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Effects of Increased Fuel Costs on Households in a Low Income Neighborhood in Portland, Oregon

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EFFECTS OF INCREASED FUEL COSTS ON HOUSEHOLDS
IN A LOW INCOME NEIGHBORHOOD
IN PORTLAND, OREGON

by
ORA ALLEN
and
BETTY HEALD

A research paper submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SOCIAL WORK

A handwritten signature in black ink, appearing to read "Approved" followed by a name that is difficult to decipher, possibly "Hilde".

Portland State University
1976

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CHAPTER I

INTRODUCTION

The national energy crisis of the winter of 1974 signaled prospects of severe adjustments in the availability and costs of fuel. Petroleum products became in short supply, and their costs rose sharply to consumers. In Portland, Oregon, natural gas as a household fuel was not so immediately affected, though Northwest Natural Gas Company, Portland's chief supplier, made modest increases in their rates effective January 1, 1974, and again April 1, 1974. A new and more significant increase was authorized by the Oregon Public Utilities Commissioner as effective November 24, 1974. Instead of reducing the cost per therm¹ as the use increased, as on past schedules, the new schedule raised the cost per therm with increased use. These rises in cost in both gas and oil as household fuels also affected the production costs of electricity, and all have begun a spiral that will continue to accelerate sharply as energy sources become more scarce.

¹One therm is the equivalent of 100,000 British Thermal Units, a unit of heat equal to 252 calories, or the quantity of heat required to raise one pound of water from 62° F. to 63° F.

This study is made up of two parts which explore some of the effects upon individual households making up a sample of a low income neighborhood in Portland. The first section in Chapter II presents a survey of sample households in our identified area, securing personal information given by adult members along with their responses to questions concerning effects on their budgets and the adaptations they have made to reduce the cost of fuel.

The second section compares costs of fuel for January, February, and March of 1975 with the same months of 1974 for another sample in the same area. Amount of fuel was tabulated along with costs, and percentage increases or decreases were charted. The fortunate coincidence of the same three-month average temperature in downtown Portland for both years gave an especially good comparison. The monthly use of gas could be more accurately measured than the use of oil. None of our interviewed sample were found to use electricity as a primary source of heat.

Since the energy crisis is only recently a widely recognized phenomenon, we found little bibliographic support and relied chiefly on current newspaper articles and bulletins, with interviews with members of our sample households, and selected interviews with other consumers and some suppliers.

POPULATION

The area limits of both groups in this study are in an identified low income neighborhood within the perimeter of Portland's Model Cities project generally known as Albina. Using U.S. Census² figures for 1970, the census tracts with their income statistics were as follows:

TABLE I
INCOME LEVELS IN ALBINA POPULATION AREA,
PORTLAND, OREGON, 1970

Tract	Median Income	Mean Income	% of Families Below Poverty Level
34.01	\$6,103	\$7,239	25.5
34.02	6,451	6,849	30.8
33.02	6,259	6,930	22.3
33.01	6,683	8,613	17.8
Portions of:			
35.01	2,976	4,191	44.8
35.02	7,125	7,352	40.2

Boundaries of the area are Fremont Street (3500 block) on the south, Killingsworth Street (5500 block) on the north, the Minnesota Freeway on the west, and Northeast 15th Avenue on the east.

²Bureau of the U.S. Census, Census Tracts: Portland, Ore.-Wash. Standard Metropolitan Statistical Area: 1970.

SAMPLING METHOD

We had hoped to draw our interviewing sample from gas users in the billing sample provided by Northwest Natural Gas Company. After considerable discussion with representatives of the Company, we found them wishing to be cooperative, but concerned about their position in respect to the confidentiality of their customers' records. The Company officials finally agreed to draw us a listing of billings for the two quarters requested from meter runs within the area to be surveyed. They were willing to do their own hand-comparison of those who had resided at the same address during the two quarters requested, and to furnish us with print-outs of the billings showing therms used and bill amounts by month. All identifying names and addresses were removed to guard the privacy of their users. We were assured that the 142 customer records met all of our criteria for area and time of residence.

Since we were not able to draw our interview sample from this Gas Company listing, we drew an independent sample for our interviews from the same geographical area. We used Polk's 1974 Portland City Directory, compiled in 1973, which would be most likely to give us names of residents at the addresses of our random sample for the time covered by our survey. Determining that the census tracts being

covered gave the total of housing units in the area as 5,333, we set a goal for a sample of near 100. We came up with eighty-five addresses. In the process we eliminated hotels, businesses, lodges, clubs, schools, dormitories, social agencies, and apartments that did not have individual addresses. We wanted residents who paid their own heating bills rather than having cost of fuel included in rent charges.

