
NEUTRAL	3	90	27.8	299	84.0
DISAGREE	4	25	9.8	334	93.8
STRONGLY DISAGREE	5	19	5.3	353	99.2
MISSING	9	3	0.8	356	100.0

ROS86 STATISTICS: QUESTION #6D

DURING THE WINTER, WHEN NO ONE WILL BE HOME FOR 2 HOURS OR MORE,
TURNING THE TEMPERATURE DOWN IS WORTHWHILE.

	ROS86V19	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
STRONGLY AGREE	1	121	34.0	121	34.0
AGREE	2	68	19.1	189	53.1
NEUTRAL	3	59	16.6	248	69.7
DISAGREE	4	55	15.4	303	85.1
STRONGLY DISAGREE	5	47	13.2	350	98.3
MISSING	9	6	1.7	356	100.0

SAS

ROS86 STATISTICS: QUESTION #6E

IT'S HARD FOR ME TO GET AROUND TO MAKING MY HOME MORE ENERGY EFFICIENT.

	ROS86V20	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
STRONGLY AGREE	1	58	16.3	58	16.3
AGREE	2	63	17.7	121	34.0
NEUTRAL	3	97	27.2	218	61.2
DISAGREE	4	68	19.1	286	80.3
STRONGLY DISAGREE	5	58	16.3	344	96.6
MISSING	9	12	3.4	356	100.0

ROS86 STATISTICS: QUESTION #6F

PEOPLE HAVE A RIGHT TO USE AS MUCH ENERGY AS THEY WANT AND CAN PAY FOR.

	ROS86V21	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
STRONGLY AGREE	1	48	13.5	48	13.5
AGREE	2	36	10.1	84	23.6
NEUTRAL	3	72	20.2	156	43.8
DISAGREE	4	80	22.5	236	66.3
STRONGLY DISAGREE	5	116	32.6	352	98.9
MISSING	9	4	1.1	356	100.0

ROS86 STATISTICS: QUESTION #6G

THE PRICE I FIRST PAY FOR THE APPLIANCE IS MORE IMPORTANT TO ME THAN THE ENERGY SAVINGS.

	ROS86V22	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
STRONGLY AGREE	1	18	5.1	18	5.1
AGREE	2	58	16.3	76	21.3
NEUTRAL	3	85	23.9	161	45.2
DISAGREE	4	112	31.5	273	76.7
STRONGLY DISAGREE	5	81	22.8	354	99.4
MISSING	9	2	0.6	356	100.0

SAS

ROS86 STATISTICS: QUESTION #6F

TO CONSERVE ENOUGH ENERGY TO MAKE A DIFFERENCE IN MY BILLS I
WOULD HAVE TO CHANGE MY LIFESTYLE.

	ROS86V23	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
STRONGLY AGREE	1	58	16.3	58	16.3
AGREE	2	70	19.7	128	36.0
NEUTRAL	3	80	22.5	208	58.4
DISAGREE	4	88	24.7	296	83.1
STRONGLY DISAGREE	5	58	16.3	354	99.4
MISSING	9	2	0.6	356	100.0

ROS86 STATISTICS: QUESTION #7A

HOW MANY PEOPLE LIVE IN YOUR HOUSEHOLD, UNDER 6 YEARS OLD,
INCLUDING YOURSELF? (PLEASE COUNT ALL MEMEBERS WHO LIVED
IN YOUR HOUSEHOLD FOR AT LEAST 6 OF THE PAST 12 MONTHS
WHETHER OR NOT THEY ARE RELATED TO YOU.)

	ROS86V24	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
COUNT					
0		277	77.8	277	77.8
1		46	12.9	323	90.7
2		28	7.9	351	98.6
3		4	1.1	355	99.7
4		1	0.3	356	100.0

ROS86 STATISTICS: QUESTION #7B

HOW MANY PEOPLE LIVE IN YOUR HOUSEHOLD, 6 THRU 17 YEARS OLD,
INCLUDING YOURSELF? (PLEASE COUNT ALL MEMEBERS WHO LIVED
IN YOUR HOUSEHOLD FOR AT LEAST 6 OF THE PAST 12 MONTHS
WHETHER OR NOT THEY ARE RELATED TO YOU.)