Our final list resembled the billing list from the Gas Company in area of residence, and both samples were biased in having more stable householders, i.e., those who had lived at the same address and had been responsible for their own fuel bills for both the first quarter of 1974 and that of 1975.

Upon approaching the eighty-five households for interviews, we eliminated forty-one of them for these reasons:

Short-term occupancy (moved in after January 1974)	17
House vacant (five condemned)	14
House torn down	2
Resident did not pay for fuel	2
Unable to complete interview	3
Refused	<u>3</u>
Total not completed	41

Among the forty-four left in our sample we received a high level of cooperation and interest. Generally the respondents were positive, thoughtful, and apparently open in

their answers. We had most reason to question their responses as to income, but knowledge of standard welfare and Social Security payments gave us a double check. All answers appeared plausible within the monthly and yearly ranges we used with the exception of two which were omitted from measurements in which income was a variable. In these instances there was a total number of forty-two cases rather than forty-four.

Interviewing of the forty-four households was done in August 1975 with the final call-backs completed during the first week in September. Working as a pair, one did all interviewing while the other did all recording in order to elicit as uniform responses as possible. A standard form and order of questions (Appendix C) and a summary card with brief forms for recording (Appendix B) were used.

The general hypothesis which we wished to test was that both samples would indicate significant strains in meeting the costs of fuel in 1975 over 1974. In our survey we approached this attitudinally; in our use and cost comparison we sought measurable support. We also wished to test further that the higher the income, the more adaptations would be in the nature of more costly home improvement; conversely, the lower the income, the more the adaptations would be informal, personal, and low in cost. We also tested that those owning or buying homes would make more

costly adaptations in the nature of home improvement, that more black families than white families would receive incomes below the median, and that families with children would have more difficulty with budget and prompt payment.

With the November 1974 increase in the cost of gas, it was predicted by the supplier that this would signal a 12 per cent to 17 per cent increase. We wished to compare the use in the 142-household sample for the two quarters, expecting to find that, in view of the difficulties in heating old, high-ceilinged homes, those who might least be able to afford the increases would be in the upper levels of percentage increases.

A Salvation Army official who assisted in distributing emergency fuel in February 1974 to those in substandard housing who were completely without fuel said,

Remember that we're talking about the homes of the poor, those homes with high ceilings, without proper insulation, with no storm windows and no weather stripping and heavy drafts . . . (winter requests for fuel in those houses) wouldn't be extraordinary at 300 gallons a month.

During this period of petroleum shortage the local Fuel Clearing Bureau, an emergency coalition administered by the Salvation Army, gave out emergency amounts of \$40.00 per family, or 100 gallons of fuel oil. From the same source as above,

We're using Food Stamp guidelines as our income standard. A single person can't have an income of more than \$194 a month and still get help, for instance. So, if they have to pay rent and eat and then face a big bill for fuel, you know what has to give - the fuel. They go without.

Both winters of 1974 and 1975 were moderate as measured by U.S. Weather Bureau standards.³ Averages for the three-month period in downtown Portland were the same for both winters and just 1.3° below the Bureau's average for a previous thirty-year period.

TABLE II
AVERAGE FIRST QUARTER TEMPERATURES
SELECTED YEARS, DOWNTOWN PORTLAND

	January	February	March	Three-Month Average
1974	37.9°	43.0°	47.1°	42.6°
1975	41.5°	41.2°	45.0°	42.6°
1921-50	39.5°	43.8°	48.4°	43.9°

In addition to our personal interviews with householders, we informally interviewed two fuel suppliers who sell to customers in our area.

Company "A" is a Black-owned business with a large percentage of low to middle income customers. This company has operated in the area since the early 1940's and has

³U.S. Weather Bureau, Climatology of the United States, Oregon, No. 60-35.

built up a business by credit billing, accepting personal checks, and otherwise extending extra services to delinquent customers who may have extenuating circumstances but find it difficult to pay on time. The company representative stated that over the two winters of our sample period his customers have seen a 6.5 per cent increase in the cost of oil, and although there was an attempt on the company's part to keep increases at a minimum, it was necessary to share it with the customers. He thought continued increases could be assumed.

Most of Company "A's" fixed-income customers use their service on call and order 100 gallons of oil at a time. Their delivery hours are from 7:00 a.m. to 6:00 p.m., with a half day on Saturdays. The representative stated that although drivers do not work on Sundays or holidays, they have been known to make late deliveries for the convenience of regular customers who may have emergencies.

Company "B" is a city-wide company with a branch in the area. The representative reported that most of their customers utilize their automatic-fill service. The customer is billed monthly and payments are on a revolving account system. Their nonregular and new, nonestablished customers must pay on delivery. Drivers will not accept personal checks without prior approval of the manager. The

company had no direct figures available, but we were told that their prices were competitive and in line with those of other companies.