	ROS86V25	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
COUNT					
0		239	67.1	239	67.1
1		45	12.6	284	79.8
2		44	12.4	328	92.1
3		19	5.3	347	97.5
4		6	1.7	353	99.2
5		2	0.6	355	99.7
7		1	0.3	356	100.0

SAS

ROS86 STATISTICS: QUESTION #7C

HOW MANY PEOPLE LIVE IN YOUR HOUSEHOLD, 18 THRU 65 YEARS OLD,
INCLUDING YOURSELF? (PLEASE COUNT ALL MEMBERS WHO LIVED
IN YOUR HOUSEHOLD FOR AT LEAST 6 OF THE PAST 12 MONTHS
WHETHER OR NOT THEY ARE RELATED TO YOU.)

ROS86V26	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT

COUNT				
0	49	13.8	49	13.8
1	31	8.7	80	22.5
2	223	62.6	303	85.1
3	43	12.1	346	97.2
4	10	2.8	356	100.0

ROS86 STATISTICS: QUESTION #7D

HOW MANY PEOPLE LIVE IN YOUR HOUSEHOLD, OVER 65 YEARS OLD,
INCLUDING YOURSELF? (PLEASE COUNT ALL MEMBERS WHO LIVED
IN YOUR HOUSEHOLD FOR AT LEAST 6 OF THE PAST 12 MONTHS
WHETHER OR NOT THEY ARE RELATED TO YOU.)

ROS86V27	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT

COUNT				
0	295	82.9	295	82.9
1	27	7.6	322	90.4
2	34	9.6	356	100.0

ROS86 STATISTICS: QUESTION #8A

WHAT IS YOUR AGE?

ROS86V28	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT

18 TO 25 YRS	2	0.6	2	0.6
26 TO 35 YRS	3	8.3	85	23.9
36 TO 45 YRS	4	9.3	178	50.0
46 TO 55 YRS	5	65	243	68.3
56 TO 65 YRS	6	50	293	82.3
66 YRS AND OLDER	7	60	353	99.2
MISSING	9	3	356	100.0

SAS

ROS86 STATISTICS: QUESTION #8B

WHAT IS THE AGE OF THE SECOND HOUSEHOLDER?

	ROS86V29	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
NO 2ND HOUSEHOLDER	0	33	9.3	33	9.3
UNDER 18 YRS	1	4	1.1	37	10.4
18 TO 25 YRS	2	14	3.9	51	14.3
26 TO 35 YRS	3	80	22.5	131	36.8
36 TO 45 YRS	4	90	25.3	221	62.1
46 TO 55 YRS	5	55	15.4	276	77.5
56 TO 65 YRS	6	38	10.7	314	88.2
66 YRS AND OLDER	7	34	9.6	348	97.8
MISSING	9	8	2.2	356	100.0

ROS86 STATISTICS: QUESTION #9A

WHAT IS YOUR SEX?

	ROS86V30	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
MALE	1	252	70.8	252	70.8
FEMALE	2	102	28.7	354	99.4
MISSING	9	2	0.6	356	100.0

ROS86 STATISTICS: QUESTION #9B

WHAT IS THE SEX OF THE SECOND HOUSEHOLDER?

	ROS86V31	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
NO 2ND HOUSEHOLDER	0	33	9.3	33	9.3
MALE	1	77	21.6	110	30.9
FEMALE	2	244	68.5	354	99.4
MISSING	9	2	0.6	356	100.0

ROS86 STATISTICS: QUESTION #10A

ARE YOU EMPLOYED FULL-TIME?

	ROS86V32	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
NO	0	130	36.5	130	36.5
YES	1	224	62.9	354	99.4
MISSING	9	2	0.6	356	100.0

SAS

ROS86 STATISTICS: QUESTION #10B

IS THE SECOND HOUSEHOLDER EMPLOYED FULL-TIME?