Our summary will bring together both attitudinal and statistical data and project implications for social planners and direct service workers.

CHAPTER II

STUDY OF SAMPLES

I. CHARACTERISTICS OF INTERVIEWED SAMPLE

Our initial assumption was that households having children, young people, or elderly might be less able to make fuel-saving adaptations than other households of those with fewer or less specialized needs. We were interested also in the significance of income, ownership, and race. Finally, we wanted the householders' responses on budget strain and personal adaptation.

Household Composition

Age of Members. Our first question grouped household members into preschool, school age, adults in the wide range from legal majority to approximate retirement age, and those whose living habits might have changed owing to retirement. This might have been measured more precisely by considering employment, state of health, or other indicators of activity inside or outside the home. Age still appeared to give one measure.

TABLE III
AGE OF MEMBERS, INTERVIEWED HOUSEHOLDS

0 - 5 years	5	11.36%
6 - 18 years	15	34.09%
19 - 64 years	29	65.91%
65+	20	45.45%

The largest group were adults in the group covering the widest range of years, as might be expected. There were comparatively few households with children. Nearly half of the total number of persons were age sixty-five and older. Among the total number were a noticeable number suffering disabilities. Several of those we interviewed admitted to being over eighty though only two over sixty-five were ill. It was our observation that these were already making maximum adjustments for saving on fuel.

Number of Household Members. We expected that the size of the household might relate to the income, whether influencing subsidy income or multiple sources.

TABLE IV
NUMBER OF MEMBERS, INTERVIEWED HOUSEHOLDS

One person	13	29.55%
Two persons	10	22.73%
Three persons	7	15.91%
Four persons	5	11.36%
Five persons	6	13.64%
Six persons	1	2.27%
Seven persons	2	4.55%
Totals	44	100.01%

The largest percentage, 30 per cent, of households were made up of single persons. The largest number in living groups were in two homes with seven persons each. Five homes had preschool children, fifteen had children from six to eighteen years, and twenty had adults sixty-five years and older.

Household Income. Reported household income from all sources ranged from three households under \$1,500 to one family in the \$19,500-\$20,999 group (one of our households with seven members). We used steps of \$1,500 and found the mean income to be \$6,214 and the median within the group from \$4,500-\$5,999, setting it at \$4,812.50. These can be compared to the 1970 Bureau of Census figures for the census tracts involved:

TABLE V
1975 REPORTED INCOME OF SAMPLE
COMPARED WITH
1970 CENSUS

Average median income for Census Tracts 33.01, 33.02, 34.01, 34.02, 35.01, 35.02, 1970	\$5,932.00
Reported median income of sample, 1975	4,812.50
Average mean income for above Census Tracts, 1970	6,862.00
Mean income of sample	6,214.00

While in our survey we depended on the interviewees' self-report of their estimated income, most seemed definite in knowing how much they received per month, especially those in the lower ranges. These comparisons would indicate that those of our sample rank well below the 1970 median and mean incomes when the percentage of families below poverty level ranged from 17.8 per cent to 44.8 per cent in those areas. U.S. Bureau of Census⁴ gives the poverty level of a nonfarm family of four as \$5,038 in 1974.

⁴U.S. Bureau of Census Current Population Reports, Census Income Series P-60.

Since we did not ask questions about employment, we had no way of knowing if this was a factor in the relatively lower median and mean incomes.

TABLE VI
REPORTED FAMILY INCOME LEVELS,
INTERVIEWED HOUSEHOLDS

\$0 - \$1,499	3	7.14%
\$1,500 - \$2,999	2	4.76%
\$3,000 - \$4,499	11	26.19%
\$4,500 - \$5,999	8	19.04%
\$6,000 - \$7,499	9	21.42%
\$7,500 - \$8,999	2	4.76%
\$9,000 - \$10,499	2	4.76%
\$10,500 - \$11,999	2	4.76%
\$12,000 - \$13,499	0	0%
\$13,500 - \$14,999	1	2.38%
\$15,000 - \$16,499	0	0%
\$16,500 - \$17,999	1	2.38%
\$18,000 - \$19,499	0	0%
\$19,500 - \$20,999	1	2.38%
Totals	42	99.97%
Median income:	\$4,812.50	
Mean income:	\$6,214.00	

According to our survey, the median income was \$1,119.50 below the 1970 level, and the mean income was \$648 less.

Home Ownership. Only 25 per cent of our sample were renting their homes; the remainder were in the process of buying, and over a third of them had homes already paid for.

Since our sample excluded apartments with a group address, we arrived at a sample made up of more than 90 per cent single-family dwellings.

TABLE VII
HOME OWNERSHIP, INTERVIEWED
HOUSEHOLDS

Renting	11	25.00%
Buying	16	36.36%
Own (paid for)	<u>17</u>	<u>38.66%</u>
Totals	44	100.02%

TABLE VIII
TYPE OF RESIDENCE, INTERVIEWED
HOUSEHOLDS

Single family	41	93.18%
Duplex	3	6.82%
Apartment	<u>0</u>	<u>0%</u>
Totals	44	100.00%

TABLE IX
AGE OF HOUSE, INTERVIEWED
HOUSEHOLDS

0 - 9 years	0	0%
10 - 19 years	0	0%
20 - 29 years	1	2.27%
30 - 39 years	2	4.55%
40 - 49 years	3	6.82%
50+ years	<u>38</u>	<u>86.36%</u>
Totals	44	100.00%

It was apparent by the style and condition of the houses that we were working in one of Portland's older neighborhoods. We came upon such historical evidence as hitching rings in the curbing and old street designations. Over 85 per cent of the owners reported their homes to be over fifty years old, and none of them were known to be below the twenty to twenty-nine year level. Many of the homes had undergone extensive remodeling, some during the period of Model Cities low-cost loans. Many showed enterprise in repairs and painting that made them more livable and attractive. Most of the more recently-built housing in the area was multi-unit apartments.

Sources of Heat

We wished to determine the principal source of heat for this sample of households to determine how close the

relationship of this sample might be to our all-gas sample in the study of comparative costs for the two winters of 1974 and 1975.

TABLE X
MAJOR SOURCE OF HEATING FUEL,
INTERVIEWED HOUSEHOLDS

Electricity	0	0%
Natural gas	12	27.27%
Oil	<u>32</u>	<u>72.73%</u>
Totals	44	100.00%

A little over a quarter of our sample households used natural gas as their primary heat source. The remainder used oil. None used electricity as a chief heating source, though some used electric heaters or their electric ovens as a supplementary or even sole emergency source. This use would add to the escalating cost of fuel, as electricity had also begun a series of sharp rises in cost.

Effects on Household Budget

Less than a quarter of the families interviewed said that they had noticed no appreciable effects on their budgets from the increased cost of fuel by our measures. The remainder reported some degree of difficulty, and eight said that they had been without heat at some time during the past

winter of 1975. One woman with children reported that she was still paying off in August her last winter's gas bill so that she could have it turned on again in the fall. Since we found that Northwest Natural Gas gave personal service by way of extending payments and delaying turn-off for some time, we were aware of just how severe this woman's difficulty might be.

To the question, "How has the increased cost of fuel affected your household budget?" we scaled the responses with the following answers:

TABLE XI
EFFECTS ON BUDGETS, INTERVIEWED
HOUSEHOLDS

None	10	22.73%
Strain, but no sacrifice of essentials	8	18.18%
Juggle bills, pay late	18	40.90%
Without heat at some time	<u>8</u>	<u>18.18%</u>
Totals	44	99.99%

Other responses included "I use food money," and "When the heat was turned off, the kids also had bad colds."

Adaptations

To our question, "What have you done to cut down or save fuel?" no one answered "nothing." We classified responses by personal, informal, or comparatively inexpensive measures on the one hand and household improvements that required considerable expense on the other. Those measures that we considered in the first category, that is, the more personal measures or less costly adaptations, we designated minor, marked minus (-); the more costly home improvements we designated major, marked plus (+) in Table XII.

We had planned to lump floor insulation with carpeting as a costly adaptation. We found that none of our respondents used floor insulation (one mentioned closing off the foundation space), while some of the long-time residents had had carpeting for many years. Some of the added carpets, as recent warming measures, were used or makeshift and could not be considered a costly adaptation in response to a need for saving fuel, thus we scored this measure as a personal one, or minus in our designation.

The use of auxiliary electric heat we considered an unplanned or expedient adaptation and scored it as personal, although it could add considerable cost.

TABLE XII
 FUEL-SAVING ADAPTATIONS,
 INTERVIEWED HOUSEHOLDS

None	0	0%
-Turned down heat	33	75.00%
-Covered windows with plastic or other outside cover	18	40.91%
-Closed shades	27	61.36%
-Closed off rooms	30	68.18%
+Insulated walls or ceilings	9	20.45%
-Insulated floor, carpet	11	25.00%
-Added clothes	24	54.55%
-Spent more time in bed	14	31.81%
Other (listed below)	21	47.73%
+Installed storm windows	7	15.91%
-Wrapped furnace pipes	3	6.82%
-Uses oven	3	6.82%
+Installed new furnace	2	4.55%
-Uses electric heater	2	4.55%

(Note: Each of the remaining adaptations were mentioned only once but are listed, with the values we assigned, to illustrate the resourcefulness of those we interviewed.)