	ROS86V33	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
NO	0	175	49.2	175	49.2
YES	1	143	40.2	318	89.3
NO 2ND HOUSEHOLDER	2	33	9.3	351	98.6
MISSING	9	5	1.4	356	100.0

ROS86 STATISTICS: QUESTION #11A

WHAT IS THE LAST GRADE OR YEAR OF SCHOOL COMPLETED BY YOURSELF?

	ROS86V34	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
SOME ELEMENTARY	2	1	0.3	1	0.3
COMPLETED ELEMENTARY	3	12	3.4	13	3.7
SOME HIGH SCHOOL	4	15	4.2	28	7.9
COMPLETED HIGH SCHOOL	5	52	14.6	80	22.5
COMPLETED TRADE/VOCATIONAL	6	32	9.0	112	31.5
SOME COLLEGE	7	95	26.7	207	58.1
COMPLETED COLLEGE	8	66	18.5	273	76.7
SOME POST-GRADUATE	9	25	7.0	298	83.7
COMPLETED POST-GRADUATE	10	50	14.0	348	97.8
MISSING	99	8	2.2	356	100.0

ROS86 STATISTICS: QUESTION #11B

WHAT IS THE LAST GRADE OR YEAR OF SCHOOL COMPLETED BY THE SECOND HOUSEHOLDER?

	ROS86V35	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
NO 2ND HOUSEHOLDER	0	32	9.0	32	9.0
SOME ELEMENTARY	2	1	0.3	33	9.3
COMPLETED ELEMENTARY	3	6	1.7	39	11.0
SOME HIGH SCHOOL	4	14	3.9	53	14.9
COMPLETED HIGH SCHOOL	5	92	25.8	145	40.7
COMPLETED TRADE/VOCATIONAL	6	32	9.0	177	49.7
SOME COLLEGE	7	85	23.9	262	73.6
COMPLETED COLLEGE	8	45	12.6	307	86.2
SOME POST-GRADUATE	9	18	5.1	325	91.3
COMPLETED POST-GRADUATE	10	21	5.9	346	97.2
MISSING	99	10	2.8	356	100.0

SAS

ROS86 STATISTICS: QUESTION #12

PLEASE CIRCLE THE NUMBER WHICH BEST DESCRIBES THE TOTAL COMBINED
INCOME BEFORE TAXES FOR YOUR HOUSEHOLD FOR 1985. (INCLUDE
MONEY FROM SOCIAL SECURITY, WELFARE, UNEMPLOYMENT, BONDS,
DIVIDENDS, LOTTERIES, ETC.)

	ROS86V36	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
UNDER \$8,000	1	13	3.7	13	3.7
\$8,000 TO \$15,999	2	38	10.7	51	14.3
\$16,000 TO \$24,999	3	61	17.1	112	31.5
\$25,000 TO \$34,999	4	83	23.3	195	54.8
\$35,000 TO \$59,999	5	102	28.7	297	83.4
\$60,000 AND OVER	6	30	8.4	327	91.9
DO NOT KNOW	8	7	2.0	334	93.8
MISSING	9	22	6.2	356	100.0

SAS

ROS86 STATISTICS: QUESTION #13A

PLEASE ESTIMATE WHAT PERCENT OF YOUR TOTAL COMBINED INCOME FOR
1985 WAS ALLOCATED TO TRANSPORTATION (CAR/LEASE PAYMENTS).