- +Lowered ceilings
- +Converted oil to gas two years ago in hope of saving on fuel (not sure now it will be a saving)
- Pays even rate year-round so as not to get caught with winter shortage
- Warms basement to keep floors warm, turns off heat upstairs
- Child sleeps with mother
- Puts rags or rugs around door cracks
- Molding placed around doors, self-applied
- +Added circulating unit and doors to fireplace (in one of the two most affluent households)
- Turns off furnace in summer

TABLE XII--Continued

-
-
- Uses less hot water
 - Spends more time in kitchen (warmer where cooking is being done)
 - Closes off fireplace
 - Drinks coffee to warm up
 - Stays in bed with electric blanket when chilled (elderly lady)
 - Puts masking tape over cracks around windows
 - +Installed storm doors
 - Uses old wood circulating heater in basement; heats with available waste wood, keeps up-stairs floor warm and saves on furnace fuel
 - Closes off foundation space in winter
-
-

Added personal information included offers of tips on budget-stretching that we could pass on to others. Several asked if they could help us further and wished to be informed of the results of the survey. Some told us that they received assistance on costly adaptations or major purchases from friends and relatives. There was evidence of informal networks of family, friends, clubs, or churches that helped some of these people to adapt as well as they have.

We were impressed by some of those in our over-sixty-five group. Most live alone, and only two were physically ill. One gentleman was suffering from the recent death of his wife and was in the process of preparing himself, financially and emotionally, for selling his home. Another

was managing to stay in his home with the help of friends after an injury sustained on the job he still held after retirement age.

One of the most resourceful of the elderly was a lady, eighty-three years old, of Finnish descent, living alone on a meager Social Security income. She had recently lost her husband, but was keeping a vegetable and flower garden and had recently painted "all of her house and garage that she could reach." She proudly showed us through her well-kept home, where she sewed on an ancient treadle sewing machine. She showed us the appliances her niece and nephew had given her, took us through her immaculate basement to show us her wrapped furnace pipes, and gave us choice roses when we left. She does not use food stamps and feels that the inconvenience of obtaining them would outweigh the advantages. This lady was an immigrant; people of her age have survived two world wars and a major depression, and they have done so with some style when they have their health, their home, and sufficient income. With her present minimal income we can foresee nothing but a sacrifice of essential needs. She could be helped to obtain food stamps, but those in her income bracket will need help with fuel also at the present rate of increasing costs.

Relationship of Variables

Our expectations with reference to factors influencing the kinds and degrees of adaptations were put in the form of hypotheses and tested by chi-squares at the .05 level of significance. The null hypothesis was accepted in all cases. Not one of the hypothetical relationships was found to be tenable.

The hypotheses and certain variables on which they were tested are as follows:

1. The lower the income, the more personal the means of adaptation.

Factors that may have influenced this result could be seen in the high rate of ownership: old homes were paid for, taxes in the neighborhood are low, and living costs could be put into improvements. Several of the major improvements to homes had been done under Model Cities low-cost loans, and some had been accomplished just before recent retirements while the household income was higher. These improvements were made in anticipation of the need to keep costs down and increase comfort with the onset of lowered retirement income.

2. The lower the income, the slower the payment.
3. Homeowners make more costly adaptations.
4. More black families than white families are below the median income.

5. Households with preschool children (0 - 5 years) are slower in making payment.
6. Households with family members under 18 years are slower in making payment.
7. Black families are slower in making payment for fuel than white families.

Since the null hypothesis was accepted in all cases, conclusions were that income, ownership, race, and age are not critical factors in the kinds of adaptation and the difficulty in paying higher fuel bills in this population. The responses show widespread efforts to save fuel and adapt to rising fuel costs. With 18 per cent of the households reporting some strain in meeting fuel costs, 41 per cent already juggling bills and paying late, and 18 per cent reporting that they were without heat part of the time, one can speculate that new increases will have increasingly severe effects.

II. SAMPLE COMPARING COST AND THERMAL ADJUSTMENTS

We were provided with billing data from monthly statements giving number of therms of fuel used and costs for 142 gas users in the same geographical area as that of our survey sample in Section I. Northwest Natural Gas Company supplied print-outs to cover as nearly as possible the months of January, February, and March for both 1974 and 1975 at each address. These were like our survey sample in

that they had lived at the same address for both quarters. The three months' costs and therms were averaged for each year for each of the 142 cases.