ROS86V37	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT

PERCENT				
0	73	20.5	73	20.5
1	1	0.3	74	20.8
2	5	1.4	79	22.2
2.5	1	0.3	80	22.5
3	7	2.0	87	24.4
3.5	1	0.3	88	24.7
4	5	1.4	93	26.1
5	40	11.2	133	37.4
5.2	1	0.3	134	37.6
6	6	1.7	140	39.3
7	5	1.4	145	40.7
8	5	1.4	150	42.1
8.5	1	0.3	151	42.4
9	2	0.6	153	43.0
9.4	1	0.3	154	43.3
9.5	1	0.3	155	43.5
10	50	14.0	205	57.6
10.7	1	0.3	206	57.9
11	2	0.6	208	58.4
11.4	1	0.3	209	58.7
12	4	1.1	213	59.8
13	2	0.6	215	60.4
14	3	0.8	218	61.2
15	14	3.9	232	65.2
16	1	0.3	233	65.4
17	1	0.3	234	65.7
18	3	0.8	237	66.6
20	18	5.1	255	71.6
21	2	0.6	257	72.2
23	1	0.3	258	72.5
25	6	1.7	264	74.2
30	2	0.6	266	74.7
40	1	0.3	267	75.0
998	24	6.7	291	81.7
999	65	18.3	356	100.0

SAS

ROS86 STATISTICS: QUESTION #13B

PLEASE ESTIMATE WHAT PERCENT OF YOUR TOTAL COMBINED INCOME FOR
1985 WAS ALLOCATED TO HOUSING (MORTGAGE, RENT).

ROS86V38	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT

PERCENT				
0	35	9.8	35	9.8
2	1	0.3	36	10.1
2.5	1	0.3	37	10.4
3	1	0.3	38	10.7
5	4	1.1	42	11.8
6	3	0.8	45	12.6
7	2	0.6	47	13.2
8	4	1.1	51	14.3
10	19	5.3	70	19.7
11	3	0.8	73	20.5
12	5	1.4	78	21.9
13	1	0.3	79	22.2
14	1	0.3	80	22.5
15	20	5.6	100	28.1
16	3	0.8	103	28.9
17	3	0.8	106	29.8
18	8	2.2	114	32.0
19	2	0.6	116	32.6
20	29	8.1	145	40.7
21	4	1.1	149	41.9
22	1	0.3	150	42.1
23	1	0.3	151	42.4
23.1	1	0.3	152	42.7
23.6	1	0.3	153	43.0
24	3	0.8	156	43.8
25	31	8.7	187	52.5
26.5	1	0.3	188	52.8
27	2	0.6	190	53.4
27.5	1	0.3	191	53.7
28	2	0.6	193	54.2
30	27	7.6	220	61.8
31	1	0.3	221	62.1
32	1	0.3	222	62.4
33	11	3.1	233	65.4
35	11	3.1	244	68.5
38	1	0.3	245	68.8
38.3	1	0.3	246	69.1
40	11	3.1	257	72.2
45	2	0.6	259	72.8
48	1	0.3	260	73.0
50	5	1.4	265	74.4
60	1	0.3	266	74.7
75	1	0.3	267	75.0
998	24	6.7	291	81.7
999	65	18.3	356	100.0

SAS

ROS86 STATISTICS: QUESTION #13C

PLEASE ESTIMATE WHAT PERCENT OF YOUR TOTAL COMBINED INCOME FOR
1985 WAS ALLOCATED TO HOUSEHOLD DURABLES (FURNITURE, STOVE,
WASHERS, ETC.).

ROS86V39	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT

PERCENT				
0	85	23.9	85	23.9
0.4	1	0.3	86	24.2
1	18	5.1	104	29.2
1.6	1	0.3	105	29.5
1.8	1	0.3	106	29.8
2	28	7.9	134	37.6
2.7	1	0.3	135	37.9
3	14	3.9	149	41.9
4	5	1.4	154	43.3
4.6	1	0.3	155	43.5
4.8	1	0.3	156	43.8
5	46	12.9	202	56.7
5.1	1	0.3	203	57.0
6	7	2.0	210	59.0
7	4	1.1	214	60.1
8	4	1.1	218	61.2
9	1	0.3	219	61.5
10	36	10.1	255	71.6
12	2	0.6	257	72.2
13	1	0.3	258	72.5
14	1	0.3	259	72.8
15	5	1.4	264	74.2
18	1	0.3	265	74.4
20	2	0.6	267	75.0
998	24	6.7	291	81.7
999	65	18.3	356	100.0

SAS

ROS86 STATISTICS: QUESTION #13D

PLEASE ESTIMATE WHAT PERCENT OF YOUR TOTAL COMBINED INCOME FOR
1985 WAS ALLOCATED TO HOUSEHOLD ENERGY (ELECTRICITY,
AUTOMOBILE GAS/OIL).