Using the 1974 averages as 100 per cent, the percentages of increase and decrease were computed for both therms and cost, ranging as below:

TABLE XIII
CHANGE IN FUEL USE IN THERMS,
1975 COMPARED WITH 1974

% Increase	Number Of Users	% Decrease	Number Of Users
0 - 4	12	0 - 4	24
5 - 9	7	5 - 9	26
10 - 14	6	10 - 14	29
15 - 19	2	15 - 19	13
20 - 24	1	20 - 24	7
25 - 29	2	25 - 29	8
30 - 34	1	30 - 34	2
		35 - 39	2
Totals	31		111

TABLE XIV
 CHANGE IN FUEL COST, 1975
 COMPARED WITH 1974

% Increase	Number Of Users	% Decrease	Number Of Users
0 - 4	9	0 - 4	8
5 - 9	17	5 - 9	6
10 - 14	22	10 - 14	1
15 - 19	28	15 - 19	1
20 - 24	21	20 - 24	2
25 - 29	11		
30 - 34	8		
35 - 39	2		
40 - 44	2		
45 - 49	1		
50 - 54	2		
55 - 59	1		
Totals	124		18

Since the average temperature for the three-month period for the two years, 1974 and 1975, was nearly identical, or 42.6° in downtown Portland, the comparison indicates that gas users in this population made substantial efforts to reduce their use of fuel, an average of a 7 per cent decrease for the 111 of the sample who used less in 1975 than in 1974. At the same time, 124 of the sample paid an average of 16 per cent more for fuel, supporting our general hypothesis that those in a low income neighborhood would have more difficulty in adjusting to the higher cost of fuel.

Estimates for gas users in the 1974 increase period was a 12 per cent - 17 per cent rise in cost.

The scatter diagram, Figure 1, page 29, portrays the distribution of percentage increases and decreases graphically. The X axis represents the 1974 fuel use in therms; the Y axis shows the 1974 costs. The distribution of cases indicates that 22 per cent increased both therms and costs, 13 per cent decreased both therms and costs, and 65 per cent were concentrated in the area of decreased therms and increased costs.

A careful study of Figure 1 might raise a question in such an instance as the two cases in which therms were decreased 20 - 25 per cent and costs increased, and in the five cases with similar therm decrease in which costs decreased. Bills were actually nearly identical for the two years in these cases. Since we did not place any cases on the zero line, a few cents difference accounted for placing them above and below the line.

A sample of the actual billing differences was made, averaging thirty of the 142 cases. Therm and cost variations ranged from a three-month increase of 105.8 therms with a corresponding increase of \$40.09 in cost, to a decrease of 429.2 therms with still an increase of \$7.11 in cost. Average therm decrease of this sample was 12 per cent while costs increased an average of 12 per cent.