ROS86V40	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT

PERCENT				
0	6	1.7	6	1.7
1	1	0.3	7	2.0
2	4	1.1	11	3.1
2.5	2	0.6	13	3.7
2.8	1	0.3	14	3.9
3	6	1.7	20	5.6
4	9	2.5	29	8.1
5	31	8.7	60	16.9
5.2	1	0.3	61	17.1
5.9	1	0.3	62	17.4
6	10	2.8	72	20.2
6.1	1	0.3	73	20.5
6.4	1	0.3	74	20.8
6.6	1	0.3	75	21.1
7	6	1.7	81	22.8
7.7	1	0.3	82	23.0
8	10	2.8	92	25.8
9	10	2.8	102	28.7
9.5	2	0.6	104	29.2
9.6	1	0.3	105	29.5
10	61	17.1	166	46.6
10.9	1	0.3	167	46.9
11	1	0.3	168	47.2
12	8	2.2	176	49.4
13	3	0.8	179	50.3
14	2	0.6	181	50.8
15	30	8.4	211	59.3
15.5	1	0.3	212	59.6
16	1	0.3	213	59.8
17	1	0.3	214	60.1
20	30	8.4	244	68.5
22	1	0.3	245	68.8
23	1	0.3	246	69.1
25	8	2.2	254	71.3
30	6	1.7	260	73.0
33	1	0.3	261	73.3
35	1	0.3	262	73.6
38	1	0.3	263	73.9
40	3	0.8	266	74.7
50	1	0.3	267	75.0
998	24	6.7	291	81.7
999	65	18.3	356	100.0

SAS

ROS86 STATISTICS: QUESTION #13E

PLEASE ESTIMATE WHAT PERCENT OF YOUR TOTAL COMBINED INCOME FOR
1985 WAS ALLOCATED TO FOOD.

ROS86V41	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
PERCENT				
0	1	0.3	1	0.3
2	2	0.6	3	0.8
3	2	0.6	5	1.4
5	8	2.2	13	3.7
6	5	1.4	18	5.1
6.2	1	0.3	19	5.3
7	5	1.4	24	6.7
8	7	2.0	31	8.7
9	3	0.8	34	9.6
10	53	14.9	87	24.4
10.6	1	0.3	88	24.7
11	5	1.4	93	26.1
11.3	1	0.3	94	26.4
12	6	1.7	100	28.1
12.7	1	0.3	101	28.4
13	3	0.8	104	29.2
13.2	1	0.3	105	29.5
14	3	0.8	108	30.3
14.7	1	0.3	109	30.6
15	34	9.6	143	40.2
16	2	0.6	145	40.7
17.5	1	0.3	146	41.0
17.8	1	0.3	147	41.3
18	3	0.8	150	42.1
19	1	0.3	151	42.4
20	51	14.3	202	56.7
21	2	0.6	204	57.3
22	3	0.8	207	58.1
23	2	0.6	209	58.7
24	1	0.3	210	59.0
25	18	5.1	228	64.0
26	1	0.3	229	64.3
29.9	1	0.3	230	64.6
30	13	3.7	243	68.3
32	1	0.3	244	68.5
33	2	0.6	246	69.1
35	2	0.6	248	69.7
37.6	1	0.3	249	69.9
40	13	3.7	262	73.6
45	1	0.3	263	73.9
50	3	0.8	266	74.7
60	1	0.3	267	75.0
998	24	6.7	291	81.7
999	65	18.3	356	100.0

SAS

ROSS6 STATISTICS: QUESTION #13E

PLEASE ESTIMATE WHAT PERCENT OF YOUR TOTAL COMBINED INCOME FOR
1985 WAS ALLOCATED TO CLOTHING.