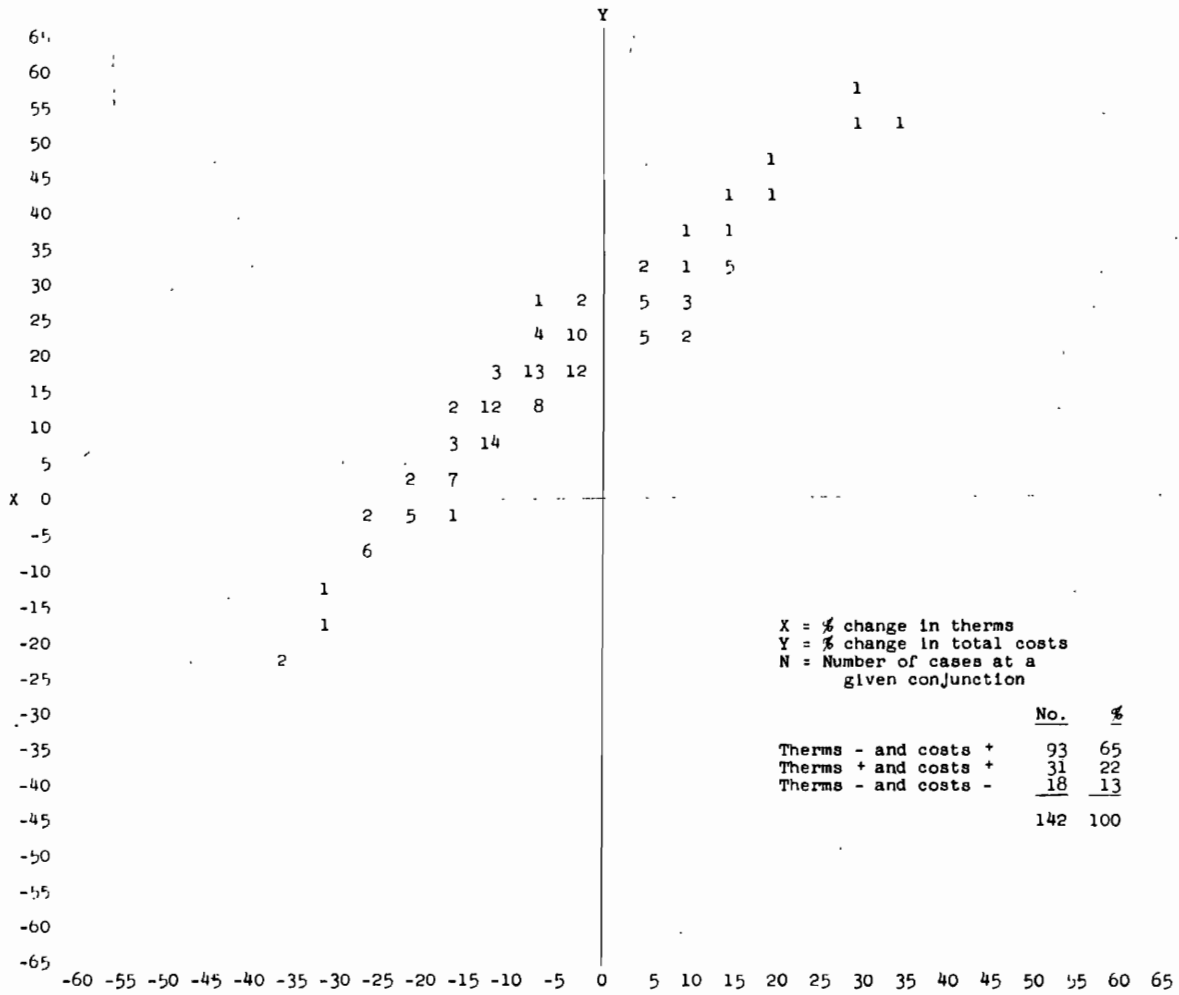


Figure 1. Percentage changes in costs and therms in 1975 compared with 1974, first quarters.

CHAPTER III

SUMMARY AND CONCLUSIONS

Without exception the people in this study had taken measures to reduce their fuel consumption for heating purposes. Some of the measures were positive, but many were at the expense of comfort. A wide variety of adaptive measures are known to the people. Their employment depends upon a number of interrelated factors.

Little is to be gained by public exhortation to cut down on fuel or by campaigns to instruct these people how to do so. A sizable proportion of the sample had already taken measures beyond that which has been traditionally acceptable. Three-fourths were living at a lower level of comfort. Much more than half were sacrificing essentials, juggling bills, paying late or actually going without any heat some of the time.

The survey was taken after relatively mild winters and near the beginning of rises in fuel prices. We can only project a more dismal picture for average or more severe winters, multiplied by the anticipated rises in the cost of fuel and other costs.

For homebound persons especially--the retired, the sick, invalids, elderly, and young children--the picture portends not only discomfort and sacrifice, but misery.

It is not the function of this report to suggest either remedies or preventive measures. Some partial efforts at alleviation have been instituted and others discussed, but few in our sample had been reached and fewer still, effectively.

Judging from our samples, reliance on additional money payments for fuel alone would not be sufficient, and would be complex to administer because of varying sources of income. Reductions in fuel charges for low income persons would help, but would be insufficient. Programs for repair and insulation, especially for the chronically ill and aged homeowners, would help that class. This is already being tried on a small scale, but does not reach many of those represented by our samples. Such a program must be much more direct, immediate and extensive than any now contemplated. Because of the relationship of fuel to other expenditures, considerable emergency service is needed on top of all other measures.

Widespread publicity and a case-finding program are called for in our population, which tends to be self-reliant on the one hand but with limited income and knowledge or acceptance of helping programs.

Accustomed as we are in this climate to year-round provisions for body comfort, we must not lose sight of the deprivation, curtailment of activities, and actual misery a considerable number of people will undergo unless strong action is taken.

Social work has generally considered itself largely successful in alleviating the extremes of physical discomfort. We must reconsider, not only locally, but nationally.

APPENDIX A

ADVANCE LETTER

1122 NE Killingsworth
Portland, Oregon

Dear Sir or Madam:

We are conducting a university research project to study the effects of the increased cost of fuel to individual users in your neighborhood. We will be interviewing in your area within the next month and would like to ask your help in our study. We hope you will consent to being interviewed when we stop at your home.

The results of our questionnaire will be tabulated without using your name, address, or any other identification. We hope the results of our study will be useful in focusing on the effects and adjustments of householders to greater fuel costs.