ROSS6V42	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT

PERCENT				
0	13	3.7	13	3.7
0.5	1	0.3	14	3.9
0.9	1	0.3	15	4.2
1	6	1.7	21	5.9
1.5	1	0.3	22	6.2
1.9	1	0.3	23	6.5
2	32	9.0	55	15.4
2.4	1	0.3	56	15.7
2.5	2	0.6	58	16.3
2.9	1	0.3	59	16.6
3	10	2.8	69	19.4
3.4	1	0.3	70	19.7
4	14	3.9	84	23.6
4.8	1	0.3	85	23.9
4.9	1	0.3	86	24.2
5	73	20.5	159	44.7
6	8	2.2	167	46.9
7	7	2.0	174	48.9
7.5	1	0.3	175	49.2
8	8	2.2	183	51.4
10	63	17.7	246	69.1
11	2	0.6	248	69.7
14	1	0.3	249	69.9
15	11	3.1	260	73.0
17	1	0.3	261	73.3
20	5	1.4	266	74.7
22	1	0.3	267	75.0
998	24	6.7	291	81.7
999	65	18.3	356	100.0

SAS

ROS86 STATISTICS: QUESTION #13F

PLEASE ESTIMATE WHAT PERCENT OF YOUR TOTAL COMBINED INCOME FOR
1985 WAS ALLOCATED TO RECREATION/ENTERTAINMENT (FISHING,
BOWLING, MOVIES, ECT.).

ROS86V43	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
PERCENT				
0	20	5.6	20	5.6
0.8	1	0.3	21	5.9
1	7	2.0	28	7.9
1.5	2	0.6	30	8.4
1.9	1	0.3	31	8.7
2	26	7.3	57	16.0
2.5	1	0.3	58	16.3
3	11	3.1	69	19.4
4	5	1.4	74	20.8
4.8	1	0.3	75	21.1
5	68	19.1	143	40.2
6	7	2.0	150	42.1
7	5	1.4	155	43.5
8	7	2.0	162	45.5
9	4	1.1	166	46.6
9.5	1	0.3	167	46.9
10	62	17.4	229	64.3
10.5	1	0.3	230	64.6
11	1	0.3	231	64.9
12	7	2.0	238	66.9
13	1	0.3	239	67.1
15	14	3.9	253	71.1
18	1	0.3	254	71.3
20	10	2.8	264	74.2
21	1	0.3	265	74.4
23	1	0.3	266	74.7
32	1	0.3	267	75.0
998	24	6.7	291	81.7
999	65	18.3	356	100.0

SAS

ROS86 STATISTICS: QUESTION #13G

PLEASE ESTIMATE WHAT PERCENT OF YOUR TOTAL COMBINED INCOME FOR
1985 WAS ALLOCATED TO MEDICAL.

ROS86V44	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
PERCENT				
0	41	11.5	41	11.5
0.1	1	0.3	42	11.8
1	20	5.6	62	17.4
2	19	5.3	81	22.8
2.2	1	0.3	82	23.0
2.5	1	0.3	83	23.3
3	18	5.1	101	28.4
3.1	1	0.3	102	28.7
3.5	1	0.3	103	28.9
4	7	2.0	110	30.9
4.2	1	0.3	111	31.2
4.5	1	0.3	112	31.5
4.6	1	0.3	113	31.7
5	62	17.4	175	49.2
6	7	2.0	182	51.1
7	3	0.8	185	52.0
7.3	1	0.3	186	52.2
8	9	2.5	195	54.8
8.5	2	0.6	197	55.3
9	2	0.6	199	55.9
10	45	12.6	244	68.5
11	1	0.3	245	68.8
12.5	1	0.3	246	69.1
15	8	2.2	254	71.3
18	1	0.3	255	71.6
20	6	1.7	261	73.3
23.0	1	0.3	262	73.6
25	4	1.1	266	74.7
32	1	0.3	267	75.0
996	24	6.7	291	81.7
999	65	18.3	356	100.0

SAS

ROS86 STATISTICS: QUESTION #13H

PLEASE ESTIMATE WHAT PERCENT OF YOUR TOTAL COMBINED INCOME FOR
1985 WAS ALLOCATED TO SAVINGS.