If you are busy when we stop by, we hope we can arrange a more convenient time.

Sincerely yours,

(Mrs.) Ora Allen

(Mrs.) Betty Heald

APPENDIX B

SURVEY SUMMARY CARD

Case No. _____ Contacts: (1) (2) (3) (4) Refused ()

I. No. in home

0-5	(1)	<u>Adaptation</u>	(37)
6-17	(2)	Nothing	(38)
18-64	(3)	Turned down	
65+	(4)	Covered	(39)
Total	(5)	windows	(40)
		Closed shades	(41)
		Closed rooms	

VI.

Insulated	(23)
walls,	(24)
ceiling	(25)
Insulated	(26)
floors,	(27)
carpeting	(28)
Added clothes	(29)
bed	(30)
Other (add)	(31)

II. Income

0-\$1,499	(6)	<u>Fuel for heating</u>	
\$1,500-\$2,999	(7)	Gas	(29)
\$3,000-\$4,499	(8)	Oil	(30)
\$4,500-\$5,999	(9)	Electricity	(31)
\$6,000-\$7,499	(10)		
\$7,500-\$8,999	(11)		
\$9,000-\$10,499	(12)	<u>Effects on budget</u>	(32)
\$10,500-\$11,999	(13)	None	
\$12,000-\$13,499	(14)	Strain, no sacrifice	(33)
\$13,500-\$14,999	(15)	Juggle, pay late	(34)
\$15,000-\$16,499	(16)	Without some	(35)
		Other (add)	(36)

III. Housing

Rent	(17)
Buying	(18)
Home paid for	(19)
Note:	
Apartment	(20)
Duplex	(21)
Single family	(22)

APPENDIX C

QUESTIONNAIRE

(Substance of introduction to survey on effects of increased fuel costs on sample population, Albina)

I am Mrs. Allen and this is Mrs. Heald. We are graduate students from Portland State University, and we are working on a survey regarding the effects of the last year's increased cost of fuel in this area. Your home was selected by random sample. Did you receive the letter we mailed you a few days ago?

We would like to assure you that if we interview you, neither your name nor address will be used. May we talk with you?

(Questions)

I. Household composition:

How many people live in your home?

Preschool	0 - 5	_____	(1)
School age	6 - 17	_____	(2)
Adult	18 - 64	_____	(3)
Senior	65+	_____	(4)
Total		_____	(5)

(Be sure interviewee is included.)

II. Income

In what range is your total yearly income? Include incomes of all family members, estimated as closely as possible. (Reassurance of confidentiality. Supplement with monthly rates to help them figure.)

0 - \$1,499	_____	(6)
\$1,500 - \$2,999	_____	(7)
\$3,000 - \$4,499	_____	(8)
\$4,500 - \$5,999	_____	(9)
\$6,000 - \$7,499	_____	(10)
\$7,500 - \$8,999	_____	(11)
\$9,000 - \$10,499	_____	(12)
\$10,500 - \$11,999	_____	(13)
\$12,000 - \$13,499	_____	(14)
\$13,500 - \$14,999	_____	(15)
\$15,000 - \$16,499	_____	(16)

III. Housing:

Do you rent?	Yes.	_____	(17)
Are you buying?	Yes.	_____	(18)
Do you own your home? (paid for)	Yes.	_____	(19)

Note:

Apartment	_____	(20)
Duplex	_____	(21)
Single-family dwelling	_____	(22)

Age of house:

How old is this house? (Estimate)

0 - 9	_____	(23)
10 - 19	_____	(24)
20 - 29	_____	(25)
30 - 39	_____	(26)
40 - 49	_____	(27)
50+	_____	(28)

IV. Heating

What kind of fuel do you use for heating?

Gas	_____	{29}
Oil	_____	{30}
Electricity	_____	{31}

V. Effects of increased fuel costs on budget (attitudes):

How has the increased cost of fuel affected your household budget?

None	_____	{32}
Strain, but no sacrifice of essentials	_____	{33}
Must juggle bills or pay late	_____	{34}
Without heat on occasion	_____	{35}
Other problems (note)	_____	{36}

VI. Adaptation

What have you done to cut down or save fuel?

Nothing	_____	{37}
Turned down thermostat	_____	{38}
Covered windows with plastic	_____	{39}
Kept drapes or shades closed	_____	{40}
Closed off part of house	_____	{41}
Insulated walls or ceiling	_____	{42}
Insulated floors or added carpet	_____	{43}
Wore more clothes	_____	{44}
Spent more time in bed	_____	{45}
Other (note)	_____	{46}

Close:

We hope to put together some information that might be helpful to you and others with similar problems. We appreciate your cooperation. Thank you.