ROS86V45	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
PERCENT				
0	64	18.0	64	18.0
0.2	1	0.3	65	18.3
1	10	2.8	75	21.1
2	7	2.0	82	23.0
2.8	1	0.3	83	23.3
3	9	2.5	92	25.8
4	6	1.7	98	27.5
4.3	1	0.3	99	27.8
4.5	1	0.3	100	28.1
5	34	9.6	134	37.6
6	3	0.8	137	38.5
7	3	0.8	140	39.3
8	4	1.1	144	40.4
8.8	1	0.3	145	40.7
9	2	0.6	147	41.3
10	45	12.6	192	53.9
11	2	0.6	194	54.5
11.7	1	0.3	195	54.8
12	5	1.4	200	56.2
13	2	0.6	202	56.7
14	1	0.3	203	57.0
15	11	3.1	214	60.1
16	3	0.8	217	61.0
18	1	0.3	218	61.2
19	2	0.6	220	61.8
20	13	3.7	233	65.4
21	1	0.3	234	65.7
21.4	1	0.3	235	66.0
22	1	0.3	236	66.3
22.2	2	0.6	238	66.9
23.5	1	0.3	239	67.1
24	1	0.3	240	67.4
25	10	2.8	250	70.2
28	1	0.3	251	70.5
30	8	2.2	259	72.8
35	2	0.6	261	73.3
37	1	0.3	262	73.6
40	2	0.6	264	74.2
41	1	0.3	265	74.4
42	1	0.3	266	74.7
55	1	0.3	267	75.0
998	24	6.7	291	81.7
999	65	18.3	356	100.0

SAS

ROS86 STATISTICS: QUESTION #131

PLEASE ESTIMATE WHAT PERCENT OF YOUR TOTAL COMBINED INCOME FOR
1985 WAS ALLOCATED TO OTHER.

ROS86V46	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
PERCENT				
0	127	35.7	127	35.7
1	1	0.3	128	36.0
2	1	0.3	129	36.2
3	1	0.3	130	36.5
4	3	0.8	133	37.4
5	12	3.4	145	40.7
6	1	0.3	146	41.0
7	1	0.3	147	41.3
8	5	1.4	152	42.7
9	3	0.8	155	43.5
10	16	4.5	171	48.0
11	1	0.3	172	48.3
12	5	1.4	177	49.7
12.5	1	0.3	178	50.0
13	1	0.3	179	50.3
14	1	0.3	180	50.6
15	11	3.1	191	53.7
16	1	0.3	192	53.9
17.5	1	0.3	193	54.2
18	3	0.8	196	55.1
19	1	0.3	197	55.3
19.4	1	0.3	198	55.6
20	17	4.8	215	60.4
21	2	0.6	217	61.0
21.6	1	0.3	218	61.2
22	1	0.3	219	61.5
23	4	1.1	223	62.6
24	3	0.8	226	63.5
25	3	0.8	229	64.3
26	3	0.8	232	65.2
27	2	0.6	234	65.7
27.1	1	0.3	235	66.0
28	3	0.8	238	66.9
30	8	2.2	246	69.1
31	1	0.3	247	69.4
32	2	0.6	249	69.9
32.5	1	0.3	250	70.2
32.7	1	0.3	251	70.5
33	1	0.3	252	70.8
35	1	0.3	253	71.1
36.4	1	0.3	254	71.3
37	1	0.3	255	71.6
38	1	0.3	256	71.9
40.2	1	0.3	257	72.2
42	2	0.6	259	72.8
45	1	0.3	260	73.0
46	1	0.3	261	73.3
48	1	0.3	262	73.6
49	1	0.3	263	73.9
50	1	0.3	264	74.2

000

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18.3

356

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